

THE NGC GROUP OF COMPANIES CORPORATE QUARTERLY JOURNAL

# GASCO news

Vol 32. No.3 October 2022



**TOGETHER  
WE  
ACHIEVE**



## PRESIDENT'S MESSAGE

Together we achieve

| 01

## ON THE GREEN AGENDA

### 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 II  
Communications and Brand

### CONTRIBUTORS

Nadine Ramharack  
Mario Singh  
Richard Jobity

### 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](mailto:info@ngc.co.tt)  
Website: [www.ngc.co.tt](http://www.ngc.co.tt)

©2022 Material in this publication,  
with the exception of photography,  
may be reproduced once credit is  
given to **GASCO NEWS**.

The tragedy of waste – how food  
not eaten is hurting our planet

| 02

Cultivating food and nutrition  
resilience through community  
gardens

| 09

Is your Bitcoin affecting the  
planet? The carbon conversation  
around cryptocurrency

| 13

Harnessing the power of microgrids

| 19

NGC Sustainability Report 2021 –  
Highlight Reel

| 23

NGC and OCM collaborate on  
'New Energy Conversations'

| 31



## PRESIDENT'S MESSAGE

# Together we achieve

This August, Trinidad and Tobago celebrated 60 years as an independent nation. For six decades, our citizens have worked arm-in-arm to realise a shared postcolonial vision for prosperity and development. While our path has not been without challenges, our people have always rallied to steer us through turbulence and toward excellence. True to our national motto, when we aspired together, we achieved together.

Today, we are being challenged as a population to rally around a cause beyond nation-building. In our quest for global development, humanity has pushed our planet to its limits. Climate change is threatening lives, livelihoods and habitats, driving catastrophic weather events and dangerous ecosystem changes. The root cause of this phenomenon is carbon emitted into our atmosphere from various sources, many of which are man-made.

Despite having low absolute carbon emissions, Trinidad and Tobago is among the highest emitters of carbon on a per capita basis. As a population, we have collectively contributed to the global emissions problem, and we must now collectively work to make things right.

The National Gas Company of Trinidad and Tobago Limited (NGC) considers public education an axis of our Green Agenda - our portfolio of initiatives aimed at reducing our national carbon footprint. We believe that connecting people with information, ideas and solutions is key to accelerating climate action, and indeed, achieving all our sustainability targets. If we wish to achieve, however, we must work together, and we must all have the proper tools.

For this reason, in this issue of GASCO News, we have chosen to highlight opportunities for citizens to get involved in the climate fight



- measures that we can all take individually that will have a collective impact in terms of bringing emissions down and building a more sustainable future for our country and planet.

Food waste is one of the biggest problems facing society today, but it is an area where citizens from all walks of life can take immediate, simple and effective steps that will reduce greenhouse gas emissions. We highlight the roots and repercussions of this problem and offer suggestions as to how the average citizen can help resolve it. Building our food security by bringing our food sources closer to home can also help support environmental and economic sustainability. In this regard, we explore how community gardens can be employed to achieve that goal.

Beyond their food choices, citizens can contribute indirectly to the carbon problem by using products with carbon-intensive value chains. Cryptocurrency production, for example, can consume considerable amounts of energy. Fortunately, steps are being taken to clean up the mining process and integrate more

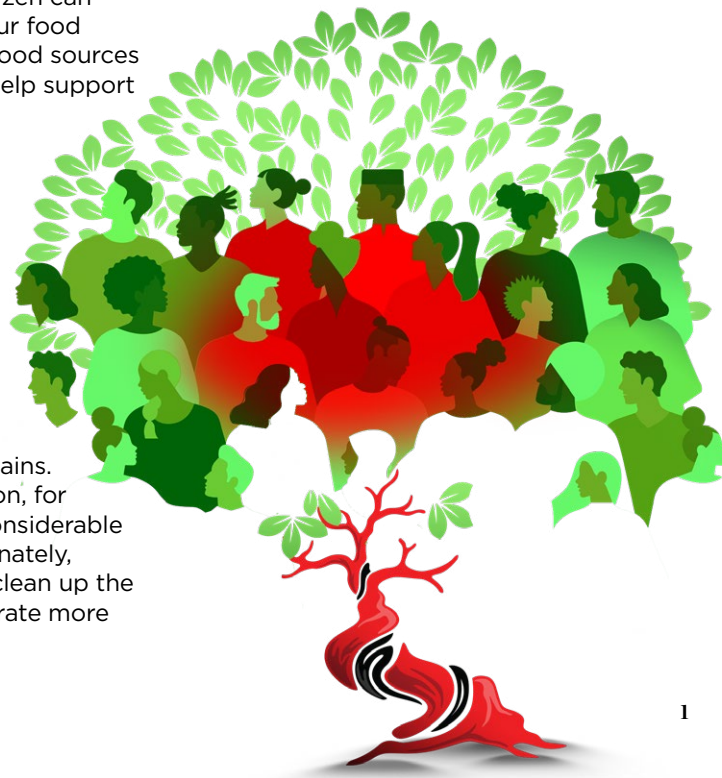
renewables, but it is still important that users learn about the current footprint of these digital assets so they can take appropriate interim actions to offset their share of emissions.

Of course, NGC as a corporate citizen must also play a part. We have been working assiduously to bring emissions down in our business and across the sector and to track our performance against key sustainability metrics. Our results for the past year have been published in our fifth annual Sustainability Report, and we share some of the highlights with readers here.

It is our hope that this issue of GASCO News will shed some light and inspire action. If we all act together, with singular purpose and unwavering commitment, without doubt, we will prevail.



**Mark Loquan**  
President





# THE TRAGEDY OF WASTE - HOW FOOD NOT EATEN IS HURTING OUR PLANET

ESTIMATED READ TIME: 10 MINUTES

1,822	12,349,000
3,680	238,681,000
1,062	85,678,000
485	8,369,000
8,569	189,301,000
6,602	102,698,000
890	24,697,000
6,280	76,002,000
2,436	57,610,000





ON THE  
GREEN  
AGENDA



## KEY TAKEAWAYS

*Around 1/3 of all food produced globally is lost or wasted, while over 10% of the world's population goes hungry*

*Reasons for waste include inefficient agricultural practices, market pressures and consumer dumping*

*Food waste contributes to food insecurity, trillions of dollars in economic losses and global carbon emissions that rank third behind the carbon emissions output of the US and China*

*With more than half of all waste happening at the retail and consumer levels, simple adjustments to purchasing and consumption practices can make a big difference*

Once upon a time, uncooperative children at the dining table would be shamed into finishing their meals with a simple reprimand – clear your plate because there are children in the world who have nothing to eat. Underneath the irony of leveraging global hunger to encourage eating, these mealtime lectures taught us that it was unconscionable to throw food away when others were going hungry.

Somewhere along the way, due to a confluence of economic, technological and cultural factors, food waste stopped striking a moral nerve. Today, with hardly a regret, we discard half-eaten meals from restaurants, we dump perfectly safe foods that are just past their 'sell-by' dates, we leave produce to rot in our refrigerators (only to purchase the same neglected items again the next



week). This waste extends further up the value chain - around the world, millions of dollars' worth of food items are lost daily before they even make it to market.

The reasons for this loss and waste are manifold, as are its impacts. Where the average person might have framed food waste as a moral issue in the past, it has today become a more complex problem, with economic, environmental and developmental implications that we cannot afford to ignore.

The United Nations Environmental Programme (UNEP) Food Waste Index Report 2021<sup>1</sup> lists Trinidad and Tobago as one of the most wasteful countries in Latin America and the Caribbean when it comes to food. UNEP estimates that Trinbagonian households dump a staggering 103,127 tonnes of food each year. Tackling food waste is therefore a pillar of the partnership that NGC forged with Nutrien in June 2022, which is aimed at boosting local food and nutrition security.

### A CLOSER LOOK AT THE PROBLEM

Food waste refers broadly to food that is produced for human consumption but is not eaten. Depending on the stage at which food is removed from the value chain, it can be categorised as 'lost' or 'wasted'. UNEP explains the distinction as follows:

**FOOD LOSS** refers to food that gets spilled, spoilt or otherwise lost, or incurs reduction of quality and value during its process in the food supply chain before it reaches its final product stage. Food loss typically takes place at production, post-harvest, processing, and distribution stages in the food supply chain.

**FOOD WASTE** refers to food that completes the food supply chain up to a final product, of good quality and fit for consumption, but still doesn't get consumed because it is discarded, whether or not after it is left to spoil or expire. Food waste typically (but not exclusively) takes place at retail and consumption stages in the food supply chain.<sup>2</sup>

<sup>1</sup> <https://www.unep.org/resources/report/unep-food-waste-index-report-2021>

<sup>2</sup> <https://www.unep.org/thinkeatsave/about/definition-food-loss-and-waste>

# FOOD WASTE

## IN NUMBERS

Around **1/3**  
of all food produced globally

**1.3Bn**  
tonnes

is lost or wasted every year<sup>3</sup>



Globally, around **14%**  
of food produced is **lost** between harvest and retail



An estimated **17%** of total global food production is **wasted**

**11%** household  
**5%** food services  
**2%** retail<sup>4</sup>

FOOD THAT IS NEVER EATEN ACCOUNTS FOR  
**25%**  
of all freshwater consumption globally.



### THE CARIBBEAN AND LATIN AMERICA WASTE

**78Mn**  
tonnes of food annually

**6%**  
of global food production



Trinidad and Tobago is the most wasteful country in the region<sup>5</sup>

### FRUITS AND VEGETABLES CONSTITUTE MORE THAN

**40%** of the food waste in the region and according to a 2015 FAO report, the volume of fruit wasted in Latin America and the Caribbean is the **4th** highest of all commodities wasted globally<sup>6</sup>



The FAO estimates that if food waste from all sources in T&T can be eliminated, the roughly



**7.5%**

of the national population that is undernourished could be **fed**<sup>7</sup>

According to the FAO, cassava experiences **losses** of up to



**20%** in T&T (worth US\$500,000).<sup>8</sup>

**Losses** of mangoes can reach



**17%**



For tomatoes, the figure is

**27%**

LATIN AMERICA AND THE CARIBBEAN HAVE A FOOD WASTE CARBON FOOTPRINT OF

**540kg** **4th**  
highest carbon footprint associated with food waste in the world, and the highest in the developing world.<sup>9</sup>

of CO<sub>2</sub> per capita



<sup>3</sup> <https://www.unep.org/news-and-stories/story/how-feed-10-billion-people#:~:text=There%20is%20enough%20food%20for%20everyone.&text=Rather%2C%20it%20is%20a%20problem,is%20used%20for%20livestock%20grazing.>

<sup>4</sup> <https://www.un.org/en/observances/end-food-waste-day>

<sup>5</sup> <https://borgenproject.org/hunger-in-trinidad-and-tobago/#:~:text=Lystra%20Fletcher%2DPaul%20reported%20that,wasteful%20country%20in%20the%20region>

<sup>6</sup> <https://www.forbes.com/sites/daphneewingchow/2019/03/29/foodwaste/?sh=77a03f9072e6>

<sup>7</sup> <https://borgenproject.org/hunger-in-trinidad-and-tobago/#:~:text=Lystra%20Fletcher%2DPaul%20reported%20that,wasteful%20country%20in%20the%20region.>

<sup>8</sup> <https://www.forbes.com/sites/daphneewingchow/2019/03/29/foodwaste/?sh=77a03f9072e6>

<sup>9</sup> Ibid





## WHY ARE WE WASTING SO MUCH?

*There are many reasons why so much edible food does not get consumed, and they vary from country to country.*

Looking first at food loss, agricultural practices bear some of the blame. Inefficient mechanical harvesting can leave crops unpicked, or damage produce and make them unfit for sale. To protect against possible crop failure or losses, some farmers may plant more than they can sell, which leads to dumping if the anticipated production losses do not occur. During transportation, storage, processing and packaging, more food is lost due to improper handling and poorly regulated environments which accelerate spoilage.

*Market pressures are another major contributing factor.*

The 'paradox of plenty' in agriculture is that excess production falls prices. If market prices are lower than harvest and transportation costs, farmers often choose to leave crops in the field. Depressed demand prompts similar action. A poignant illustration – during the COVID-19 pandemic, US farmers dumped thousands of gallons of fresh milk, ploughed acres of ripe vegetables back into the soil and destroyed hundreds of thousands of unhatched eggs, due to the sharp decline in retail demand with the closure of food businesses.<sup>10</sup> In some countries, the problem is exacerbated by state interventions - ill-conceived



agricultural subsidies, for example, can encourage overproduction.

*No matter the country, at the end of the value chain, consumers contribute to both food loss and waste.*

Consumers' preference for unblemished produce leads producers to discard perfectly edible food crops on the basis of cosmetic imperfections. Then, of course, there is the waste that occurs when food is ultimately purchased. Whether raw or cooked, mountains of food are dumped into landfills because people purchased more than they could or wanted to consume. Excessive portion sizes, incentivised overeating through buffets and restaurant 'supersizing', poor understanding of 'sell-by' dates versus 'expiry'

“  
UNEP estimates that Trinbagonian households dump a staggering **103,127 tonnes** of food yearly.

dates, and even the psychological devaluation of food that goes into the fridge (relative to 'fresh' food), all encourage consumer wastage.

## THE IMPACT OF WASTE

This waste exacts a high cost. For most, the social impact comes first to mind. Despite Malthusian fears that the world will soon be unable to feed its growing population, entities such as UNEP insist that we are producing more than enough food to meet global demand.<sup>11</sup> The problem is distribution.

*We are wasting more than a third of the food we produce, while over 10% of the world's population goes hungry.<sup>12</sup>*

<sup>10</sup> <https://www.nytimes.com/2020/04/11/business/coronavirus-destroying-food.html>

<sup>11</sup> <https://www.unep.org/news-and-stories/story/how-feed-10-billion-people>

<sup>12</sup> <https://www.who.int/news-room/detail/15-07-2019-world-hunger-is-still-not-going-down-after-three-years-and-obesity-is-still-growing-un-report>

The tragedy of waste – how food not eaten is hurting our planet | CONTINUED

// The economic impact of food waste is equally shocking. The UN Food and Agriculture Organisation (FAO) estimates that impact to be around **US\$1 trillion** each year.



*In Trinidad and Tobago, a survey conducted by the World Food Programme in 2021 found that nearly **25%** of respondents were forced to cut food consumption due to financial pressures during the pandemic, with **4%** going without food for an entire day in the week prior to the survey.<sup>13</sup>*

This alarming rate of food insecurity is replicated across the world, and casts food waste as a moral crime against humanity.

The economic impact of food waste is equally shocking. The UN Food and Agriculture Organisation (FAO) estimates that impact to be around US\$1 trillion each year.<sup>14</sup> Factor in externalities associated with lost resources, environmental degradation and imbalanced access to nutrition – among others – and that cost multiplies to US\$2.6 trillion.<sup>15</sup>

Looking at available data for Trinidad and Tobago, the millions lost to food waste from crops such as cassava and tomatoes represent missed financial opportunities for hundreds of food industry stakeholders. Lost

sales income and inputs such as fertilisers and pesticides, and the opportunity costs of time spent planting and harvesting, add to the list of challenges farmers face. As we look to diversify our economy and reduce our food import bill through agriculture, these are losses we cannot afford to continue enduring.

A third and increasingly important dimension of impact is environmental. Rotting food in landfills emits methane – an extremely potent greenhouse gas which is accelerating climate change. Its contribution to global emissions is so high, in fact, that the FAO has stated: "If food waste was a country, it would be the third largest carbon emitter, after the United States and China."<sup>16</sup>

*Viewed from another angle, food waste accounts for 38% of total energy usage in the global food system.<sup>17</sup> This means that emissions associated with two-fifths of the energy used in our food value chain currently have no productive trade-off – we are generating those emissions in vain.*

## HOW CAN I HELP?

The UN has brought this issue to the fore through elaboration of a special target under Sustainable Development Goal 12 (Responsible Consumption and Production) which speaks directly to food waste. Target 12.3 aims to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030.

Concerted efforts along the value chain are needed to achieve this target, including more efficient food production systems, state-supported market mechanisms that discourage waste, and effective apparatus for connecting excess food supply with demand.

However, if more than half of all food waste happens at the retail and consumer levels, then we as individuals must bear much of the burden of change. Simple actions can make a world of difference.

<sup>13</sup> <https://docs.wfp.org/api/documents/WFP-0000129030/download/>

<sup>14</sup> <https://www.fao.org/nr/sustainability/food-loss-and-waste/en/>

<sup>15</sup> Ibid

<sup>16</sup> <https://www.fao.org/3/i3347e/i3347e.pdf>

<sup>17</sup> <https://www.un.org/en/observances/end-food-waste-day>

# HOW CAN I HELP?

## SHOP PURPOSEFULLY



**Plan** your meals where possible to ensure you only purchase items you are going to use.

## SELL BY VS USE BY

Pay attention to '**sell by**', '**use by**', and **expiry dates**. 'Sell by' dates are a guide for inventory management, and not indicators of food quality. Items past their 'use by' or expiry dates, however, may not be safe to consume.



## SUPPORT LOCAL

**Buy** locally grown produce to help clear the local market and reduce losses to farmers.

**Patronise** farmers in your community where possible – reducing the distance from farm to market means fewer losses of perishable items during handling and transportation.

## EAT WISELY

At home, **try using smaller plates**. We are conditioned to fill our plates when serving, and this can sometimes mean taking more than we can finish.

**Cook just enough** to serve your household or guests, and consume any leftovers within a short timeframe.

If dining out, **ask about portion sizes** before you buy. Share where possible.



## ORGANISE YOUR FOOD



Before going to the grocery or market, **take stock of what you have** in your pantry or fridge so you do not purchase unnecessarily.

In your refrigerator, **arrange produce and leftovers** in such a way that items with a short shelf life are prominently in view.

In your cupboards, **bring items close to expiration to the front** of shelves so they can be used first.



## DONATE

If you have a surplus of food, **share** with a neighbour or someone in need (once it is safe to consume).

**Donate** unwanted canned or dry goods to food banks, shelters etc. once they are safe to consume.

If you own a food business, **partner with organisations** that coordinate food donations if you have food to spare (eg. Nourish TT).

If the world is to achieve its sustainability targets by the year 2030, we need more individual accountability. Food waste is one of society's biggest yet unrecognised problems, but fortunately, it can be addressed with relatively simple solutions. Much of it boils down to consumer awareness and resolve to

take action. We must recognise that our consumption practices have externalities, and that for better or worse, our choices have the power to effect change. So, the next time you go grocery shopping or sit down for a meal, take only what you need and **please, clean your plate.** ■





# CULTIVATING FOOD AND NUTRITION RESILIENCE THROUGH COMMUNITY GARDENS

ESTIMATED READ TIME: 4 MINUTES





## KEY TAKEAWAYS

*Community gardening has resurfaced as a means of reclaiming food independence and as a viable alternative for solving urban food and nutrition challenges*

*Such gardens allow abandoned, unused, or underutilised public spaces in communities to be transformed into productive micro-hubs of activity*

*Community gardens also offer economic and employment opportunities, support human and environmental health and have even been correlated with reduced levels of crime*



**A**DVANCES in technology have revolutionised our food production and distribution systems, providing us with many conveniences when it comes to how we obtain our food. Among these are widespread access to food distribution points such as convenience stores, grocery stores, fast-food restaurants, and more recently, online groceries and door-to-door delivery. Conveniences also include having a plethora of food options such as pre-packaged

produce, pre-assembled and pre-cooked meals, snacks, canned/ bottled goods and beverages, and processed meats, fish and poultry.

These conveniences have however disconnected millions of us around the world from our food sources. Many people are unaware of where our food comes from, how it is produced, who produces it, and what inputs and efforts are required to produce and move it to the shelves of our supermarkets.

With the disruptions to global food supply chains arising from the pandemic, the Russia-Ukraine war, and the worsening impacts of climate change, challenges with food availability and affordability have served as a wakeup call, forcing us to re-evaluate our dependence on our external food systems. In response, many have since begun small-scale planting, growing produce in kitchen gardens.



However, for individuals and households in urban areas wanting to supplement their diets and wallets by growing their own food, limited access to land or space is a major barrier to becoming a micro producer of food. Instead of trying to do it alone, a collaborative approach, such as that offered by community gardens, could facilitate greater citizen involvement in building food and nutrition resilience.

## How can ‘community gardens’ help improve food, nutrition, and community resilience?

A community garden is defined as “an organised, grassroots initiative whereby a section of land is used to produce food or flowers or both in an urban environment for the personal use or collective benefit of its members.”<sup>1</sup>

*Self-organisation and self-direction are central to the community garden approach.*

Volunteers collaborate to convert unused and often dilapidated public spaces to productive uses such as growing fresh food.

The concept of community gardening is not new. However, with the increasing recognition of socioeconomic phenomena such as ‘food deserts’, community gardens have been dusted-off and relooked by policymakers, municipal authorities, and researchers as a viable alternative for solving urban food and nutrition challenges.



**Food deserts** can be described as geographic areas where residents’ access to affordable, healthy food options (especially fresh fruits and vegetables) is restricted or non-existent due to the absence of grocery stores within convenient travelling distance.<sup>2</sup>

In addition to providing a source of affordable, healthy, fresh food, community gardens often serve several purposes. Research into the model has found that community gardens often provide a source of pride to its participants, and function as a focal point to galvanise community-led action on pressing issues such as youth unemployment, education, the empowerment of girls and women, and health and wellness.

The presence of community gardens also strongly correlates with reduced levels of crime. Dilapidated sections of cities can become revitalised by the presence of these green spaces. In instances where community gardening happens on a commercial scale - usually through the vehicle of a co-operative society - they often boost local economic activity in low-income communities by providing jobs and generating spin-off products and services.

## The potential of community gardens in Trinidad and Tobago

Trinidad and Tobago has an opportunity to use community gardens as a tool to tackle food and nutrition security. Several non-governmental and community-based organisations such as ‘Why Farm’ and the ‘Sunbeam Foundation’ are pioneering in this space.

However, to achieve greater impact at scale, more abandoned, unused, or underutilised public spaces in communities could be transformed into productive micro-hubs of activity to grow more nutritious food. This also requires the involvement and support of the private and public sectors to assist community residents in accessing lands, technical knowledge, and funding to establish sustainable community gardens. ■

<sup>1</sup> Corrigan, M. P. (2011). Growing what you eat: Developing community gardens in Baltimore, Maryland. *Applied Geography*, 31(4), 1232-1241.

<sup>2</sup><https://foodispower.org/access-health/food-deserts/>



Summary Benefits of

# Community Gardens



## SOCIAL AND ECONOMIC

Increased economic activity from the local businesses that engage in urban agriculture generate employment, provide skills and job training, and generate ancillary businesses such as markets, restaurants and food processing.



Community gardens have been correlated with reduction in crime, and upliftment of urban areas where citizens take pride in developing and maintaining their gardens.



## ENVIRONMENTAL

Community gardens that are managed sustainably can help reduce pollution and environmental degradation associated with pesticides, fertilisers and field tillage.



## HEALTH AND WELLNESS

On the individual family unit level, especially for low-income families, they provide access to lower cost, more nutritious food, and can help reduce food bills, improve diets and overall health and wellness.



**SOURCE:** Haletky, N., Taylor, O., Weidner, J., & Gerbing, S. (2006). Urban agriculture as a solution to food insecurity: West Oakland and People's Grocery. Urban Action, 49, 49-57.

# IS YOUR BITCOIN AFFECTING THE PLANET?

## THE CARBON CONVERSATION AROUND CRYPTOCURRENCY

ESTIMATED READ TIME: 8 MINUTES





## KEY TAKEAWAYS

*Cryptocurrency is a decentralised digital alternative to fiat currency which offers economic independence and security to its users*

*Crypto-mining consumes more energy than some countries, generates kilotonnes of e-waste and accounts for approximately 0.3% of global annual greenhouse gas (GHG) emissions*

*Efforts are however being made to integrate clean energy into crypto ecosystems and mine using less energy*

AT FIRST GLANCE,  
CRYPTOCURRENCIES – DIGITAL  
ALTERNATIVES TO PHYSICAL MONEY  
– APPEAR TO ESCHEW THE COSTS  
ASSOCIATED WITH TRADITIONAL  
FIAT CURRENCIES.



As intangible products, cryptocurrencies require no ores or agricultural inputs, no brick-and-mortar storage facilities or transportation networks. However, as it turns out, there is a high price attached to the production of cryptocurrencies, due to the hardware requirements and energy intensity of the creative process known as ‘mining’. The environmental impact in particular has made some governments, including Trinidad and Tobago’s, wary of permitting crypto-mining facilities.<sup>1</sup>

So, what exactly is prompting concern?

### DECODING CRYPTOCURRENCY

Before we can appreciate the problem, we must understand the product. Cryptocurrencies and crypto-assets are digital alternatives to government-issued currency that rely on a decentralised community of users to record and verify transactions and generate new units of currency.

*Cryptocurrencies enable users to send and receive money without the intermediation of a bank.*

When someone issues a payment to another person, the transaction goes into a public ledger or digital record book known as the blockchain, which is held in common across the computers of all the currency’s users. Before a transaction can be completed, however, the entire community (or more precisely their computers) must verify that the criteria for the transaction are met (eg. does the sender have the cryptocurrency he or she is attempting to send). Once there is consensus around the legitimacy of the transaction, the transfer is accepted and recorded in a new ‘block’ on the blockchain.

It is here that the concept of ‘mining’ comes in. Cryptocurrencies are essentially created by programmers using complex coding, and there are

<sup>1</sup><https://www.guardian.co.tt/news/manning-govt-not-supporting-bitcoin-mining-in-tt-6.2.1506442.9c3f27edd2>

<sup>2</sup><https://news.climate.columbia.edu/2022/05/04/cryptocurrency-energy/>



Is your bitcoin bad for the planet? | CONTINUED



“...powerful computers are tasked with the problem-solving process (and ultimately mining new coins). These computers **work long hours** and **guzzle electricity**.”

almost 19,000 of them in circulation (although a handful dominate the market).<sup>2</sup>

It may help to visualise them as virtual vaults containing a fixed number of units of currency (coins) when they are created. In the case of the most famous currency, Bitcoin, its creator built the Bitcoin vault to hold 21 million coins.<sup>3</sup> To release coins from the vault into circulation, users need to ‘mine’ them.

As mentioned above, building the record of transactions called the blockchain requires users to participate in the verification process. To incentivise their participation, many cryptocurrency systems such as Bitcoin are designed so that the user who first verifies a transaction (or group of transactions received around the same time) is rewarded with new coins. These coins are said to be ‘mined’ because work is required to release them. This reward gives users a hefty incentive to

participate in blockchain building. However, only one user can add a block to the chain (verify and record a transaction) at a given time, which leads to competition within the community of users.

To determine which user earns the right to add a block and get the reward, there is a turnstile built into many cryptocurrency systems called ‘Proof of Work’ (PoW).

*Participants are given a complex mathematical problem to solve, and the first to do so gets to add the next block and earn new coins.*

The complexity of these problems can necessitate trillions of solution attempts. For this reason, powerful computers are tasked with the problem-solving process (and ultimately mining new coins). These computers work long hours and guzzle electricity. As more and

more crypto-miners enter the fray with their mining machinery, the energy appetite of the crypto-mining industry is increasing.

## THE ENERGY IMPACT

In the early days of crypto mining, when the user pool was small, new coins could be mined using personal computers and seconds’ worth of grid electricity.<sup>4</sup> However, PoW systems are designed to make mining more difficult as the number of miners increases. Today, with an estimated 1 million miners operating around the world, it takes considerably more power and equipment to mine coins.<sup>5</sup>

*For Bitcoin mining in particular, not only is expensive and specialised machinery required, but it can take nine years’ worth of a household’s electricity consumption to mine one coin.<sup>6</sup>*

<sup>3</sup><https://bitcoin.org/en/bitcoin-paper>

<sup>4</sup><https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html>

<sup>5</sup><https://capitalcounselor.com/how-many-bitcoins-are-there/#:~:text=Overview%20of%20the%20Key%20Bitcoin%20Stats%20and%20Facts&text=There%20are%20approximately%201%2C000%2C000%20Bitcoin,18.74%20million%20bitcoins%20in%20circulation.>

<sup>6</sup><https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html>



This includes the cost of powering the mining machines and cooling them to prevent overheating.

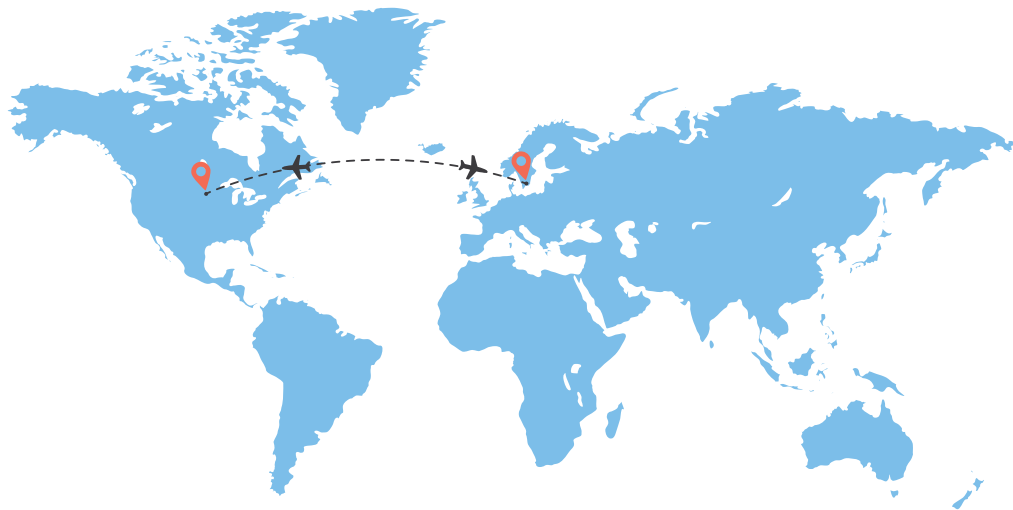
The exponential increase in energy demand has raised alarms in some corners. A 2022 White House report cited estimates that the annual global electricity usage for crypto-assets hovers between 120 and 240 billion kilowatt-hours – a range that surpasses the annual electricity consumption of such countries as Argentina and Australia.<sup>7</sup>

*It is worth noting that just two currencies account for the lion's share of that power consumption – As at August 2022, Bitcoin was estimated to account for **60% to 77%**, and Ethereum, **20% to 39%**.<sup>8</sup>*

Since crypto-mining is a decentralised process, distributed around the world, the impact of that energy consumption in terms of emissions varies from country to country, based on the fuel powering the grid. Prior to 2021, China was the leading country for mining operations because of its cheap power and unused capacity at rural hydroelectric dams and wind farms.<sup>9</sup> However, state crackdowns on crypto-mining forced operations to migrate, and today, the USA is home to more than a third of the world's mining capacity.<sup>10</sup>

ANOTHER SOURCE FRAMED THE IMPACT OF BITCOIN MINING ALONE AS THE EQUIVALENT OF

**1 million transatlantic flights.**



Despite claims that much of the energy powering mining operations comes from renewable sources, several dying or defunct coal and natural gas plants have been resurrected across the US alone to service crypto-mining.<sup>11</sup> In one example, a coal plant in Montana was converted to supply a mining company, and year-on-year CO<sub>2</sub> emissions from the plant rose by more than 5,000%.<sup>12</sup> Another revived coal plant in New York – Greenidge Generation – was converted to use natural gas, but emissions still increased tenfold between 2019 and 2020.<sup>13</sup>

Estimates of the volume of carbon emissions contributed by crypto-mining vary due to the difficulty of geolocating mining operations, some of which are 'underground' to circumvent state regulations.

*The White House has suggested the number sits around 140 ± 30 million metric tonnes of carbon dioxide per year, or about **0.3%** of global annual GHG emissions.<sup>14</sup>*

Another source framed the impact of Bitcoin mining alone as the equivalent of 1 million transatlantic flights.<sup>15</sup>

As the value of certain currencies increase and more people are enticed to participate in mining, there are concerns that operations will increasingly favour destinations with cheaper electricity, which often rely on fossil fuels such as coal.

<sup>7</sup><https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Crypto-Assets-and-Climate-Report.pdf>

<sup>8</sup>Ibid

<sup>9</sup><https://www.npr.org/2022/02/24/1081252187/bitcoin-cryptocurrency-china-us>

<sup>10</sup><https://www.statista.com/statistics/1200477/bitcoin-mining-by-country/>

<sup>11</sup><https://www.theguardian.com/technology/2022/feb/18/bitcoin-miners-revive-fossil-fuel-plant-co2-emissions-soared>

<sup>12</sup>Ibid

<sup>13</sup><https://news.climate.columbia.edu/2021/09/20/bitcoins-impacts-on-climate-and-the-environment/>

<sup>14</sup><https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Crypto-Assets-and-Climate-Report.pdf>

<sup>15</sup><https://www.sunbirdcim.com/infographic/largest-bitcoin-mining-farms-world>

Is your bitcoin bad for the planet? | CONTINUED

There is also the growing problem of e-waste. Mining machines are highly specialised and cannot be re-purposed once obsolete. The rate of innovation in this sector means miners must replace their machines almost every year to remain competitive, which leads to significant waste. It is estimated that the Bitcoin network generates 11.5 kilotonnes of e-waste each year.<sup>16</sup>

## THE OTHER SIDE OF THE COIN

*Apologists argue that cryptocurrency's environmental impact is often decontextualised from its bigger picture importance in the global financial system.*

One commentator pointed to the emissions footprint of household appliances, air conditioners and even data centres that support platforms like Netflix and Playstation, saying each of these consumes more power than Bitcoin.<sup>17</sup> The reason these are not spotlighted in the same way is because they are 'accepted' as adding value to society, while the utility of cryptocurrencies is not fully understood or appreciated.

The reality, however, is that digital currencies help millions of people in countries with oppressive or unstable political systems to address their lack of economic freedom.<sup>18</sup>

IT IS ESTIMATED THAT THE BITCOIN NETWORK GENERATES

**11.5 kilotonnes of e-waste** EACH YEAR



*In this way, the emissions footprint of mining is as justifiable as the much larger footprint of other utilities, appliances and even entertainment services.*

Another line of defense is that crypto-mining uses a significant amount of clean energy (estimates vary between 40-60%<sup>19</sup>). Some mining facilities in the US are built close to renewable energy facilities and help soak up excess supply or rely on microgrids,<sup>20</sup> while others commit to purchasing carbon offsets and investing in clean energy projects.<sup>21</sup> Since the demand for energy to power mining is on the rise while the cost of renewables is falling, some project that mining can in fact incentivise the integration of cleaner energy into the mix. A few

crypto-asset companies are even exploring how stranded or vented methane from US oil and gas fields and landfills can be harnessed to power their operations.<sup>22</sup>

Attention is also being paid to the emissions problem on the software side.

*Some cryptocurrencies use a validation system called 'Proof of Stake' (PoS) instead of PoW. This requires up to 99% less energy, and crypto-giant Ethereum has already converted to this system.<sup>23</sup>*

If widely adopted, PoS and other less energy-intensive consensus mechanisms can considerably reduce the carbon impact of cryptocurrencies.

## THE BOTTOM LINE

There is no doubt that cryptocurrencies and other digital assets have a role to play in our financial future. That said, as the world works feverishly to address carbon emissions, the rate of acceptance and adoption of these currencies will likely correlate in some measure with how cleanly they can be produced. Importantly, the necessary conversations are happening, and deliberate efforts are being made to align crypto and climate goals. ■

<sup>16</sup><https://news.climate.columbia.edu/2021/09/20/bitcoins-impacts-on-climate-and-the-environment/>

<sup>17</sup><https://www.weforum.org/agenda/2022/03/crypto-energy-consumption/>

<sup>18</sup>Ibid

<sup>19</sup><https://time.com/6193004/crypto-climate-impact-facts/>

<sup>20</sup><https://www.coindesk.com/policy/2021/05/21/money-reimagined-hey-elon-bitcoin-can-green-the-grid/>

<sup>21</sup><https://time.com/6193004/crypto-climate-impact-facts/>

<sup>22</sup><https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Crypto-Assets-and-Climate-Report.pdf>

<sup>23</sup><https://www.bloomberg.com/news/articles/2022-09-13/what-s-ethereum-eth-merge-proof-of-stake-differs-from-bitcoin-btc>



ON THE  
GREEN  
AGENDA







# HARNESSING THE POWER OF MICROGRIDS

ESTIMATED READ TIME: 5 MINUTES



## KEY TAKEAWAYS

*Microgrids are independent energy systems that can power single sites or feed power into the national grid*

*Microgrids powered by renewable energy can offer benefits such as improving the resilience of national power supply, providing energy for off-grid communities or backup power for critical installations, and providing insurance against national grid failures*

*There are presently some barriers to widespread uptake of microgrids in the region*

THE recent announcement that the Airports Authority of Trinidad and Tobago commenced construction of an EU-funded 0.5MW Solar Park at the Piarco International Airport,<sup>1</sup> and other pilot-scale initiatives in the recent past,<sup>2</sup> signals that the use of local grids - including microgrids - in Trinidad and Tobago has entered the realm of commercial possibility. Around the Caribbean, this is not a new concept. Microgrids based on renewable energy have long been used to electrify areas not connected to broader national grids, such as the Guyana interior or areas that needed additional resilience (such as airports).



Generally, a **microgrid can be powered** by distributed generators, batteries, and/or renewable resources such as solar power.

### WHAT ARE MICROGRIDS?

*A microgrid is a local energy grid with control capability, which means it can disconnect from a traditional grid and operate autonomously.*

A microgrid usually operates with the grid, but importantly, it can disconnect and operate on its own using local energy generation in times of crisis such as during storms or power outages, or for other reasons.<sup>3</sup> As we learned painfully in the recent past, a single tree falling on a power line can knock out power on a major grid for several hours.<sup>4</sup>

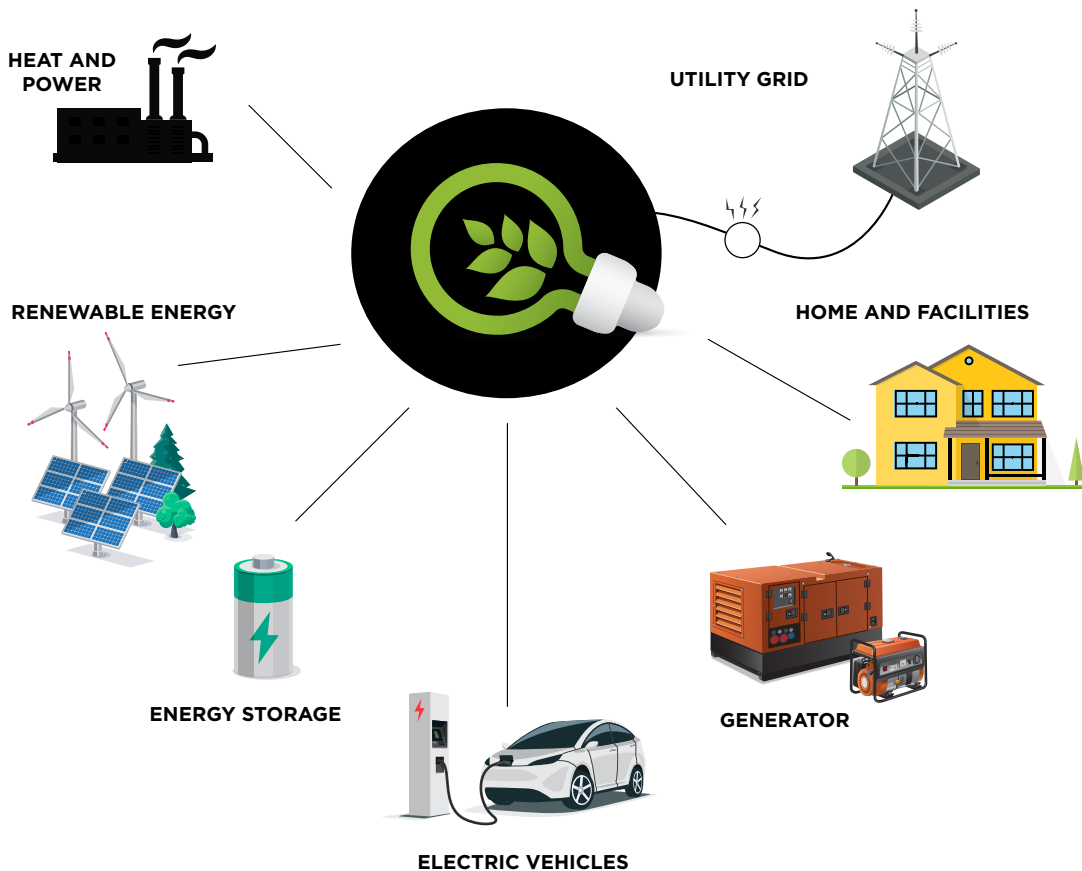
<sup>1</sup>[https://www.eeas.europa.eu/delegations/trinidad-and-tobago/sod-turning-marks-initiation-construction-piarco-airport-solar-park\\_en?s=156](https://www.eeas.europa.eu/delegations/trinidad-and-tobago/sod-turning-marks-initiation-construction-piarco-airport-solar-park_en?s=156)

<sup>2</sup>This includes two 2-kilowatt (kW) off-grid photovoltaic (PV) systems in operation at both the University of Trinidad and Tobago and T&TEC's Mt. Hope compound.

<sup>3</sup><https://www.energy.gov/articles/how-microgrids-work>

<sup>4</sup>[https://trinidadexpress.com/newsextra/cause-of-island-wide-blackout-revealed/article\\_05021372-c7ef-11ec-912e-4f76e9173038.html](https://trinidadexpress.com/newsextra/cause-of-island-wide-blackout-revealed/article_05021372-c7ef-11ec-912e-4f76e9173038.html)

FIGURE 1: MICROGRID



**Source:** 3 More Frames, via Microgridknowledge.com

By islanding, a microgrid can escape such cascading grid failures. They also serve a discrete geographic footprint, such as a college campus, hospital complex, business centre, or neighbourhood.

Generally, a microgrid can be powered by distributed generators, batteries, and/or renewable resources such as solar power. Depending on how it is fuelled and how its requirements are managed, a microgrid might be able to run indefinitely. Many newer microgrids contain energy storage for times when the primary power source is unavailable, typically from batteries.

The electricity grid connects homes, businesses, and other buildings to central power sources, which allows

us to use appliances, heating/cooling systems and electronics. In Trinidad and Tobago, the power source is natural gas.

*However, this interconnectedness means that when part of the grid needs to be repaired, everyone is affected.*

On the other hand, microgrids are local, overcoming potential inefficiencies of power loss due to transmission disruptions by generating power close to consumers. Grids are 'intelligent' at the central level, though not at the local level. On the other hand, microgrids are 'intelligent', as

controllers in the microgrid manage the electricity generators and other parts of the system, without human intervention.

The controller orchestrates multiple resources to meet energy goals set by the microgrid's customers, such as energy reliability measures, efficiency targets, electricity cost or price targets, clean energy targets, or other criteria.

*Microgrids may contain other energy resources – combined heat and power, wind power, reciprocating engine generators, or fuel cells – that add even greater complexity and nuance to the system.*





## MICROGRIDS IN THE DOMESTIC CONTEXT

*On a purely technical level, there are no major obstacles to Trinidad and Tobago harnessing the power of microgrids. However, several institutional and non-technical barriers remain, though most are expected to be removed in the medium term.*

By far, the biggest barrier to implementation is the lack of a business case, mostly due to the very low cost charged for electricity in Trinidad and Tobago. With the price of electricity being heavily subsidised, microgrids are simply uneconomic.

There are also several legislative and structural changes that would be required before a microgrid can be legally connected to the national grid. These changes include implementing a system of feed-in tariffs and permitting grid tie-ins, inter alia. While electricity from microgrids may initially be pricier, over the medium and long term, the prices for renewable electricity are expected to decline, while the cost to consumers of electricity generated by natural gas is expected to increase over time.

In the Caribbean region, there are different challenges, mostly connected to financing issues. Absent grant financing and other incentives, most financing for microgrids must be accessed through the private sector.

Notwithstanding the challenges, with the global transition from fossil fuels to renewables, growing policy pressure to phase out fossil fuels in favour of renewables, and the resultant lower cost of adding onsite renewable energy, using renewable-

**Harvesting solar energy** alongside food (agrivoltaics) has the potential to make agriculture more sustainable and profitable by maximising the use of agricultural land.



based or hybrid microgrids makes more and more sense. In fact, microgrids may form part of the solution for Trinidad and Tobago to achieve its long-term emissions reduction goals. Reforms to the enabling environment in Trinidad and Tobago in the next few years (connected to the implementation of grid-scale solar PV projects) should make the environment more amenable to the use of microgrids.

*Microgrids can also reduce strain on the national grid by diverting some energy consumers from grid-generated electricity, such as users of electric vehicles, street lighting, and community lighting.*

For Trinidad and Tobago, the supply of resilient power to communities in remote (or off-grid) locations and critical national installations is desirable as a public good, since any disaster may render these areas without electricity for days post-disaster, if not weeks. Microgrids can also be used in concert with

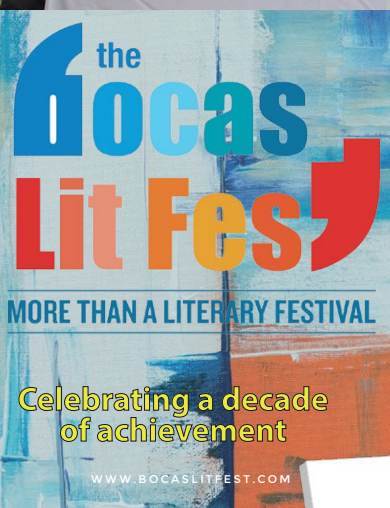
other sustainability innovations. Harvesting solar energy alongside food (agrivoltaics) has the potential to make agriculture more sustainable and profitable by maximising the use of agricultural land.

## A PROMISING FUTURE

The reality of climate change and ongoing changes to the physical environment have amplified the need for a more resilient electricity grid in Caribbean nations, amid the increasing probability of power outages, the fragility of national grids and even cybersecurity threats. From a risk perspective, the presence of independent microgrids provides insurance and partial mitigation of risks associated with potential failure points in national grids.

For Trinidad and Tobago, the increased use of microgrids harnessing renewable energy appears to be inevitable in the medium term, given the need to increase resilience in the overall electricity grid, as well as achieve national emissions reduction goals. ■





# NGC SUSTAINABILITY REPORT 2021 – HIGHLIGHT REEL

ESTIMATED READ TIME: 6 MINUTES





## KEY TAKEAWAYS

*NGC has published its fifth annual Sustainability Report, profiling its economic, social, environmental and governance performance for the year 2021*

*The full report can be accessed at [www.ngc.co.tt](http://www.ngc.co.tt)*

**The National Gas Company of Trinidad and Tobago Limited (NGC) is proud to share its fifth annual Sustainability Report with its stakeholders and the people of Trinidad and Tobago.**



NGC has moved the very pressing issue of sustainability to the core of its operations and growth strategy. We recognise our responsibility to ensure our business impacts positively on our stakeholders and our environment, and that as we grow our bottom line, we do so in a manner that is sustainable over the long term. In tandem with our strategic shift towards sustainability, we began to report on our performance in this area through an annual sustainability report, starting 2018. This was a pioneering move among state enterprises, and we are proud to uphold this new standard of accountability.

### WHAT IS A SUSTAINABILITY REPORT?

*A sustainability report is a publication through which companies voluntarily share information on their economic, governance, environmental and social performance in a given year, relative to a selected reporting standard.*

*It is a valuable tool to gauge how individual companies are supporting (or impeding) achievement of national and global development targets.*

# WHAT ARE SOME OF OUR **ACHIEVEMENTS** FOR 2021?

## CORPORATE COMMITMENT TO SUSTAINABILITY



NGC joined the **Global Reporting Initiative (GRI)** in 2021, becoming the first company from Trinidad and Tobago to be registered as a member. The GRI network comprises over **500** large and small private and public organisations from **more than 70 countries**, working to advance sustainability reporting across all regions of the world.



NGC developed a Sustainable Investing Initiative in 2021 to facilitate investments in clean energy. NGC invested **3%** or **US\$6M (TT\$41M)** of its international portfolio in BlackRock Global Funds (BGF) Sustainable Energy Fund in November 2021. The Fund invests at least **70%** of its total assets in the equity securities of sustainable energy companies globally.



## THE NGC GROUP OF COMPANIES ARTICULATED THE FOLLOWING TARGETS IN SUPPORT OF T&T's PARIS AGREEMENT COMMITMENTS:

By 2030, to attain **30%** of Trinidad and Tobago's market share for renewable energy and energy efficiency business

By 2030, to achieve a **75%** reduction in venting of methane, and 50% reduction of fugitive methane emissions

By 2030, to achieve **12%** of Trinidad and Tobago's Nationally Determined Contributions (NDCs) target for greenhouse gas (GHG) reduction

By 2040, to achieve **30%** of Trinidad and Tobago's NDCs target for GHG reduction

By 2050, to achieve **carbon neutrality** across The NGC Group

## NATIONAL CONTRIBUTION

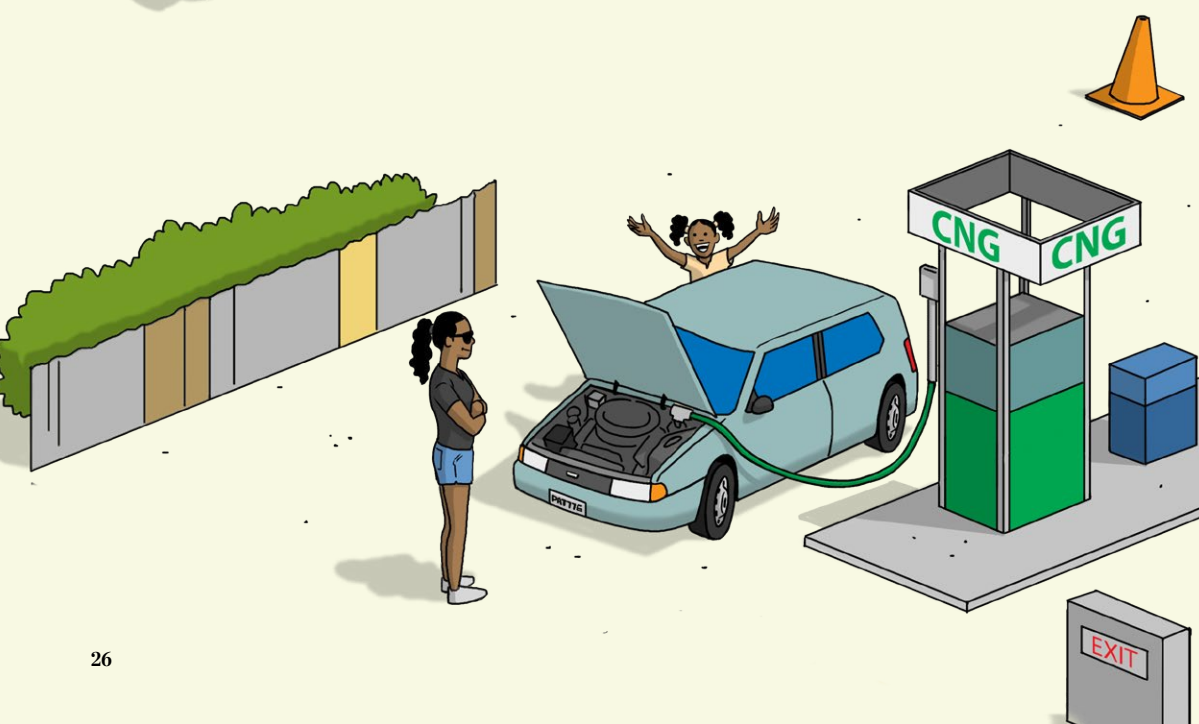


NGC PAID APPROXIMATELY  
**TT\$330Mn**  
 IN DIVIDENDS TO GOVERNMENT

**83%** OF EXPENDITURE WAS  
 DIRECTED TO LOCAL SUPPLIERS,  
 REPRESENTING A STRONG LOCAL  
 CONTENT CONTRIBUTION.



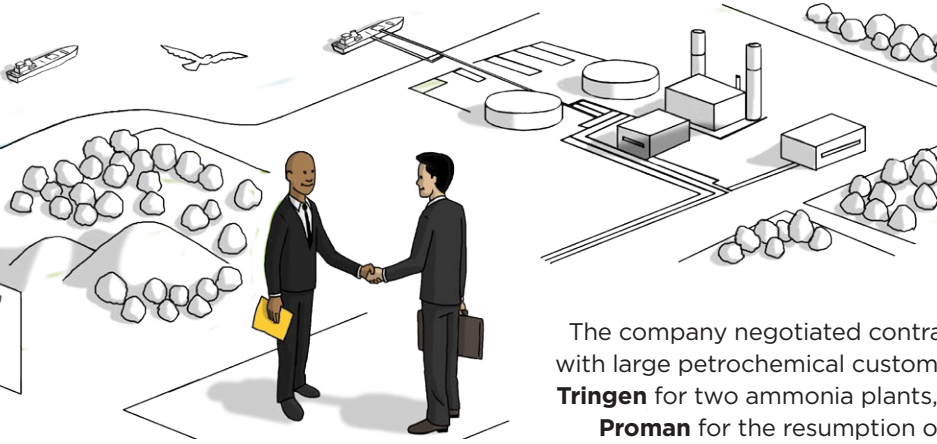
In **2021**, NGC CNG Company Limited (NGC CNG), in partnership with the National Petroleum Marketing Company (NP), opened the **11th public CNG service station** – the country's largest and first solar-powered - at the Preysal roundabout in Central Trinidad.



2021 WAS THE HIGHEST  
 GROSSING YEAR FOR  
 CNG SALES, WITH  
**OVER 1,775**  
 ADDITIONAL CNG  
 VEHICLES ON THE  
 ROAD AND SALES  
 VOLUMES **24%**  
 HIGHER THAN 2020.



## ORGANISATIONAL ACHIEVEMENTS



NGC signed a contract with **Primera Oil and Gas Limited** for supply of gas from the onshore Ortoire Block, as well as a contract with DeNovo for development of the Zandolie Field in Block 1(a).

The company negotiated contracts with large petrochemical customers - **Tringen** for two ammonia plants, and **Proman** for the resumption of production at Methanol Holdings Trinidad Limited's (MHTL) M4 and M5000 methanol plants.

Work was advanced in 2021 on the review and revision of **NGC's Business Practices and Ethics Policy** and **Code of Conduct**.

Two fundamental inclusions relate to provisions addressing anti-bribery and corruption and the compliant culture.



### NGC CONTINUED WORK TOWARDS THE REALISATION OF CROSS-BORDER GAS IN THE MANATEE FIELD.

To support employee wellbeing, NGC continued to provide **non-occupational medical, health, and wellness services** through various interventions, including sessions on financial management, estate planning, health and nutrition and managing mental health.

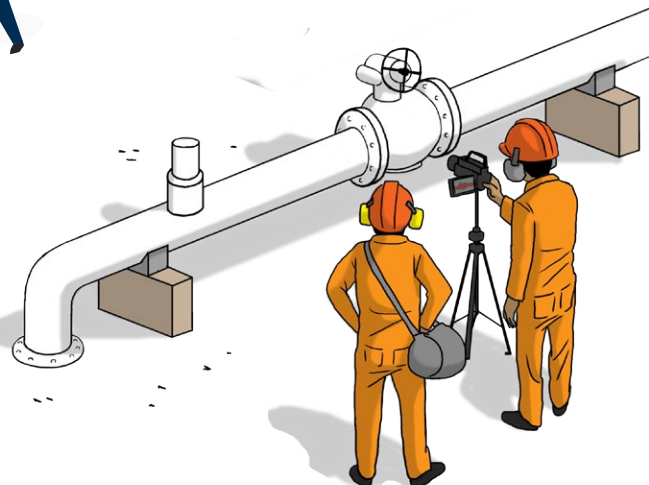


Actual or suspected misconduct or any harmful HSE situation within NGC can be reported through the company's **Whistleblowing Hotline**, which was established in 2019. Eight matters were raised through the hotline in 2021, five of which were addressed by end of year.



An **Asset Integrity Management (AIM) Excellence Leadership Group** was formed in 2021 to drive AIM initiatives and culture across The NGC Group.

OVER 470  
EMPLOYEES  
ACCESSED NEARLY  
**11,000 HOURS** OF  
TRAINING AND  
DEVELOPMENT  
PROGRAMMES.



NGC integrated **satellite data** and an **infrared camera** to visualise leaks along its infrastructure, to improve asset integrity and risk management and support methane emissions reduction.

## CLIMATE ACTION

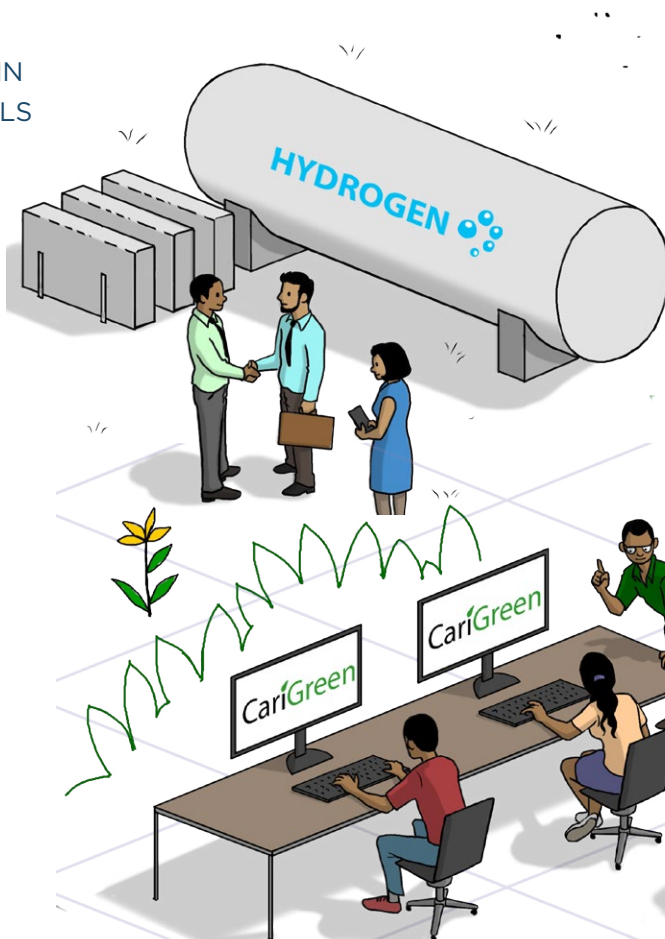


NGC SET A TARGET OF 10% REDUCTION IN ENERGY CONSUMPTION FROM 2019 LEVELS BY 2022, TO BE ACHIEVED THROUGH:



- **Evaluation** of opportunities to replace fossil-fuel powered lighting with renewable energy lighting for non-process related facilities
- Incorporation of **Leadership in Energy and Environmental Design (LEED)** standards in NGC's buildings and all future projects
- Replacement of lighting fixtures at Orinoco House with LED, targeting **25% replacement in 2022**

The NGC Group signed an MOU with The Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL) to explore opportunities to **commercialise landfill gas** for uses such as the provision of carbon-negative, renewable compressed natural gas.



NGC, National Energy and Kenesjay Green Limited (KGL) signed an MOU to work collaboratively on the **creation of a sustainable hydrogen economy** for the energy sector of Trinidad and Tobago.

At the Trinidad and Tobago Energy Conference, NGC launched a new website called **CariGreen**, to serve as a central repository for investor, academic and citizen research into clean energy in the Caribbean.



NGC engaged The University of The West Indies (The UWI) to assess the carbon stored in the root biomass of trees that were planted as part of its reforestation programme, in forest conservancies at Rousillac, Moruga, Mayaro and Rio Claro. In total, above- and below-ground biomass at these sites have sequestered **over 27,000 tonnes** of CO<sub>2</sub> equivalent as at 2021.



**OVER 44,000 TONNES OF CO<sub>2</sub>**  
EMISSIONS HAVE BEEN AVOIDED  
THANKS TO CNG SINCE 2014.

**NGC STRENGTHENED ITS CAMPAIGN TO REDUCE ITS CARBON IMPACT BY JOINING THE GLOBAL OIL AND GAS METHANE PARTNERSHIP (OGMP)**, establishing 2021 as the base year for future measurements of methane and other GHG emissions. OGMP member companies voluntarily commit to reporting and reducing methane emissions in the oil and gas sector through a global standard for methane emissions reporting, measurement, and control.

NGC SET TARGETS IN ALIGNMENT  
WITH THE OGMP FRAMEWORK  
TO ACHIEVE:

AN OVERALL REDUCTION OF

**75%**

IN VENTING METHANE EMISSIONS

**50%**

IN FUGITIVE METHANE BY 2025,  
COMPARED TO 2021

**50%**

REDUCTION IN OVERALL GHG EMISSIONS  
BY 2025, COMPARED TO 2021

NGC recorded **one Tier 2 Loss of Primary Containment (LOPC) event in 2021**, which contributed to the largest amount of methane emitted from its operations during the year.





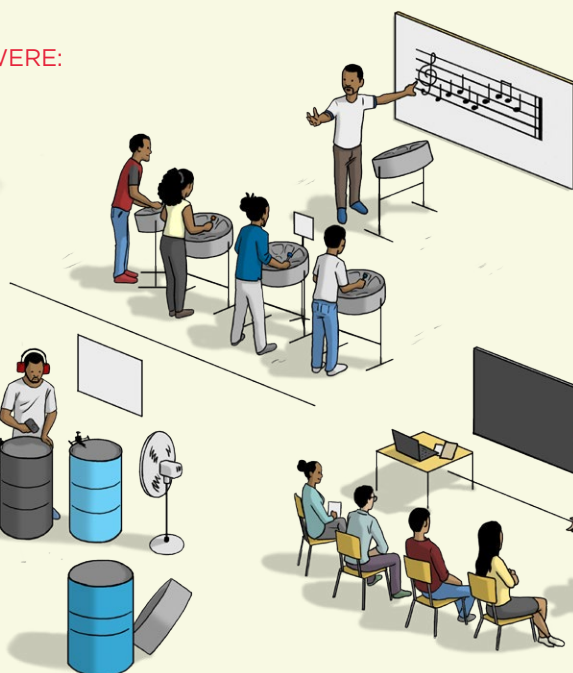
## COMMUNITY IMPACT



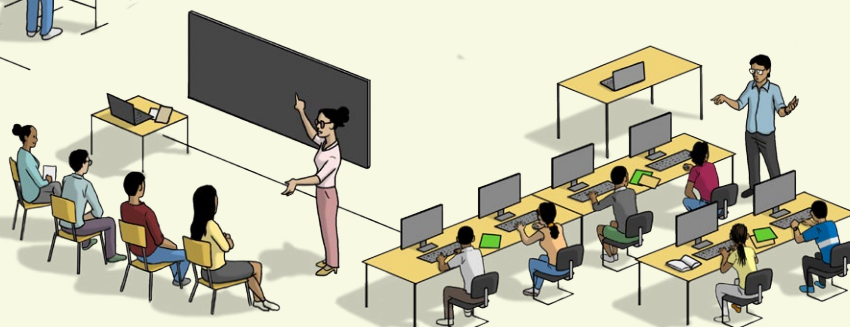
In 2021, NGC continued to carry out several initiatives geared towards building capacity within our local communities. The objectives of the capacity building initiatives were to increase the knowledge and skills of participants, to enable people to better contribute to their organisations and the wider community, and to empower communities for sustainable development.

### AMONG THE INTERVENTIONS WERE:

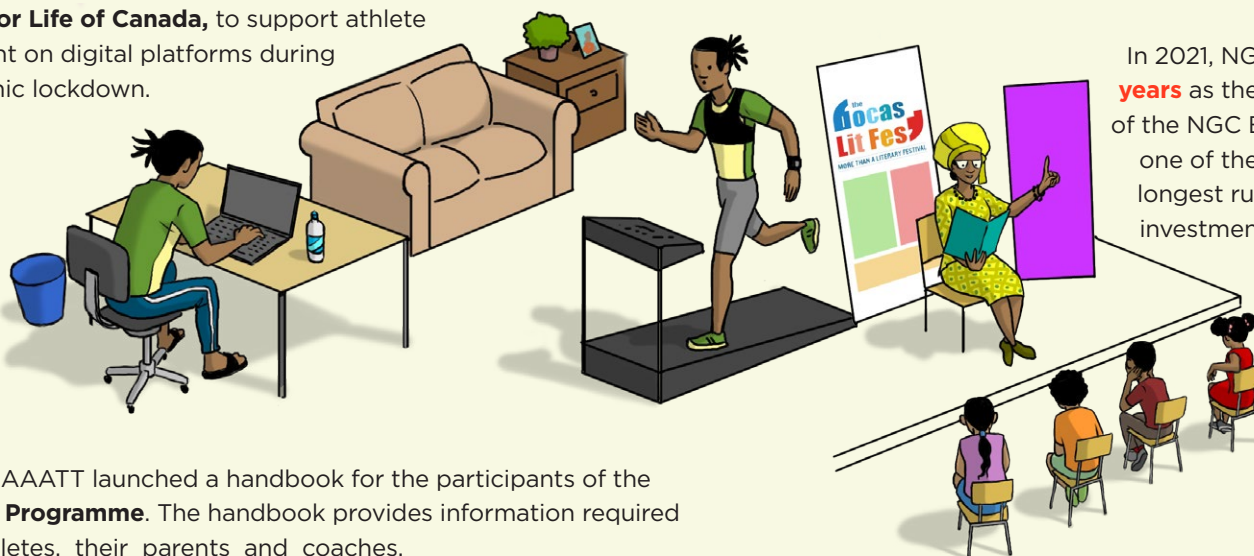
- Music literacy training for NGC-sponsored steelbands **(47 participants)**
- Youth leadership development programme **(15 participants)**
- NGC/MIC pan manufacturing and tuning programme **(12 participants)**



- Leadership and management development programme **(15 participants)**
- Digital literacy and life skills training **(137 participants)**



NGC undertook a digitisation of sport initiative in partnership with the **Youth Training and Employment Partnership Programme (YTEPP)** and **Sport for Life of Canada**, to support athlete development on digital platforms during the pandemic lockdown.



In 2021, NGC marked **10 years** as the title sponsor of the NGC Bocas Lit Fest, one of the company's longest running social investment initiatives.

NGC and NAAATT launched a handbook for the participants of the **Youth Elite Programme**. The handbook provides information required by the athletes, their parents and coaches.

For a more detailed overview of our reporting practice, performance and sustainability metrics, please visit our website at [www.ngc.co.tt](http://www.ngc.co.tt) to view our complete Sustainability Report 2021.

# NGC AND OCM COLLABORATE ON 'NEW ENERGY CONVERSATIONS'

**ESTIMATED READ TIME: 2 MINUTES**

Previous Close	98.95
Open	0.00
Bid	110.80
Ask	110.95
Day's Range	109.16 - 109.16
52 Week Range	89.47 - 110.95
Volume	26,874
Avg. Volume	37,738
Market Cap	592,059
Beta	1.42
PE Ratio (TTM)	13.36
EPS (TTM)	8.31
Earnings Date	Jan 1 2015
Dividend & Yield	1.28 (2.58%)
Ex-Dividend Date	N/A
1y Target Est	130.96





## KEY TAKEAWAY

*NGC is partnering with One Caribbean Media to deliver an educational TV series to the region around climate change and clean energy*

In recent years, the vocabulary of the global climate movement has diffused across disciplines.

Media stories are today replete with references to climate change, global warming, carbon footprints, greenhouse gases and a host of terms prefixed with the word 'green'. The language of the Paris Agreement is widely quoted on political platforms, and climate buzzwords are being integrated into corporate advertising.

That said, many of the attempts to communicate with the general public around important environmental and climate matters are not effective, because they presuppose a foundational understanding of those issues. We take for granted that the average citizen is familiar with the concepts of climate change and climate action because they are now household terms, but rote learning does not always lead to real understanding. Without understanding, even the most powerful messages will have little impact, and calls to action will fall on deaf ears.

NGC appreciates the importance of foundational education to the achievement of climate action goals. If we intend to reach our targets, it is not enough to simply turn the volume up on climate conversations – we need to make certain the messages are understood by every citizen in our audience. This means simplifying jargon, demystifying concepts and framing big issues in terms of everyday impact.



### NEW ENERGY CONVERSATIONS

With this goal in mind, NGC has entered into a partnership with One Caribbean Media (OCM) to produce a video series called 'New Energy Conversations'. This series aims to deconstruct and explain for general audiences, topics pertaining to sustainability, climate change and climate action, renewable energy, energy efficiency, and related themes. Each episode will feature subject-matter experts from The NGC Group and other organisations working towards building a sustainable future for the region.

The intent is to not only leave audiences with a clearer understanding of climate and sustainability discourse, but to help them see how issues such as climate change and efficient energy use, inter alia, can impact their daily lives. With that understanding, it is hoped that more citizens will be impassioned to participate in the climate fight.



Among the topics to be explored in the inaugural season of the series are:

- What is renewable energy and why is it important?
- Financing the energy transition
- Energy efficiency and gas for power
- Building an electric vehicle revolution
- SDGs vs ESG
- Global Standards of Reporting
- Methane measuring - satellite monitoring
- Tackling food waste
- Using regenerative agriculture to mitigate the climate crisis in food production

The first season of 'New Energy Conversations' premiered in October 2022, with episodes now being aired once a week on the OCM Network television and social media platforms. Locally, episodes air every Monday immediately after the broadcast of primetime news on TV6. Visit NGC or One Caribbean Media on Facebook to view past episodes. ■

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



*Parrot perched on a rooftop.*

*Photo by Shaun Rambaran*





---

THE NGC GROUP OF COMPANIES

---