



**GOVERNMENT  
OF GUYANA**

# GUYANA ENERGY **BRIEF** 2022

**NATURAL  
RESOURCE FUND  
ACT 2021...  
EFFECTIVE  
MANAGEMENT OF  
OIL EARNINGS  
- PG 26**

**PG 30**

## **GAS-TO-ENERGY PROJECT: OVERVIEW**

While Guyana's offshore oil bounty has already made the country one of the world's fastest-growing economies, the government intends to use gas to unlock transformational levels of sustainable economic development. This would be done specifically through its highly anticipated gas-to-energy project.

# First Oil from Liza Unity: February 11, 2022

- The production from the Liza Unity Floating Production and Offloading Unit (FPSO) will reach 220,000 barrels of oil per day later this year.
- Accelerated development brings Guyana's production capacity to more than 340,000 barrels per day, only seven years after first discovery.

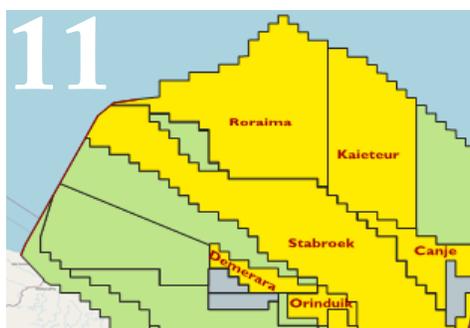
"We are collaborating closely with the Government and people of Guyana to develop this world-class resource responsibly, helping to meet the world's energy needs and delivering enhanced value for all stakeholders at a record pace and well ahead of the industry average," said Liam Mallon, President of ExxonMobil Upstream Oil and Gas.

"With unparalleled project execution, we now have two production facilities operating offshore Guyana," he said.



# GUYANA ENERGY BRIEF 2022

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# ENERGY OUTLOOK





# MESSAGE FROM HIS EXCELLENCY

**Dr. Mohamed Irfaan Ali,  
President of the Co-operative  
Republic of Guyana**

In 2022, Guyana's Gross Domestic Product (GDP) is projected to grow by 47.5 percent. Significantly, this is a rate of growth which no other country in the world is currently forecast to achieve this year.

The commencement of commercial production from Guyana's second Floating, Production, Storage and Offloading (FPSO) vessel, the Liza Unity, in the first quarter of 2022 informs our world's top-growing economy status.

The Government's recent approval of a fourth development project in the Stabroek Block demonstrates the increasing intensity of offshore activities. Guyana is set to become a key world supplier of crude with a production capacity in excess of 800,000 barrels per day by 2026.

The dynamic development of Guyana's Oil and Gas Sector has not obscured the Government's percipience of the wider issues, specifically as it relates to action on climate change, the need to focus our energies in capacity building, and the enhancement of the competitiveness and functionalities of our traditional sectors.

It is critical that we keep a panoramic view of our development needs since the catastrophic dangers of climate change over the years, and the impending destruction that looms in the face of inaction, signal clearly that each nation must play their respective roles in helping to achieve Net Zero by 2050. This is not an option; it is an absolute necessity.

The Guyana Government's position is that all countries, specifically those which are the largest polluters, have a duty to strive for meaningful emissions reduction targets. This is in addition to the need for the pledge of US\$100 billion per annum, made one decade ago to support climate action be honoured. Also, key is the need for the carbon market and REDD+ rules to be finalised so that countries that provide climate services such as Guyana, are properly compensated.

With respect to our role in the Net Zero by 2050 campaign, we have outlined a comprehensive pathway for the finalisation and subsequent execution of our Low Carbon Development Strategy (LCDS) that will allow us to continue the sustainable management of our rich forest resources and secure payments in return. It also explains our intention

to prudently invest in, and implement, a mix of gas and renewable energy projects that will serve as the bedrock of our low-carbon economic transformation by 2030.

The Government will continue to advance dialogue with oil producers to ensure that, alongside measures aimed at mitigating flaring, exploration and production operations will continue to explore all opportunities for lower carbon technological innovation – including the use of renewable energy in oil production and Carbon Capture Utilisation and Storage (CCUS).

Our recently unveiled \$552.9 billion budget for 2022 already provides some of the fuel needed to breathe life into this strategy. In fact, the Government of Guyana has prioritised specific investments for the energy sector to significantly reduce our emissions footprint as well as remove hurdles to our economic development, chief among them being high electricity costs by 2025. Specifically, the Government of Guyana has allocated \$29.4 billion to the energy sector in 2022.

Major allocations within this amount include: \$20.8 billion for the Gas-to-Energy project and \$1.4 billion for 33 MWs solar farms for Berbice, Essequibo, and Linden. We are, in fact, targeting a 50 percent reduction in electricity costs by 2025 via these and other transformative projects and initiatives which would create a more conducive environment for more industries, in addition to manufacturing, to flourish while creating more jobs and disposable income for our people. Since assuming office on August 2, 2020, we have addressed job losses, and the devastating impacts of the COVID-19 pandemic, as well as restored investor confidence in a stable and democratic environment. We have also set the stage

with previous budgets to restore and enhance productivity, increase competitiveness, and ensure economic expansion. Budget 2022 is an apt demonstration of how this will be continued. It embodies our commitment to taking a diversified development route that brings prosperity for all our people.

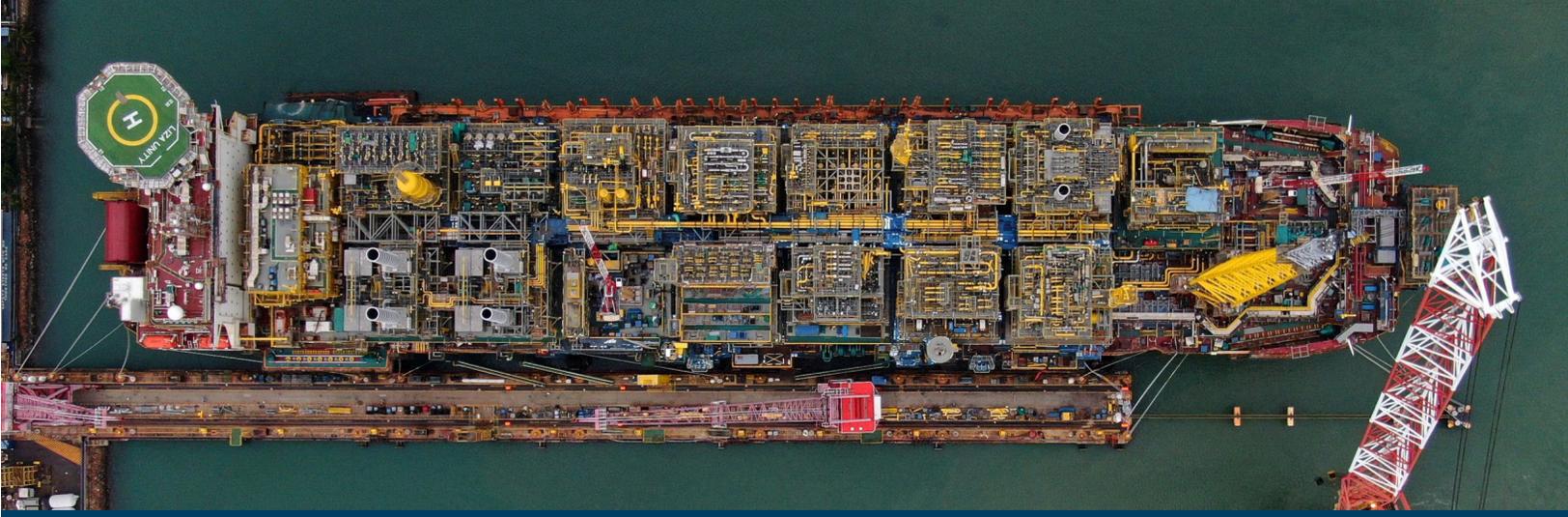
Our diversified route will also present opportunities to regional and international partners. The Government is actively facilitating investment connectivity at a country and private sector level as interest in Guyana continues to surge. The advancement of shore-based facilities, a deep-water harbour, a road link to Brazil, a bridge across the Corentyne River connecting Guyana and Suriname highlight Guyana as a critical gateway between South America and the Caribbean and its progression to a leading shipping hub.

As we exploit our oil rich potential offshore, I have insisted time and again that the revenues must be used to make the other sectors more competitive. It must and will be used to enhance our sustainability, and build an economy that can weather the global economic shocks when they come. Hence, key investments will be made in bringing world-class health care and education services to our citizens, while pursuing efforts to make our long-standing agriculture industry competitive and an integral part of the region's food security systems.

In keeping with the foregoing agenda, Guyana, is therefore on the trajectory for unprecedented levels of transformation while doing its part to transition to a low-carbon economy.

I therefore welcome you to our beautiful nation, and invite you to explore its many cultural wonders and investment opportunities to partner with the local private sector.





# Importance of the Oil and Gas Industry for Guyana

With the discovery and subsequent development of the Liza Field in the Stabroek Block, Guyana now has the potential to become a major oil producing nation and stands to benefit greatly from the revenues generated.

As a result of the increase in oil production, it was estimated that Government revenues could start in the range of US\$ 270 Million in 2020 and reach US\$10 Billion annually by the end of the decade (Rystad Energy, 2020).

The impact of these revenues on Guyana will be tremendous, since it is a country with a population with less than one million people, with a GDP of US\$8.6 Billion.

Guyana was the sole country in the Caribbean with positive GDP growth in 2020, which expanded by more than 20% in spite of the innumerable external shocks triggered by the pandemic.

With first oil having been extracted in late December 2019, Guyana has now become the latest member of the oil producing nations of the world and is positioned to become a major oil producer with its economy being driven by the oil and gas sector.

Furthermore, Guyana has made some of the most significant oil finds in recent years, with an estimated gross recoverable resource of more than 10 Billion Oil-Equivalent Barrels.

Revenues from the burgeoning oil and gas sector could further enhance economic growth in Guyana and realise the acceleration of growth in other sectors such as agriculture, forestry, services, manufacturing and construction.

To date, the country has received payments for seven lifts of Profit Oil at the end of March 2022.

February 19, 2020	1st Lift: Payment- <b>US\$ 54.9 million</b>
May 21, 2020	2nd Lift: Payment- <b>US\$ 35 million</b>
August 9, 2020	3rd Lift: Payment- <b>US\$ 46 million</b>
December 9, 2020	4th Lift: Payment- <b>US\$ 49.4 million</b>
February 5, 2021	5th Lift: Payment- <b>US\$ 61 million</b>
April 13, 2021	6th Lift: Payment- <b>US\$ 62.6 million</b>
July 3, 2021	7th Lift: Payment- <b>US\$ 79.6 million</b>
September 22, 2021	8th Lift: Payment- <b>US\$ 80.4 million</b>
November 25, 2021	9th Lift: Payment- <b>US\$ 73.6 million</b>
January 29, 2022	10th Lift: Payment- <b>US\$ 95.9 million</b>

- Total revenues earned for Profit Oil Sales to date: **US\$ 638.7 million**
- Inclusive of royalties and interest, the Natural Resource Fund account at the Federal Bank of New York now stands at **US\$ 719.8 million** as at March 31, 2022

Source: Ministry of Natural Resources



# Guyana's policy position on fossil fuel subsidies, price on carbon and net-zero targets

Guyana has maintained the second highest percentage of forest cover on earth, with more than 99.5% of the forest's 18.3 million hectares remaining. Deforestation rates are among the lowest in the world and Guyana is one of only four countries in the world (and one of only two in the Amazon Basin) verified to have sustained a High Forest Low Deforestation (HFLD) state.

Guyana is one of four countries which host the Guiana Shield, one of the most pristine rainforest landscapes in the world. The Guiana Shield stores around 18% of the world's tropical forest carbon and 20% of the world's fresh water.

The country has extremely high levels of biological diversity and endemism. It is home to approximately four percent of known animal species, including the following iconic

Amazonian species: jaguar, giant river otter, harpy eagle, tapir, giant anteater, and giant armadillo. There are more bird species in Guyana than the entire United States of America. The country is also home to 2.4% of known plant species and unique tepui. Natural savannahs give Guyana exceptionally high levels of endemism. It also maintains a percentage of littoral forest in the coastal area.

Given the remarkably dense, biodiverse, and unsullied nature of its huge forests (the size of England), Guyana's forests no doubt acts as a net carbon sink. In fact, Guyana is already below net-zero.

Indeed, the maintenance of Guyana's extraordinary forestland is an apt illustration of its unwavering commitment to supporting the goal of net zero by 2050. But

those who bear the brunt of the effects of climate change, particularly Small Island Developing States (SIDS), cannot shoulder the responsibility of net zero by 2050 alone. Key global policies must begin to take effect quickly to ensure all nations are putting due effort into the fight against climate change.

Calls for a carbon price have been made for many years – notably in the 2010 report of the United Nations Secretary-General High Level Advisory Group on Climate Change Financing, for which Guyana was a part of the 15-member team. Subsequent analysis emphasised the criticality of this issue, including the “Report of the High-Level Commission on Carbon Prices”, sometimes known as the “Stiglitz-Stern Report”, which concluded that a carbon price between US\$50 and US\$100 will be needed to achieve the dual goals of increasing low-carbon investment and aligning with a Paris Agreement target for reducing fossil fuel usage. Despite this long-standing consensus that a global carbon price regime is needed, international action to progress this regime remains inadequate. The Guyana Government therefore renews its call for there to be meaningful changes in this regard.

The Government of Guyana also supports calls for the international community – working through the United Nations Framework Convention on Climate Change (UNFCCC) and other relevant international institutions – to accelerate work on both the methodology and implementation of this pricing regime.

With respect to the removal of subsidies for fossil fuel production, it should be noted that in 2019 alone, 50 of the largest economies in the world – who account for 80% of global greenhouse gas emissions – increased their support for fossil fuel production by 30%, with total support reaching US\$178 billion. Most of this was in developed (OECD) countries. In effect, this uses public money to drive down the costs of oil production, regardless of the carbon-intensity of the oil and gas being produced.

The Government of Guyana therefore supports calls for the elimination of such fossil fuel subsidies, especially in OECD countries where subsidies are the most distorting. This will lead to the breakup of the current monopoly-like situation, and the stabilising of price levels.

Combined, these two policies can drive the most carbon-intensive and least economically-rational oil and gas out of the market, enabling the remaining post-2050 supply of oil to

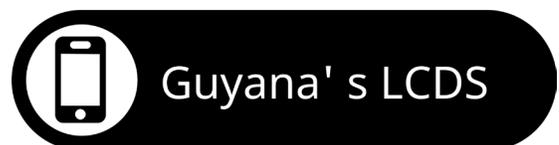
be the lowest carbon and most economically efficient. At the same time, to drive down carbon intensity further and remain relevant in a Paris Climate Agreement-compatible oil market, Guyana will significantly increase domestic policy measures.

The Government implemented one of the very few taxes on flaring in the world – where beyond the commissioning period, all flaring will be taxed at US\$45 per tonne of carbon, along with a payment for the actual gas lost. In parallel, new measures have been introduced to ensure that all waste management is the responsibility of the oil producer, from “cradle to grave”.

The PPP/C Government will continue dialogue with oil producers to ensure that, alongside the above measures, exploration and production operations continue to explore all possibilities for lower carbon technological innovation – including the use of renewable energy in oil production, Carbon Capture Utilisation and Storage (CCUS) and, – when technologically viable – green hydrogen.

### Guyana's Low Carbon Development Strategy

<https://lcds.gov.gy>



# Forward-looking Energy Agenda

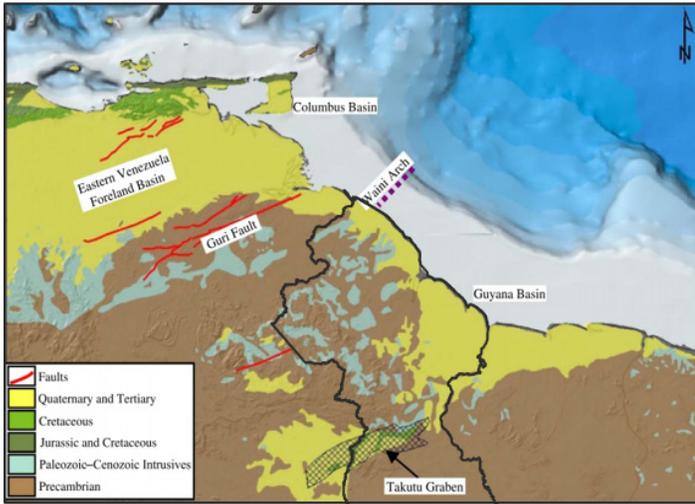
- Abounding opportunities for business growth and excellence exist in Guyana’s fast-growing, diversified and resilient economy that is continually expanding in all major economic sectors. Investing in Guyana has many benefits:
  - Unlimited carry-over of losses from previous years
  - Accelerated depreciation on plant and equipment
  - Full and unrestricted repatriation of capital, profit and dividends
  - Benefits of double taxation treaties with the UK, Canada, Kuwait and CARICOM.
- Economic stability, attainable national policies, and a fair tax regime are all hallmarks of this prime investment destination that will soar to greater heights through private sector investment and Government support.
- With Guyana only in the nascent stages of fully developing its thriving oil and gas sector, there are numerous opportunities for support companies to provide goods and services.
- According to the World Bank’s latest Global Economic Prospects Report, Guyana is projected to realise a Real GDP growth rate of 49.7%. It is the only country in the world that is forecast to attain such a feat this year.



An offshore oil rig is shown at sea, with a large yellow derrick and other structures. The rig is positioned in the center of the frame, with the ocean in the foreground and a cloudy sky in the background. The text is overlaid on the rig.

# TRANSFORMATION OF THE UPSTREAM MARKET

# Geological Overview



## Guyana has two main petroleum provinces:

1. The Guyana Basin which comprises an onshore and offshore section; and
2. The Takutu Basin which is situated in south-western Guyana.

The Guyana Basin has proven to be a super-prolific source for oil with a total of 31 discoveries in the Stabroek Block (~11 billion BOE estimated recoverable resource) and three oil fields currently in development.

The recent offshore exploration success in the Stabroek Block has led to increased interest in the prospectivity of the wider Guyana Basin.

## Petroleum System

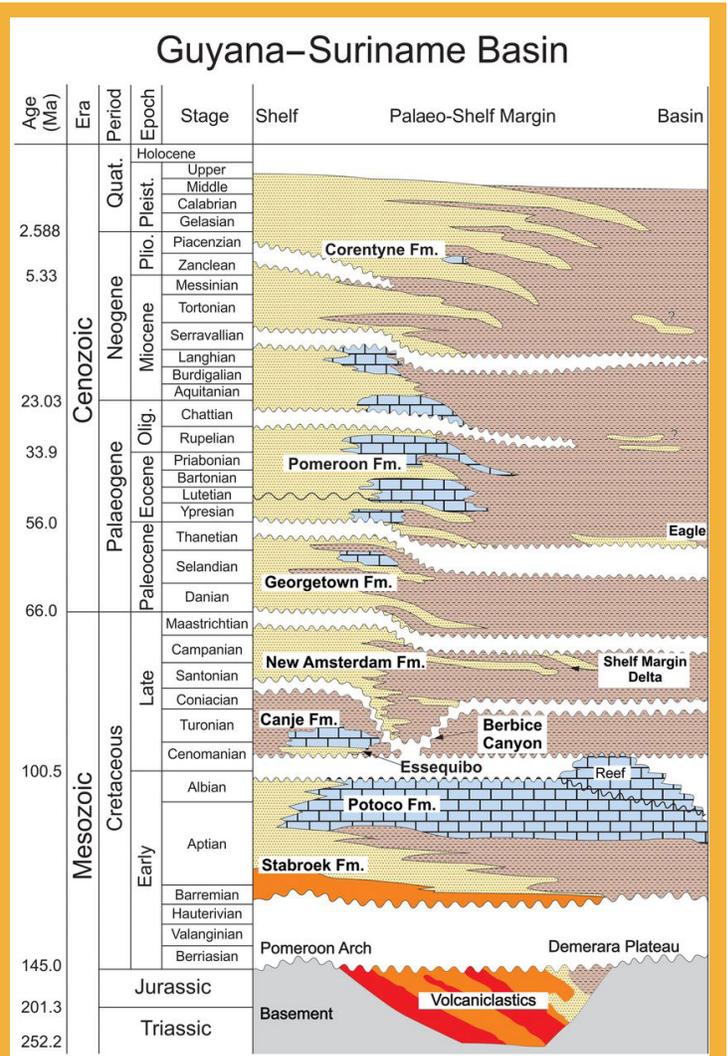
The Guyana Basin is approximately 120,000 km<sup>2</sup>, with most of it lying offshore Guyana.

Sediment deposits are canyon features off major rivers, and slumped deposits off the shelf edge with river deposition and carbonates.

## Source Rock

Guyana's world class source rocks are the Canje (>300m) marine shale oil source rocks, which were deposited during marine transgression.

The main source kitchen is the Canje-Saramacca formation of Cenomanian to Turonian age. The main risks in the Guyana Basin remain migration pathways, seals, and timing.



## Reservoir Rocks

The main reservoir rocks are as follows:

1. New Amsterdam
2. Stabroek
3. Georgetown
4. Potoco

## Seal/Trap

There are multiple stacked reservoirs where hydrocarbons can be trapped at different levels. The Pomeroon Formation, for example, consists of seasonal carbonates which is a recognised seal.

The geology also features sealing of reservoir sands when encased in deep marine shales as the sands flow under gravity along incisions.

# GUYANA'S PETROLEUM ECONOMY ADVANCES WITH 31 OFFSHORE DISCOVERIES

- Exploration for more world-class finds continue in 2022
- Historic auction scheduled for third quarter



Guyana's oil journey which began since the 18th Century is now a booming, blissful reality of transformative wealth waiting to be unlocked from the discovery of approximately 11 billion barrels of oil equivalent resources in the Stabroek Block alone. There is even noteworthy potential for an increase in the offshore reserve estimate as other operators complete appraisal work this year. To date, there have been 31 discoveries in the Stabroek Block.

Currently in production mode is the Liza Destiny Floating, Production, Storage and Offloading (FPSO) vessel— Guyana's first FPSO. It operates at the Liza Phase One Development where first oil was achieved on December 20, 2019. The Liza field crude has a crude quality at 32.1° API gravity and 0.51% sulfur, according to ExxonMobil's assay library. This light-to-medium, sweet crude has

attracted the interest of refineries from all parts of the world including in the US Gulf Coast (USGC), India, Europe and China. As freight rates increase, West African crudes with an API gravity range of 28-36° have decreased in the US by 60% since 2016. A continued decrease could occur as USGC refineries look towards Guyana's sweet crude as a closer alternative.

The Liza Unity FPSO which has a capacity of approximately 220,000 barrels of oil per day, is also in operation bringing Guyana's production to producing approximately 340,000 barrels of oil per day in 2022. The deployment of the Liza Prosperity FPSO in 2024 will further raise capacity to 560,000 barrels of oil per day. With the anticipated fourth production area - Yellowtail - estimates are poised to reach 810,000 barrels of oil per day by 2026/27 and additional

developments under consideration could see Guyana reaching six FPSOs producing one million barrels of oil per day by 2030.

Additionally, the current estimate of Guyana's gas reserve is pegged at 16 trillion cubic feet (Tcf) with projections from Liza One and Two likely at 50 million standard cubic feet per day (mmscfd), while Payara will bring an additional 20 mmscfd. This augurs extremely well for the sustainability of the country's imminent Gas-to-Energy Project which will underpin the country's energy security needs.

In recent years, the energy transition has affected global exploration, diverting or even revising what had previously been focal areas for operators; whether it be by constraining the geographical area of attention, targeting a specific hydrocarbon type, or pursuing value rather than volume through infrastructure led exploration. But in the face of those factors, one constant has remained—International Oil Companies are hungry for High Impact Wells (HIWs). This has remained a fundamental aspect of exploration as proven by 2021 discoveries alone in Guyana and other prime locations globally. In fact, HIW drilling will continue offshore Guyana in 2022.

In the Stabroek Block, ExxonMobil and partners commenced a 12-well campaign following regulatory approval. As a result of this campaign, there were three new discoveries in April southeast of the Liza and Payara developments.

The Barreleye-1 well encountered approximately 230 feet (70 meters) of hydrocarbon-bearing sandstone and was drilled in 3,840 feet (1,170 meters) of water. Drilling at Patwa-1 encountered 108 feet (33 meters) of hydrocarbon-bearing sandstone and was conducted in 6,315 feet (1,925 meters) of water. The Lukanani-1 well encountered 115 feet (35 meters) of hydrocarbon-bearing sandstone and was drilled in a water depth of 4,068 feet (1,240 meters). Other Exploration wells planned for the first quarter of 2022 in this prolific offshore concession include: Tarpon-1, located approximately 63 miles Northwest of Liza, which target lower Campanian clastics, plus a deeper Jurassic carbonate. The well will spud following completion of Fangtooth operations.

As for the appraisal programme in 2022 for the Stabroek Block, this will be focused on delineating future developments. First quarter appraisal activities will include the Tilapia-2 appraisal well, located approximately 24 miles Southeast of Liza-1. The well will appraise the February 2019 Tilapia-1 discovery in the Turbot area and is anticipated to spud in March. In addition, the ExxonMobil-led consortium plans to conduct drill stem tests at Tilapia-1 and Pinktail-1.

ExxonMobil is also poised to explore the hydrocarbon potential of the Canje and Kaieteur Blocks, too. Building on its recent offshore positive results at the Kawa-1 exploration well, CGX Energy Incorporated and Frontera

Energy anticipate spudding their second commitment well, called Wei-1, in the northwestern part of the Corentyne block in the second half of 2022.

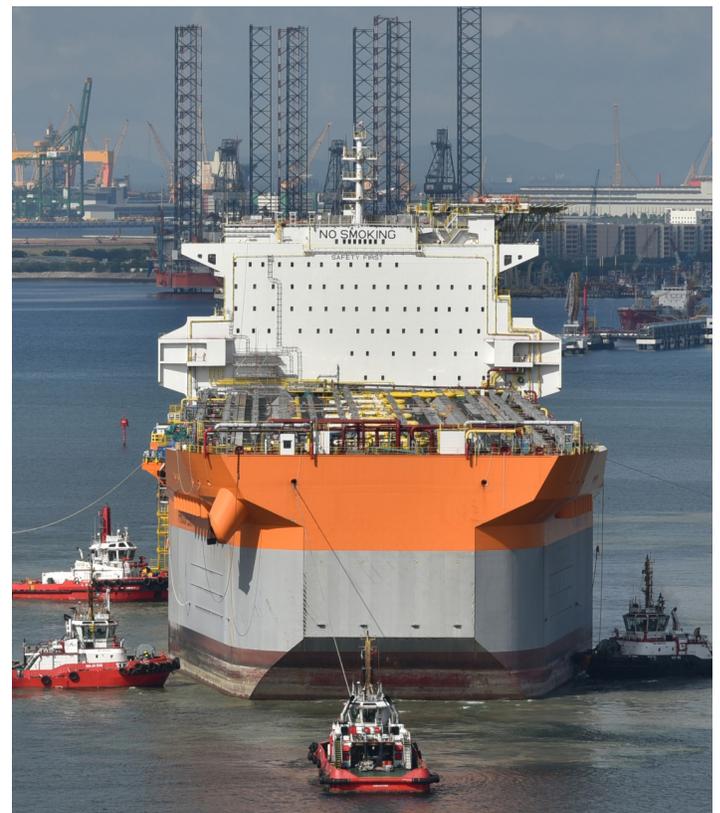
Repsol and its partners in the Kanuku license offshore Guyana plan to drill the Beebei-Potaro prospect in mid-2022. According to British explorer Tullow Oil, one of the partners, this is a commitment well that will target more than 200 MMbbl of resources from two intervals.

The Government of Guyana is considering three options for competitive bidding of available acreages offshore Guyana. These will include:

1. Tendering of acreages with seismic studies
2. Tendering of acreages without seismic study
3. Vested interest in the acreages through a possible National Oil Company (NOC), either with or without international partnerships

These considerations will allow for the government to implement the most effective and competitive allocation of the available areas by the end of the third quarter of 2022. This marketable approach to Guyana's resource development will provide for increases in investment along the value chain of the petroleum sector.

Moreover, the legal framework (Petroleum Act) governing the sector will be subjected to a continuous strengthening exercise to protect the interests of the State and its people. Work on Guyana's model Production Sharing Agreement (PSA) is also poised to progress this year.



# List of Operators



## Esso Exploration and Production Guyana Ltd. (EEPGL)

<b>History in Guyana:</b>	<p>EEPGL, an affiliate of ExxonMobil initiated oil and gas exploration activities in Guyana in 2008, collecting and evaluating substantial 3-D seismic data that led to the company drilling its first exploration well in 2015, Liza-1.</p> <p>ExxonMobil is now firmly established in Guyana, operating an office in Georgetown, with numerous ongoing exploration and development operations offshore. ExxonMobil Guyana has made 31 discoveries since 2015 and begun production in December 2019 from the Liza Phase 1 Development. Liza Phase 2 began production in February 2022.</p>
<b>Block/s:</b>	1. Stabroek – <b>45%</b> 2. Kaieteur – <b>35%</b> 3. Canje – <b>35%</b>
<b>Location:</b>	99 New Market Street, North Cummingsburg, Georgetown, Guyana
<b>Tel #:</b>	592-231-2866
<b>Email:</b>	guyanastaff@exxonmobil.com
<b>Website:</b>	<a href="https://corporate.exxonmobil.com/Locations/Guyana">https://corporate.exxonmobil.com/Locations/Guyana</a>



## Repsol Exploration Guyana S.A.

<b>History in Guyana:</b>	<p>Repsol's current activity in Guyana is focused on the Kanuku Block 150 kilometres offshore Guyana. Repsol operates the block with a 37.5% working interest. Repsol has been present in Guyana since 1997.</p> <p>Repsol drilled its first Guyana exploration well in 2012 in the Georgetown Block, and at the end of the Georgetown license, the company successfully applied for and received a new Petroleum Prospecting License in 2013 for the Kanuku Block. We completed 2D and 3D seismic acquisitions in the Kanuku Block in 2013 and 2017.</p>
<b>Block/s:</b>	1. Kanuku – <b>37.5%</b>
<b>Location:</b>	107-108 Duke Street, Kingston, Georgetown, Guyana
<b>Tel #:</b>	N/A
<b>Email:</b>	N/A
<b>Website:</b>	<a href="https://www.repsol.com/en/repsol-worldwide/the-americas/guyana/index.cshtml">https://www.repsol.com/en/repsol-worldwide/the-americas/guyana/index.cshtml</a>



## Tullow Guyana B.V.

<b>History in Guyana:</b>	<p>Tullow has interests in two neighbouring licenses offshore Guyana with a 60% operated interest in the Orinduik Block and a 37.5% non-operated interest in the Kanuku Block. Tullow's position in Guyana dates back to 2008, when the Group farmed into the then named Georgetown licence, operated by Repsol.</p> <p>In 2013, Repsol re-secured the newly-defined Kanuku Block, and Tullow secured a 30% interest.</p> <p>In early 2018, Tullow agreed to increase its equity share in the Kanuku licence from 30% to 37.5% in a farm-in deal with Repsol. In early 2016, Tullow increased its Guyana position after being awarded a 60% operated interest in the Orinduik licence, which is a 1,776 square kilometre offshore block. Tullow has made 2 discoveries, Joe and Jethro.</p>
<b>Block/s:</b>	1. Orinduik – <b>60%</b> 2. Kanuku – <b>37.5%</b>
<b>Location:</b>	176 Middle Street, South Cummingsburg, Georgetown, Guyana
<b>Tel #:</b>	592-231-9967
<b>Email:</b>	www.tulloiloil.com
<b>Website:</b>	eon.stephens@tulloiloil.com



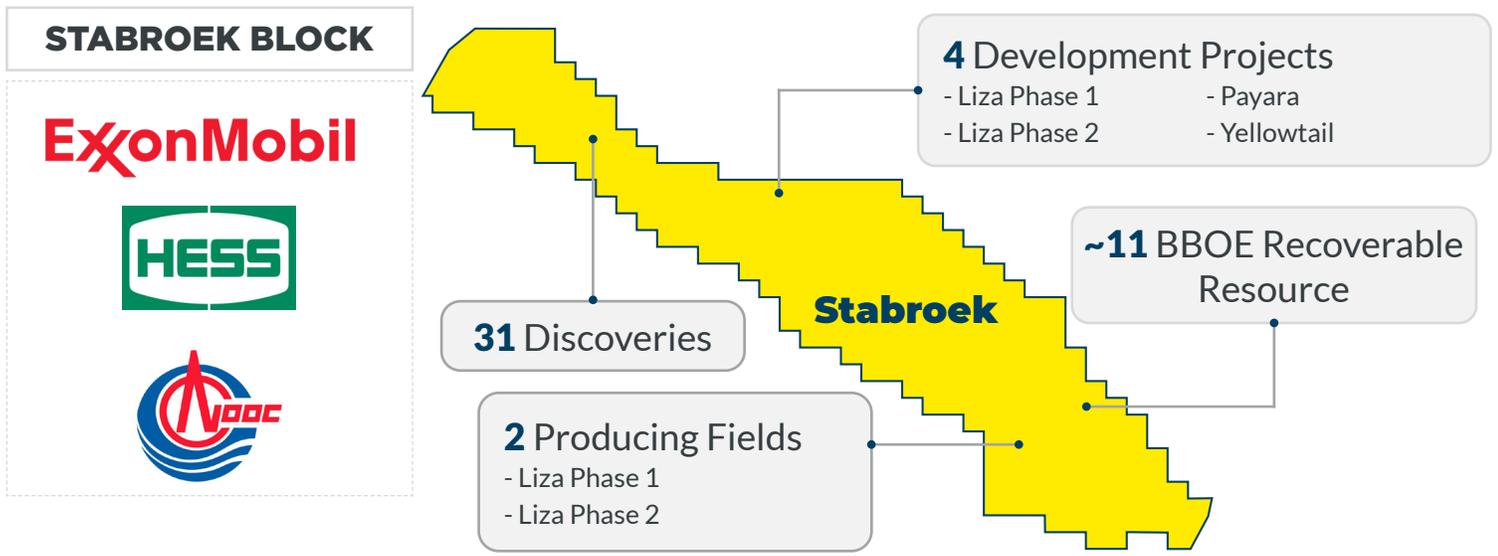
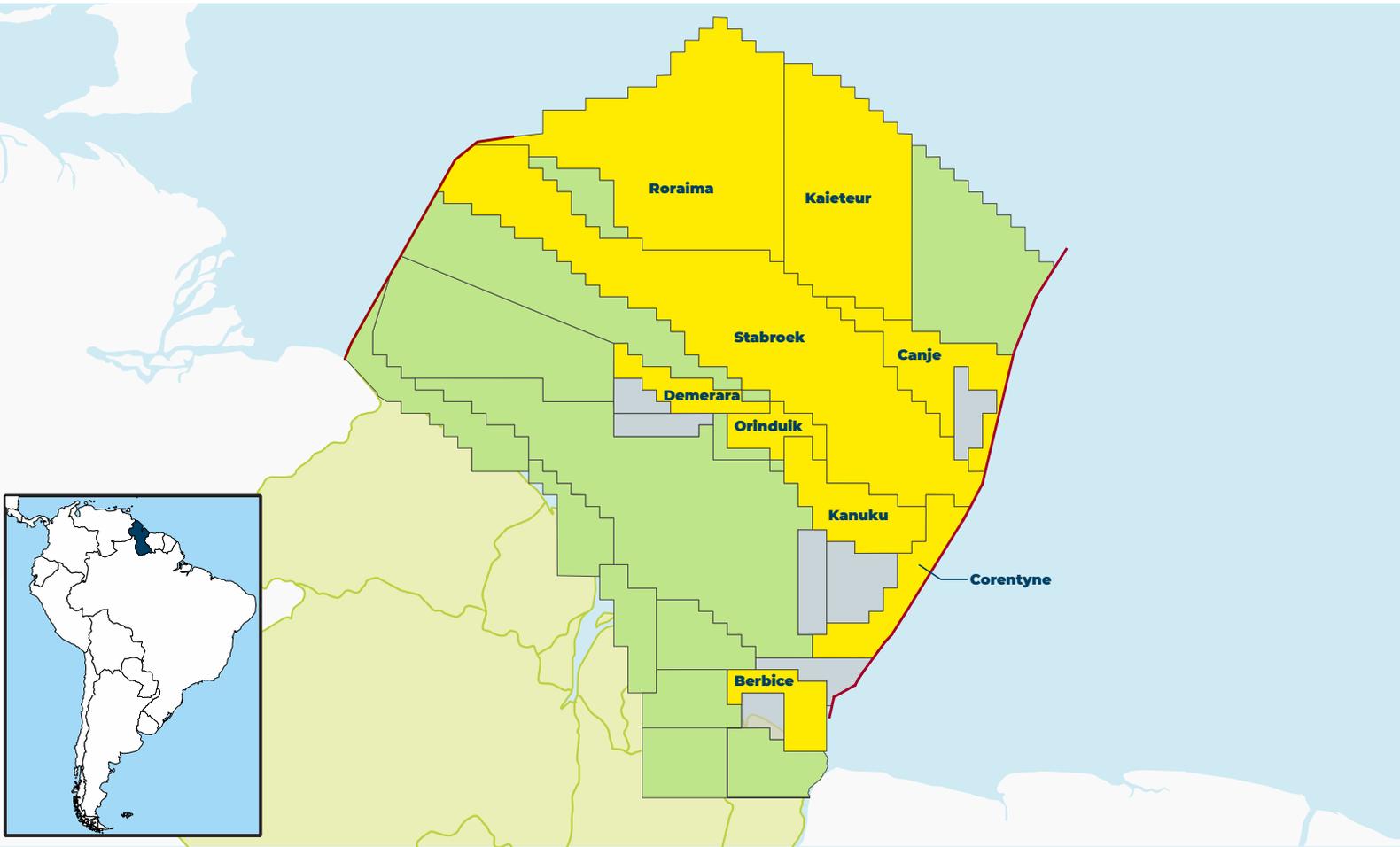
## CGX Resources Inc. | ON Energy

<b>History in Guyana:</b>	<p>CGX is a Canadian oil and gas exploration company that holds interests in three licenses in the Guyana Basin, a proven petroleum basin with over 10 billion barrels of recoverable oil equivalent discovered to date.</p> <p>Since 1997, CGX has been an active explorer both onshore and offshore Guyana. The company has drilled two operated exploration wells on its offshore Corentyne Block. In addition, CGX has acquired and processed over 7,000 km<sup>2</sup> of 3D seismic data on its offshore licenses.</p> <p>Using these, CGX has developed a low-risk, high-reward prospect inventory and is now poised to drill two exploration wells, with Joint Venture Partner Frontera Energy Corporation, in the near term on its offshore Corentyne and Demerara Blocks. ON Energy is a subsidiary of CGX.</p>
<b>Block/s:</b>	1. Corentyne – <b>66.6%</b> 2. Demerara – <b>66.6%</b> 3. Berbice – <b>100%</b> (ON Energy)
<b>Location:</b>	234 Lance Gibbs and Irving Streets, Queenstown, Georgetown, Guyana
<b>Tel #:</b>	592-225-5038
<b>Email:</b>	info@cgxenergy.com
<b>Website:</b>	https://cgxenergy.com

# Transformation of the Upstream Market



## Layout of Offshore Guyana



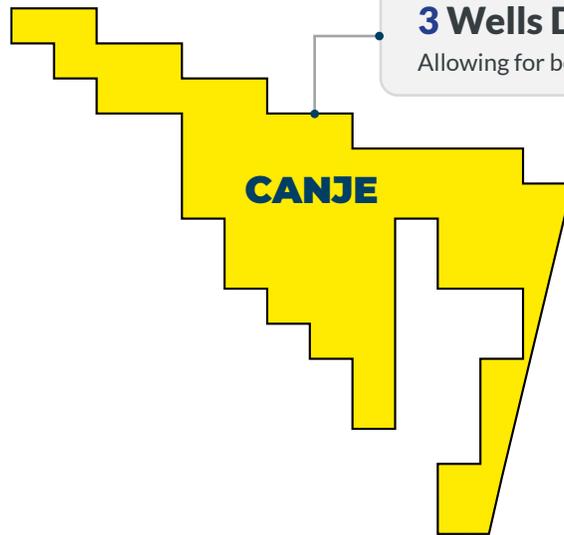
### CANJE BLOCK

**ExxonMobil**

**TOTAL**

**JHI**

**Mid-Atlantic Oil & Gas Inc.**



#### 3 Wells Drilled

Allowing for better understanding of the block

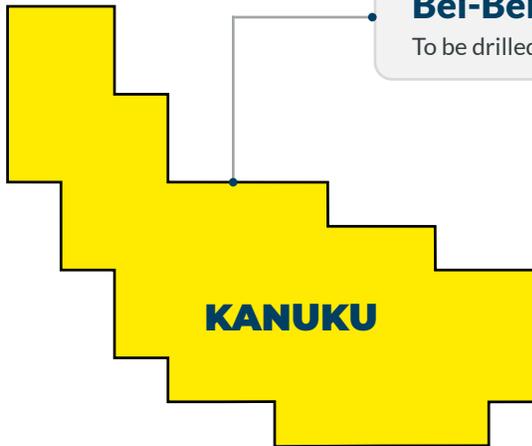
### KANUKU BLOCK

**REPSOL**

**TULLOW**  
pic

**TOTAL**

قطر للبترول  
Qatar Petroleum



#### Bei-Bei-1 well

To be drilled in Q2 2022

#### 1 Discovery

Carapa-1

### ORINDUIK BLOCK

**ECO**  
ATLANTIC  
OIL & GAS

**TULLOW**  
pic

**TOTAL**

قطر للبترول  
Qatar Petroleum

**~771 MMBOE** Net prospective resource

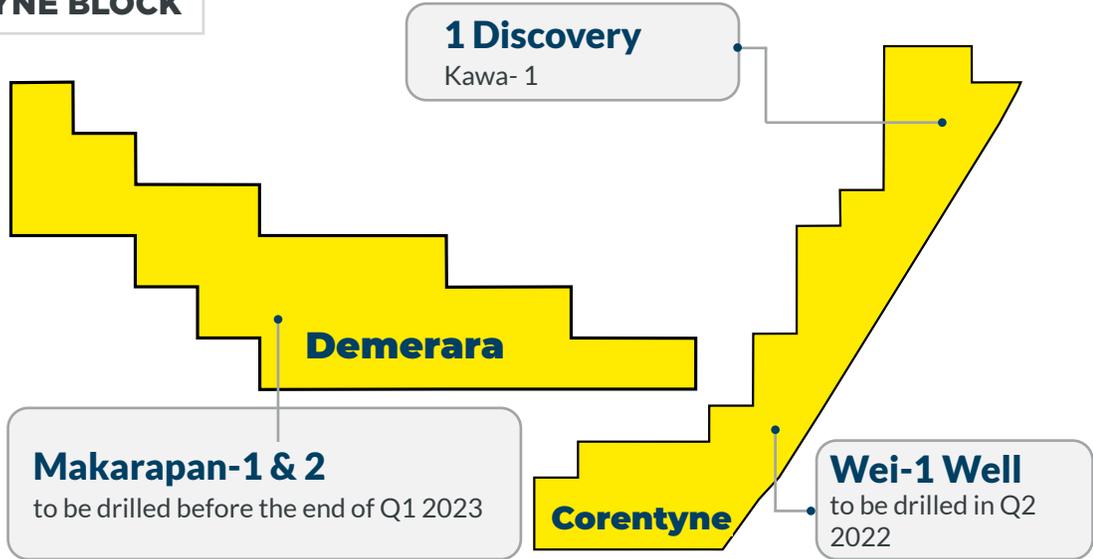


#### 2 Discoveries

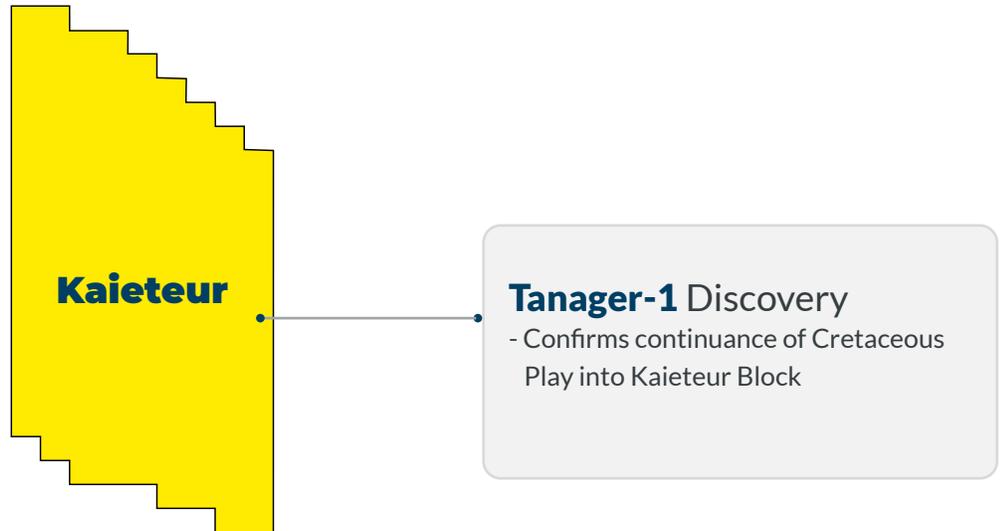
Jethro-1

Joe-1

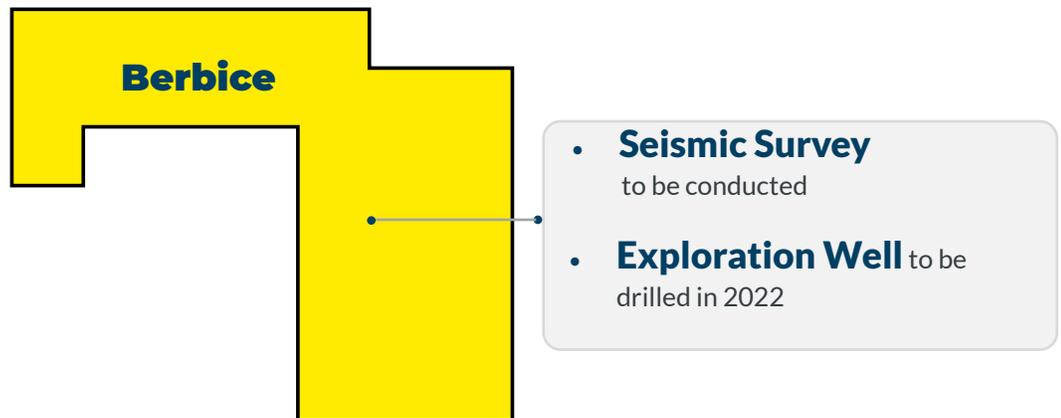
## DEMERARA & CORENTYNE BLOCK



## KAIETEUR BLOCK

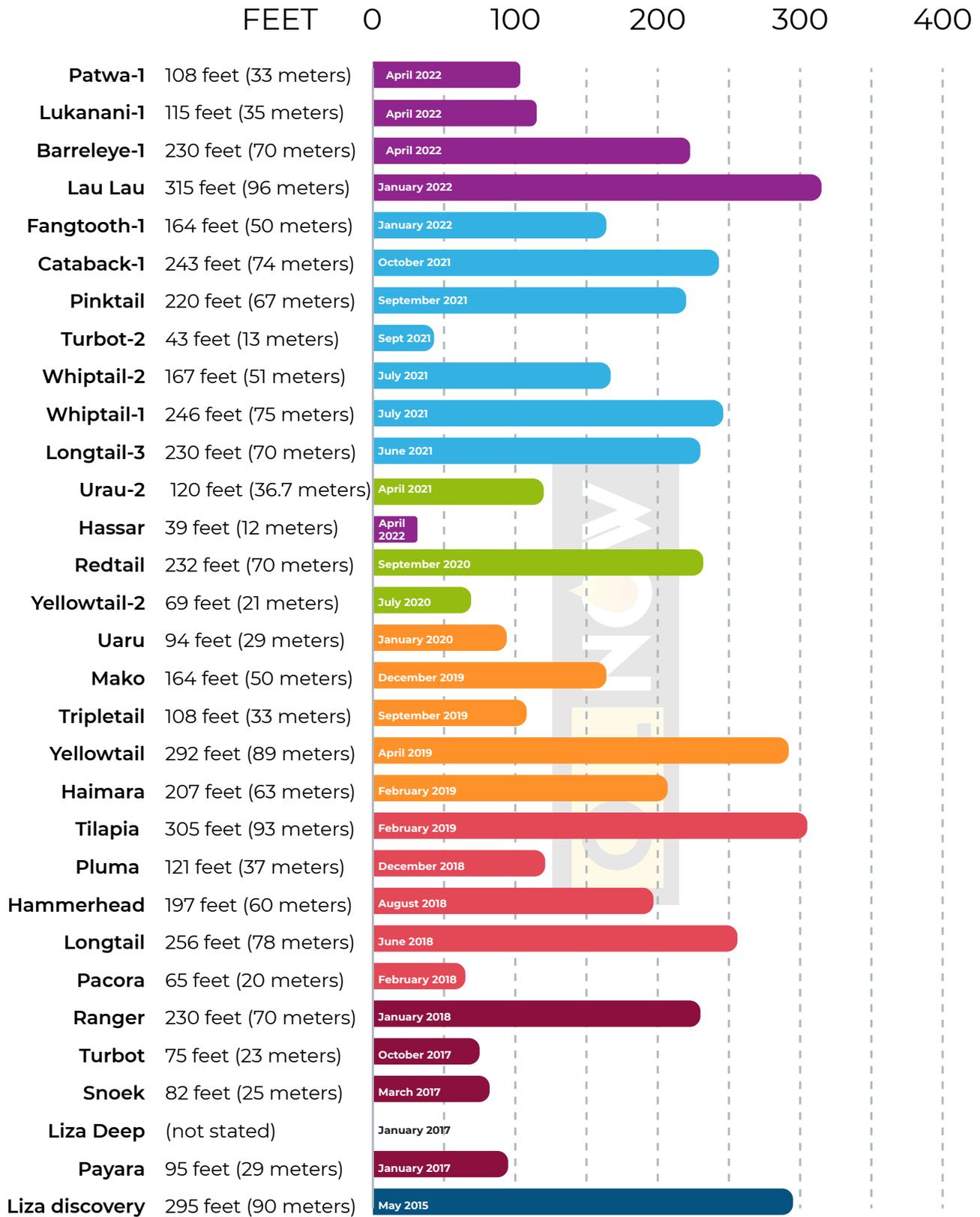


## BERBICE BLOCK



**~82,718 sq.km/ ~20.4 million acres Total Unallocated Acreage**

# Guyana Discoveries: Stabroek Block



Prepared by OilNOW  
www.oilnow.gy

## 11 billion BOE

# Stabroek Block Development

## Five Major Discoveries for 2022

On April 26, 2022, Operator of the Stabroek Block, Esso Exploration and Production Guyana Limited (EEPGL) announced three new oil-field discoveries at Barreleye-1, Patwa-1, and Lukanani-1 Wells Offshore Guyana. This builds on the two major discoveries announced on January 5, 2022 at Fangtooth-1 and Lau Lau-1. These discoveries have increased the recoverable resource estimate for the block to approximately 11 billion oil-equivalent

The Fangtooth-1 well encountered approximately 164 feet (50 M) of high-quality, oil-bearing sandstone reservoirs. The well was drilled in 6,030 feet (1,838 meters) of water and is located approximately 11 miles (18 KM) northwest of the Liza field. The Lau Lau-1 well encountered approximately 315 ft. (96 M) of high-quality, hydrocarbon-bearing sandstone reservoirs. The well was drilled in 4,793 feet (1,461 M) of water and is located approximately 42 miles (68 KM) southeast of the Liza field.

The Barreleye-1 well encountered approximately 230 feet (70 meters) of hydrocarbon-bearing sandstone and was drilled in 3,840 feet (1,170 meters) of water. A second well, Patwa-1, encountered 108 feet (33 meters) of hydrocarbon-bearing sandstone and was drilled in 6,315 feet (1,925 meters) of water. The Lukanani-1 well encountered 115 feet (35 meters) of hydrocarbon-bearing sandstone and was drilled at a water depth of 4,068 feet (1,240 meters). Barreleye-1 and Lukanani-1 are located in the South East of the block and operations are ongoing at both. Patwa-1 is located in the North East of the Stabroek Block.

The Liza Unity Floating Production Storage and Offloading (FPSO) vessel commenced production this quarter. This FPSO has a production capacity of 220,000 barrels of oil per day at peak production at the Liza Phase Two development site.

The Liza Unity FPSO, which is approximately 340 M (1115 ft) long and by 60 M (197 ft) wide, can store up to two million barrels of crude, offloading one-million-barrel parcels in a 24-hour period, every four to six days. Like the Liza Destiny FPSO, production operations on this FPSO requires approximately 100-120 persons. The Liza Phase Two Development area is located approximately 190 KM (120 miles) northeast of Georgetown in the Stabroek Block. The subsea infrastructure includes 30 wells; 15 producers; nine water injectors, and six gas injectors.

## UPCOMING PROJECTS

### Payara

Following Government and regulatory approval of ExxonMobil's third project, Payara, a final investment decision was made in September 2020. The Payara field development is located in the Stabroek Block approximately 200 km off the coast of Guyana. The water depth in the area is approximately 2,000 M. The resource base for the offshore field development is estimated to be 600 million barrels of oil equivalent (Mboe). The project includes a third FPSO: the Prosperity, which will be approximately 340 M (1,115 ft.) long and 60 M wide (197 ft.), will produce up to 220,000 barrels of oil per day and store up to two million barrels. It will also be able to offload one-million-barrel parcels in 24-hour periods every four to six days.

Production operations on the FPSO will require approximately 100-120 persons at peak. Startup for the Prosperity FPSO is expected in 2024. The design of the Prosperity FPSO is based on SBM Offshore's Fast4Ward programme. SBM Offshore was contracted for the construction and installation of the Prosperity FPSO in October 2020. It will lease and operate the FPSO initially for two years before transferring the ownership and operatorship to EEPGL. Payara FPSO construction is running approximately five months ahead of schedule with start-up likely before year-end 2023.

### Yellowtail

The Yellowtail Project is poised to be the largest oil production venture in Guyana's waters. The Project will develop the Yellowtail and Redtail fields and is located approximately 203 KM (approximately 126 miles) northeast of the coastline of Georgetown in waters approximately 1,700 to 1,900 M (5,577 to 6,234 ft.) deep. It is expected to utilise an FPSO that can produce up to 250,000 barrels of oil per day. The initial production is expected to begin by end of 2025-early 2026, with operations continuing for at least 20 years.

ExxonMobil Guyana received the environmental authorisation for the project and the Petroleum Production Licence on April 1, 2022.

The foregoing projects continue to drive investment in Guyana's growing economy.



**THE LIZA UNITY FPSO**



# GROWTH OF THE MIDSTREAM AND DOWNSTREAM MARKETS

# Guyana passes historic Local Content Legislation

On December 31, 2021, the President of the Cooperative Republic of Guyana, His Excellency Dr. Mohamed Irfaan Ali, assented to, and paved the way for the implementation of the nation's Local Content Act No. 18 of 2021.

The Act serves to provide for the implementation of local content obligations on persons engaged in petroleum operations or related activities in the oil and gas sector; prioritises Guyanese nationals and companies in the procurement of goods and services, and enables local capacity development.

Importantly, it provides for the involvement of Guyanese, investigation, co-ordination, monitoring and evaluation of local content in Guyana; promotes competitiveness and encourages the creation of related industries that will sustain the social and economic development of Guyana.

The First Schedule of the Act ring-fences 40 categories – sectors and sub-sectors for Guyanese participation via the supply of goods and the provision of services which include: food supply, rental of office space, accommodation, insurance, accounting and legal services.

The foregoing categories carry minimum local content levels for which local participation has to be achieved by contractors, sub-contractors and licensees in the sector by the end of the calendar year 2022.

Overseeing the implementation of the Act is the Local Content Secretariat with the support of an Inter-Agency Advisory Committee.

The Secretariat has several functions which include: developing and maintaining measures for the effective implementation of local content by contractors, sub-contractors and licensees; developing and implementing



strategies that will give preference to, or ensure equal treatment of, Guyanese nationals and companies; conducting market analysis; making recommendations to the Minister; developing formats for local content plans and reporting; and, developing guidelines including guidelines for local content reporting, procurement, bid evaluation.

Another key function of the Secretariat would be to develop and maintain Local Content Registers of Guyanese nationals and companies which supply goods and provide services. Companies that utilise Guyanese nationals or companies not part of the register would not have those efforts or activities measured for compliance against the minimum local content levels as set out in the First Schedule of the Act.

The Act also provides for strict reporting requirements. A contractor, sub-contractor or licensee is required to submit Local Content Plans to the Minister for approval within the time prescribed in the Act. The Local Content Master Plans are required to include an Employment Sub-Plan, a Procurement Sub-Plan; a Capacity Development Sub-Plan. Local Content Master Plans, are required to be updated and submitted every five years. The Local Content Plans are required to include an annual programme with respect to the matters identified in the sub-plans of the Local Content Master Plan. A contractor, sub-contractor or licensee is also required to submit a Local Content Report to the Secretariat, within 30 days after the end of each half calendar year, outlining its compliance with the approved minimum local content levels.





# Local Content Development

As it relates to the petroleum sector, local content development is focused on transforming the economy and enhancing the well-being of all Guyanese by improving the local workforce, supply chain and business environment. The overall goal is to maximise the level, quality and benefits of participation in the petroleum sector value chain by Guyanese.

For Guyana, local content development will be directed towards the following areas:

## Value Maximisation

Value Maximisation from the sector can and will be gained in various ways such as skills development, job creation, slowing and reversing the brain-drain, inclusivity, supply chain development and management, increased in-country activity by foreign parties and capacity building for local suppliers, etc.

## Supplier Development

This would include raising the local standards, boosting productivity through training, transfer of knowledge and technology, etc.

## Capital Market Enhancement – Creating Investment Opportunities

This will entail creating investment opportunities such as those related to procuring goods and services through local supply chains and other methods.

## Good Governance

This will encapsulate clear and utilitarian regulations, an empowered regulator, and systems to ensure accountability and transparency.

## Training, Skill Development and Employment

This will involve knowledge transfer to locals for the acquisition of posts in the upstream market, while also providing locals with the skills needed to expand in the midstream and downstream markets.

## Local Content Secretariat

**Register:** [lcregister.petroleum.gov.gy](http://lcregister.petroleum.gov.gy)

**Email:** [localcontent@nre.gov.gy](mailto:localcontent@nre.gov.gy)

[www.nre.gov.gy](http://www.nre.gov.gy) | [www.petroleum.gov.gy](http://www.petroleum.gov.gy)

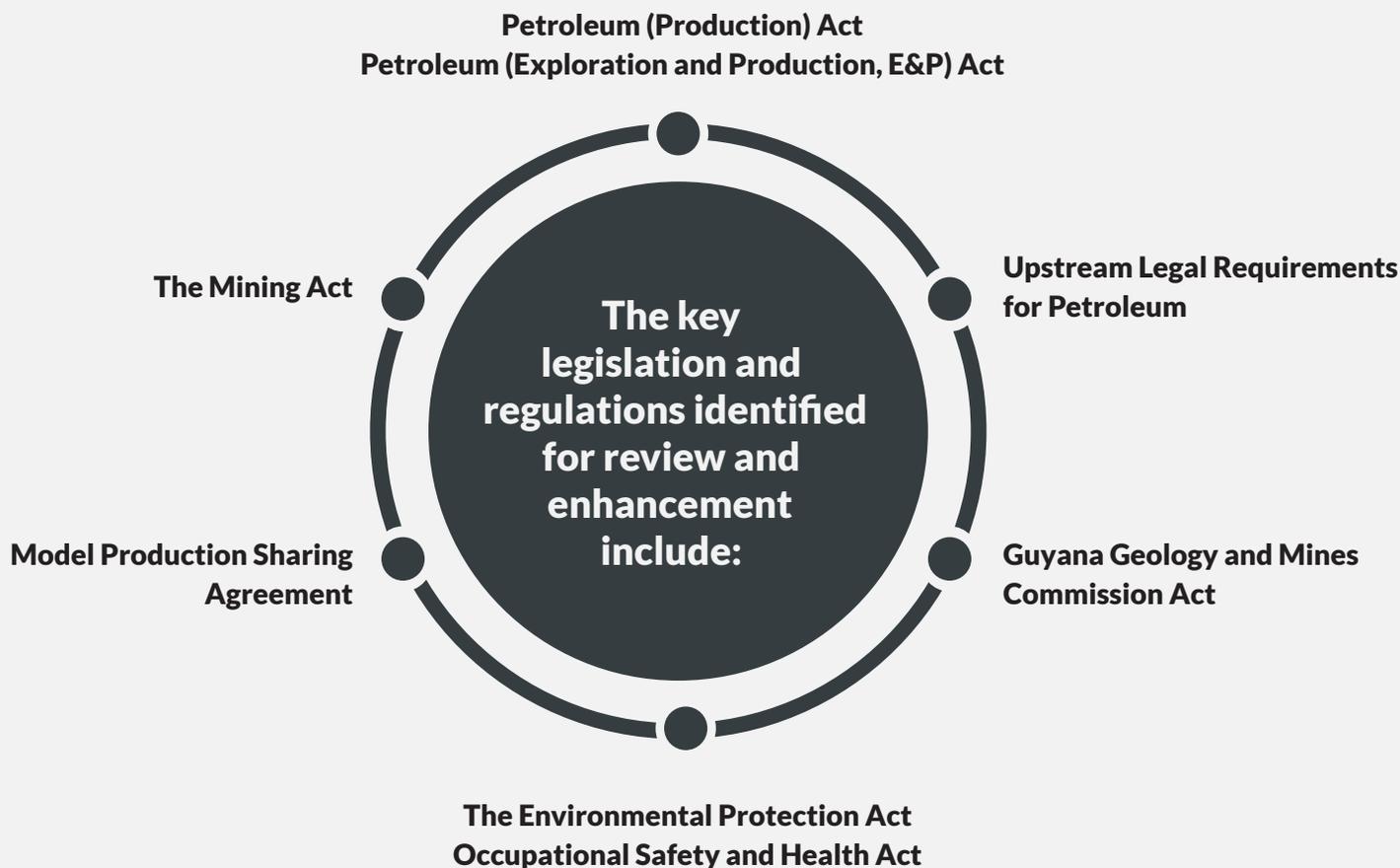




# Review and Enhancement of the Regulatory Framework

The Government of Guyana seeks to modernise its legal and regulatory framework as it relates to the petroleum sector to address issues such as oil revenue management, licensing, Production Sharing Agreement models, local content, and Health, Safety, Environmental and Security (HSES) management.

The result would be maximising the economic benefits to the country, improved management of the technical, environmental, social and financial risks linked to the sector and building capacity to engage effectively with investors.



# Natural Resource Fund Act 2021

## for Effective Management of Oil Earnings

Upon its assumption to office in August 2020, the Government of Guyana worked assiduously towards replacing its predecessor's deficient Natural Resource Fund (NRF) Act 2019 with the new NRF Act 2021 which now allows for the prudent management of oil revenues.

The new legislation addressed some of the most egregious deficiencies of the former law which included: fundamental weaknesses in the governance arrangements, including a high concentration of powers and responsibilities in the hands of the Minister of Finance, and the complete absence of a Board of Directors or similar governing body, as required by the Santiago Principles; lack of transparency, including an opaque and unnecessarily complicated formula for determining the ceiling on withdrawals from the Fund, and which was open to manipulation by the Minister of Finance; and loose arrangements that allowed for expenditure to be met directly from the Fund, bypassing the appropriation process, and therefore without prior parliamentary approval.

### The new NRF Act remedied these fundamental deficiencies by:

- Scaling back the excessive powers of the Minister of Finance and removing any possibility of ministerial discretion in determining the ceiling on withdrawals;
- Establishing a Board of Directors for the first time, and vesting in that Board the powers that were previously, concentrated in the hands of the Minister and;
- Removing the possibility of any expenditure from the Fund being met without prior parliamentary approval

### Purpose & Areas of Focus

The new legislation states that the purpose of Guyana's Natural Resource Fund is to ensure there is prudent management of the nation's oil earnings for the present and future benefit of the people by ensuring that volatility in natural resource revenues does not lead to volatile public spending. The objective of the Fund is also hinged on ensuring revenues collected do not lead to a loss of

economic competitiveness along with fairly transferring natural resource wealth across generations to ensure all Guyanese benefit from the sector. The Fund is also intended to ensure Guyana's natural resource wealth is used to finance national development priorities including any initiative aimed at realising an inclusive green economy.

To ensure that its purpose is realised, the NRF Act 2021 focuses on four key areas:

- Providing notification of all oil receipts to the National Assembly
- Ensure withdrawals are governed by a transparent process
- Parliamentary oversight and approval of every cent to be used
- Effective management and oversight via a Board of Directors, Public Accountability and Oversight Committee, the Audit Office of Guyana and ensure disclosure of their respective reports

### Governance & Oversight Arrangements

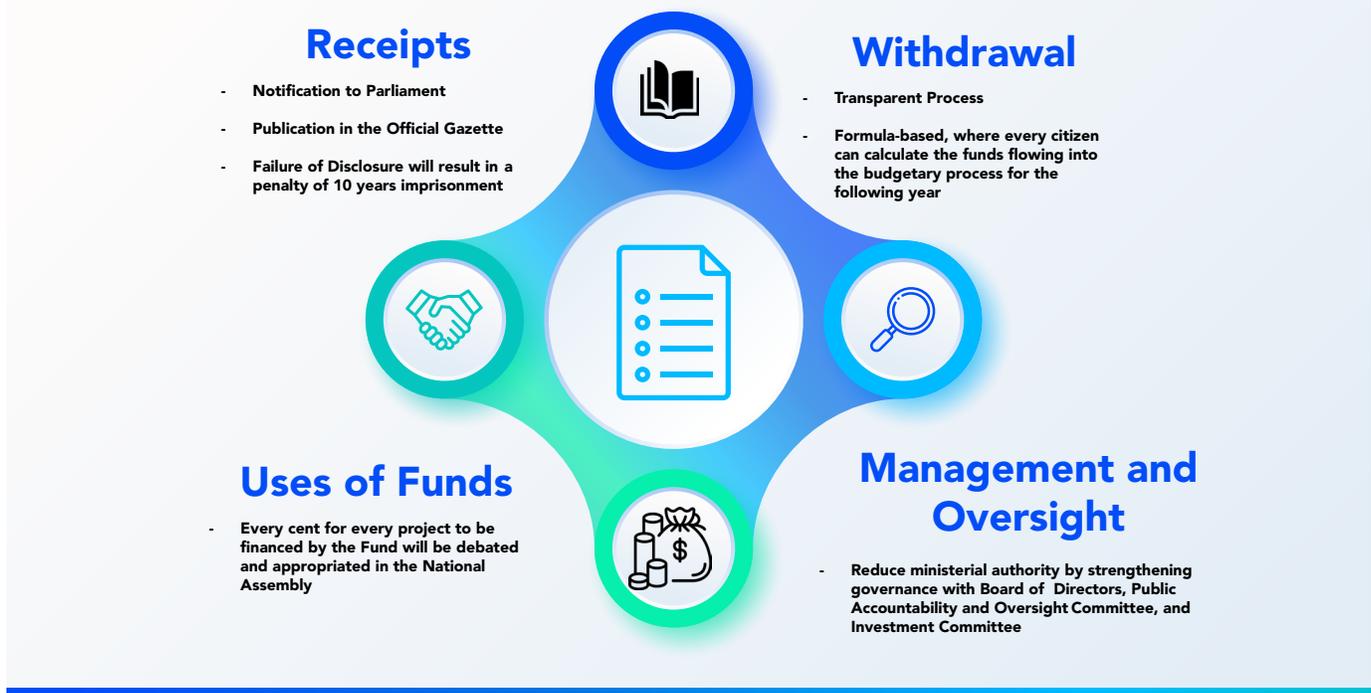
To ensure the purpose of the fund is carried out in accordance with the principles of good governance and international best practices including the Santiago Principles, a Board of Directors comprising not less than three and not more than five persons will soon be appointed by the President.

The Board would be responsible for overall management of the Fund, reviewing and approving the policies of the Fund; and preparing the Fund's investment. The law allows for an Investment Committee to be established and provide advice to the Board on the Fund's investment mandate. The Board would also be assisted by a Senior Investment Advisor and Analyst.

Furthermore, the legislation also paves the way for the establishment of a Public Accountability and Oversight Committee (PAOC) which will comprise of a nominee from the National Assembly, three representatives from the religious community, two from the private sector, two from organised labour and one from the professions. These persons would all be appointed by the President for a period not exceeding two years.

Guyana's Central Bank is responsible for the operational management of the Fund which includes establishing risk management arrangements and all necessary internal management systems for the fund.

# Four Key Areas of the NRF Act



## Deposits & Withdrawals

The NRF Act states that petroleum revenues shall be directly paid into a bank account denominated in United States dollars and held by the US Federal Reserve Bank in New York.

With respect to withdrawals, the law states that the maximum amount that may be withdrawn from the Fund in a fiscal year shall not exceed the total withdrawal from the Fund approved by the National Assembly for that fiscal year. It categorically states that all withdrawals shall be deposited into the Consolidated Fund and shall be used only to finance national development priorities including any initiative aimed at realising green economy and essential projects that are related to ameliorating the effect of a major natural disaster. Furthermore, the amount that may be withdrawn from the Fund in a fiscal year shall be subject to a ceiling calculated in accordance with the First Schedule in the Act.

## Reporting and Auditing

The legislation empowers the Auditor General of Guyana to audit the accounts of the Fund. He can also engage an internationally recognised auditing firm to assist in the discharge of this function.

The Board of Directors is also required to prepare and submit to the Minister, an annual report of the Fund.

Furthermore, the Minister is required to provide Guyana's National Assembly with an Annual Report on the Fund.

The Ministry of Finance is also mandated to publish on its website for public perusal: annual reports on the fund, audited financial statements and the external auditor's report; quarterly reports and financial statements submitted to the minister by the bank; monthly reports; and the Fund's investment mandate.

## Earnings

From the commencement of oil production in December 2019 to the end of March 2022, there were 81 lifts of oil exported from Guyana, of which ten were for the Government.

The Fund received US\$542.6 million from nine lifts of profit oil and US\$64.9 million from royalties for the period March 2020 to December 2021.

In the first quarter of 2022, the Fund received US\$95.9 million from a single lift and US\$16.1 million from royalties. As at March 31, 2022, the Fund's cumulative balance stood at US\$ 719.8 million.

An aerial photograph showing a large-scale pipeline construction project in a body of water. Several large, dark, cylindrical pipe sections are visible, arranged in a line. The pipes are connected by large, circular flanges with numerous bolts. The water is dark and shows some ripples and small waves. The overall scene is industrial and focused on infrastructure development.

# DEVELOPMENT OF THE NATURAL GAS MARKET

# Gas-to-Energy Project: Overview and Economic Impact

## Overview

While Guyana's offshore oil bounty has already made the country one of the world's fastest-growing economies, the government intends to use gas to unlock transformational levels of sustainable economic development. This would be done specifically through its highly anticipated gas-to-energy project.

The initiative will see the construction and operation of a pipeline from the Liza Destiny and Liza Unity Floating Production, Storage and Offloading (FPSO) vessels to an onshore natural gas liquids (NGLs) processing plant.

The project also entails the construction of a 225 km, 12-inch pipeline to transport the guaranteed minimum of 50 million standard cubic feet per day (mmcf/d) of natural gas from offshore Guyana to the Wales Development Zone.

Ongoing geotechnical and geophysical works for both offshore and onshore operations are advancing with portions already completed. Additionally, an Environmental and Social Impact Assessment (ESIA) is expected to be completed by early second quarter of 2022. Utilising a transparent procurement process, it is expected that the firm selected would be able to engineer, procure and construct the power plant and NGLs plant along with related facilities. Engineering, Procurement and Construction (EPC) works are expected to start in the final quarter of 2022 and will be completed by the fourth quarter of 2024.

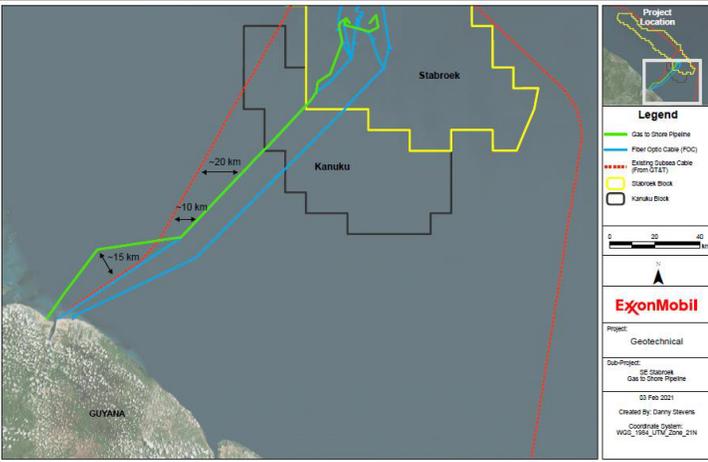
Esso Exploration and Production Guyana Limited (EEPGL) is the designated Operator of the Stabroek Block and has sought environmental authorisation for the project on behalf of itself and its co-venturers, Hess Guyana Exploration Limited and CNOOC Petroleum Guyana Limited.



## Economic Impact of Gas-to-Energy

The gas-to-energy project will generate a number of economic benefits which include:

- Significant reductions in electricity tariffs for the economy and the dependency of imported resources related to power production
- Development of the domestic manufacturing industry
- Harmonisation with the clean-and-green society policy
- Significant job creation for new and emerging sectors
- Increased business for industries tied directly and indirectly with the natural gas processing plant
- Increased power generation allowing for high energy consumption sectors such as industrialisation to be satisfied and expanded
- Encourages foreign investment in new businesses due to low power costs



In addition, a Marine Offloading Facility (MOF) may be utilised on the west bank of the Demerara River for offloading of heavy modules as well as other imported site construction materials (e.g., piles, rebar). The MOF potentially could include a vessel-based crane, an offloading barge with riverside mooring points, and a ramp connection to a riverside laydown area.

The additional support area and the MOF would only be used during the construction phase of the project and any temporary structures or equipment would be removed from this area upon completion of the construction phase.

## Gas-to-Energy: A Reliable Electricity Supply

The natural gas at the Liza Destiny FPSO and Liza Unity FPSO locations is estimated to be 0.2 Trillion Cubic Feet (TCF), which is sufficient to supply how many MMscfd for approximately 11 years. The result will be a reliable, low-cost energy supply for many years to come that has the potential to continue to grow with each new discovery.

## Wales Development Zone

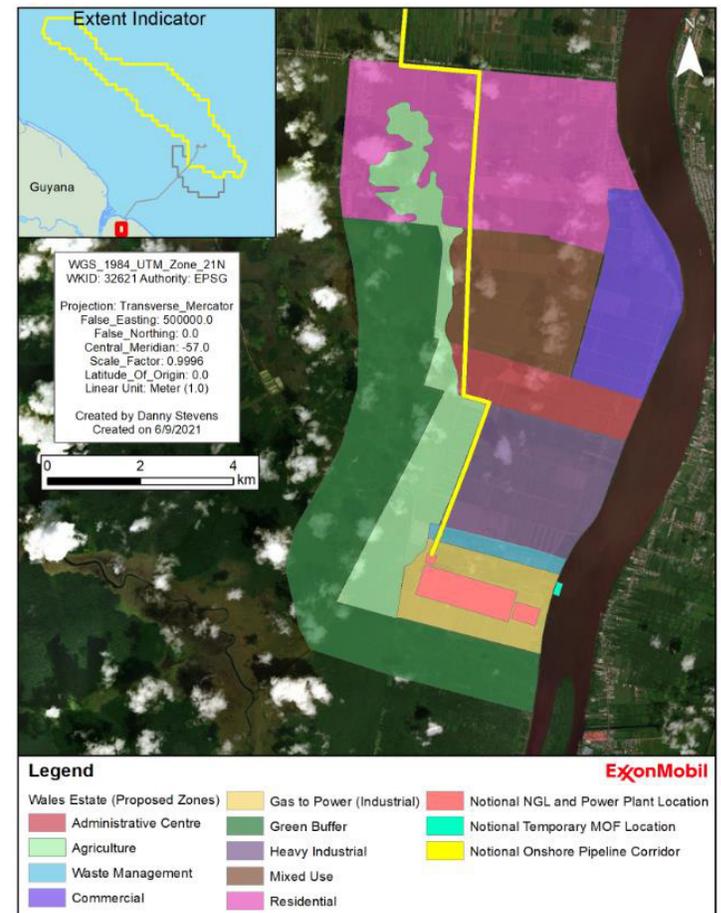
The Wales location has been identified for the landing of the gas pipeline for the gas-to-energy project after a comprehensive analysis was conducted on over 20 locations.

## Pipeline (Onshore and Offshore)

The natural gas for the gas-to-energy project will be supplied by the Liza Unity and Liza Destiny FPSOs. This gas will be transported to the natural gas processing plant, which will be located in the Wales area on the West Bank of Demerara via offshore and onshore pipelines.

A 12-inch diameter pipeline will transport up to 50 MMSCFD of gas from Liza Destiny and Liza Unity FPSOs to the Gas Processing Plant (GPP). The maximum flow capacity of the pipeline will be approximately 120 MMSCFD. The onshore pipeline will extend approximately 27 km from the shore landing to the NGL plant site. To allow for optimisation, the final pipeline alignment will be within (+/-) 200m of the government proposed right-of-way (ROW).

The final pipeline alignment and ROW will be optimised through the EIA process. Furthermore, the NGL plant site lies approximately 23 km upriver on the west bank of the Demerara River on abandoned sugarcane fields. The NGL plant site occupies an area of approximately 40 acres (approximately 16 hectares [ha]). An additional area of approximately 100 acres (approximately 40 ha) adjacent to the NGL plant site may be used by EEPGL's construction contractor for support of the project during construction.



This area will include sections for the following:

- Oil and Gas Shore Base Activities
- Heavy Industrial
- Waste Management
- Agriculture
- Commercial
- Administrative Centre
- Residential

The project is in the tendering stages.

## Enhanced Manufacturing Opportunities

As previously stated, the inclusion of the gas-to-energy facility will provide low-cost power for high-capacity manufacturing facilities that will occupy the Wales Development Zone.

In addition, being in proximity to the natural gas plant will allow for quick access to the natural gas and the by-products produced by the plant. Furthermore, the Wales Industrial Zone will consist of a number of complementary businesses/industries that will improve collective efficiency and reduce operating costs for all those industries. Among these will be the inclusion of a waste management facility that would be utilised by the various industries operating in the Wales Development Zone. Rather than individual businesses establishing their own elaborate waste management facility, all of their needs will be met by the central Waste Management Facility for the Development Zone.

This concept is also used for the inclusion of the other facilities and continuous evaluation will be done to identify and include other critical facilities in the future.



## Gas to Energy Project

Email: [gastoenergy@nre.gov.gy](mailto:gastoenergy@nre.gov.gy) | [www.nre.gov.gy](http://www.nre.gov.gy) | [www.petroleum.gov.gy](http://www.petroleum.gov.gy)

# Energy Hub with Suriname

Burgeoning oil production in Guyana could spawn new synergies with neighboring Trinidad and Tobago along with Suriname, while establishing the southern Caribbean region as a key energy hub, according to regional industry association, Arpel.

**“The strategy of Guyana is to become a major player in the energy corridor of Brazil, Guyana and Suriname.”**

A series of major offshore discoveries has prompted expectations that Guyana will be one of the largest producers of oil per capita in the world within five years. President, Dr. Mohamed Irfaan Ali said, “The strategy of Guyana is to become a major player in the energy corridor of Brazil, Guyana and Suriname.” Guyana intends to pipe gas to shore from the Liza field to substitute its current oil-fired power generation. The Liza field was the first significant oil find offshore Guyana.

The Government is also operationalising plans for renewable energy projects to support its intention of creating a cleaner energy mix. Furthermore, the energy corridor would see the countries teaming up to share power, based on a collective understanding of their needs and ability to supply.



# LCDS 2030

## Guyana's roadmap for climate change action and low-carbon economic transformation



Guyana's LCDS



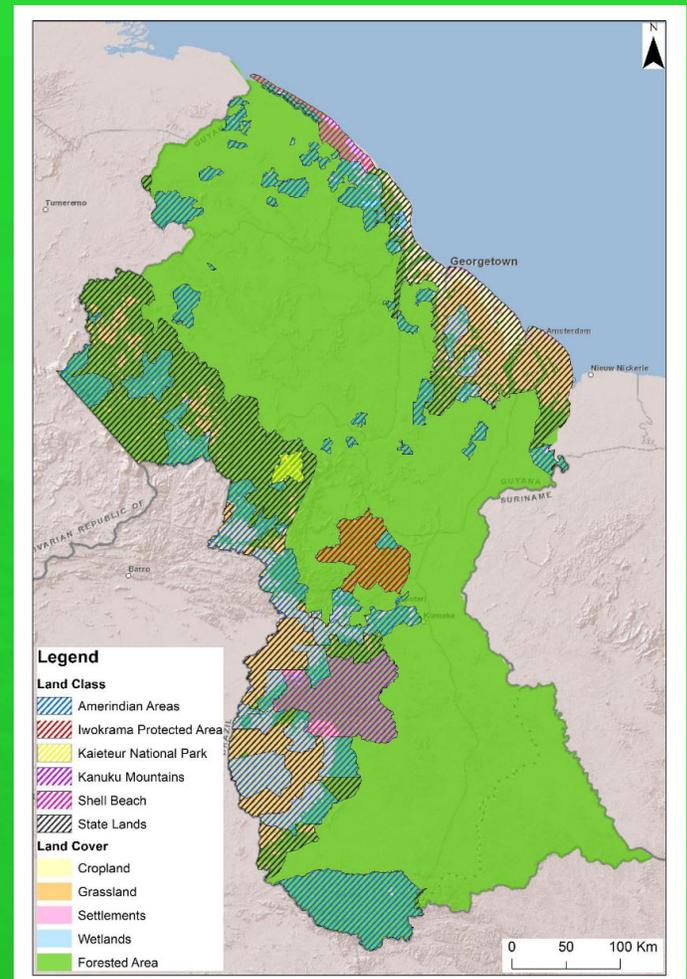
### History

In 2009, Guyana launched the first Low-Carbon Development Strategy (LCDS). Its vision was one of inclusive, sustainable development, while simultaneously maintaining the country's forests—about 87% of the country's territory. This was done with the intention to help meet some of the most urgent challenges the world faces resulting from the climate change phenomenon.

The then President of Guyana and now Vice President, Dr. Bharrat Jagdeo, had set out the vision for the first LCDS, and called for international partners to work on three interlinked objectives: create new economic incentives as it relates to making forests worth more alive than dead; stimulating future growth using clean energy and non-deforesting economic activities, and providing protection against climate change.

Recognising that the first objective of the LCDS required international action, Guyana sought partners who shared the country's vision. On this premise, Guyana and Norway, in 2009, agreed to work together to create a model for how progress on economic incentives for forests could be made. An agreement was subsequently signed where Norway would provide Guyana with result-based payments for forest climate services, alongside cooperation between the countries in the fight against climate change, the protection of biodiversity and the enhancement of sustainable development.

For the period 2009 to 2015, Guyana earned US\$212.52 million in payments, to be invested in the LCDS. This has created low-carbon jobs, enabled Amerindian villages to receive legal title for communal lands, rehabilitated the Cunha Canal to protect against flooding, and started



to equip Amerindian and Hinterland communities with renewable energy, digital infrastructure, and sustainable livelihood opportunities.

Crucially, Guyana and Norway cooperated to build a world-leading forest Monitoring, Reporting and Verification System (MRVS) which enables Guyana to move to the next stage of the LCDS with partners who share its vision for climate and biodiversity.

Building on those efforts, the government of Guyana launched the LCDS 2030 draft in November last year. That document was subjected to a four-month long virtual

consultation process which has concluded.

## LCDS 2030—The Low-Carbon Vision

The new LCDS 2030, as outlined in the draft for consultation, focuses on harnessing Guyana’s unique advantages in creating a new low-carbon economy. The Demerara Berbice Interconnected System (DBIS) is Guyana’s largest grid with peak power at 126 Megawatts (MW) in 2020.

It is estimated the peak load by 2025 will be 415MW. The DBIS has currently 202MW of firm capacity. However, some of that capacity is from aged generators with low reliability. It has

### Create New Incentives for a Low-Carbon Economy

#### Sustainability Planning

- Forestry
- Biodiversity
- Water Resources
- Ocean/Marine Resources

### Protect against Climate Change and Biodiversity Loss

#### Climate Adaptation and Resilience

- Climate Resilient Agriculture
- Climate Risk Assessment & Insurance
  - Coastal Infrastructure
- Mangroves Restoration and Expansion
  - Drought and Flood Management



### Stimulate Future Growth: Clean Energy and Low-carbon Development

#### Green Jobs and Sustainable Livelihoods

- Clean and Renewable Energy
- Ocean Economy Opportunities
- Digital Infrastructure
- Low-carbon Transportation

### Align with Global Climate and Biodiversity Goals

- UN Sustainable Development Goals
  - Nationally Determined Contributions
- Aichi Targets on Protected Areas
  - Leaders Pledge for Nature
    - UN: Net Zero by 2050

been estimated that by 2025, new 300MW of firm capacity will be needed to cover the demand increase, the retirement of aged generators and to increase the grid reliability.

If the electricity supply mix stays as it is today, consumer costs will not reduce significantly, while greenhouse gas emissions will triple by 2027, and increase steadily thereafter. In the original LCDS, it was foreseen that the Amaila Falls Hydropower Project would have been complete by now, delivering cheaper, cleaner electricity. However, its development was not progressed by the 2015-2020 Government. Be that as it may, the PPP/C Government intends to return to a strategy of decoupling economic growth from using fossil fuels for electricity by developing low-carbon energy resources (Solar, Hydro, Wind, Biomass, and Natural Gas) to meet rapidly rising demand and keep greenhouse gas emissions low.

This can be seen as three phases:

- In the period 2022 to 2027, a near tripling of electricity demand will be met mainly through a combination of natural gas and the Amaila Falls Hydropower Plant on the DBIS, coupled with a major expansion of solar power, with batteries, on the rural networks.
- From 2027 to 2032, further increases in electricity demand will be met by continued replacement of HFO, expansion of wind and solar power and the commission of Guyana's second hydropower plant, the site of which will be identified before 2025.
- From 2032 onwards, expansion will be determined by prevailing market conditions, but it is likely that battery technology will be sufficiently advanced to enable solar and wind plants to provide most new capacity increases while contributing to further downward pressure on electricity prices.

## Natural Gas

To use natural gas for power generation, plans are on stream to utilise a pipeline to bring the natural gas to shore from the Stabroek Block. A processing plant to separate the Liquefied Petroleum Gas (LPG) and the natural gas, and a gas-fired power plant are other key components to this transformational project. The Government is currently undertaking the detailed studies and the financing structuring of the project. It is anticipated that a 250MW gas-fired power plant will be constructed and in operation in 2024.

Besides the natural gas-fired power plant, and in order to provide the necessary firm capacity, new reciprocating 46MW dual fuel (HFO/NG) engines have been added to the DBIS grid in 2021. Additional capacity will be installed as part of the Natural Gas Programme. GPL plans to convert 106MW of their existing HFO capacity to dual fuel engines (HFO/NG) by 2026. By 2025, an additional 296MW of firm capacity will provide power to DBIS and the total capacity to generate

electricity with natural gas will be 403MW. This will reduce, by half, the Green House Gas (GHG) emissions associated with the electricity generation in the DBIS.

As part of the Natural Gas Programme, the LPG consumed in the country would be provided by the new separation plant and LPG production facility, avoiding the current importation. The planned offshore pipeline is designed to provide larger amounts of gas. In case new discoveries are made, the natural gas could be used for other industrial activities.

The Environmental Impact Assessment (EIA) for this project was submitted to the Environmental Protection Agency (EPA) and public consultations is expected to commence soon.

## Hydropower

It is anticipated that Guyana will build two hydropower plants over the next 20 years—Amaila Falls and another which is still to be identified. Of the potential 33 sites, many were assessed in the 70s and 80s, when environmental and social standards were lower.

The Amaila Falls Hydropower Project (AFHP) was first identified in 1976 during an extensive survey of the hydroelectric power potential in Guyana.

In 1997, a review of the pre-feasibility study and Guyana's electricity demand was done, and it reduced the size to 165MW. Subsequently, in 1998, the Government of Guyana (GoG) signed a Memorandum of Understanding (MoU) with Synergy/Harza for the development of the Amaila Falls Hydropower Project. A feasibility study was submitted to the Government in 2001. In 2007, Sithe Global (majority owned by Blackstone Group) entered as a potential investor in the Project.

The Government of Guyana and Sithe Global established a special purpose company, Amaila Falls Hydro Incorporated (AFHI), for developing the AFHP. The AFHI, after a competitive bidding in 2008, selected China Railway as the Engineering, Procurement and Construction (EPC) Contractor. In 2009, Synergy/Harza, the original holder of an Interim Development Licence and a subsidiary of Synergy Holdings (Guyana) and Harza International, transferred all rights and interests, obligations, and liabilities under its licence to AFHI.

It is anticipated that the new site will be identified by 2025, with the goal of providing 370MW of capacity by 2035 and a further 150MW of capacity by 2040. Hence, Amaila Falls will be the focus of the government's hydropower programme, starting of construction by the end of the third quarter of 2022, with completion in 2025.

# Guyana Forest Carbon Credits



## CONSERVE

Guyana's 18 million hectares of forest store over 19.5Gt of Co2. Guyana aims to maintain 99.5% of this forest as a global asset.



## REMOVE

Every year, Guyana's forests remove 154 million tons of Co2 from the earth's atmosphere.



## REDUCE

Guyana aims to keep deforestation rates at 90% below the global average.



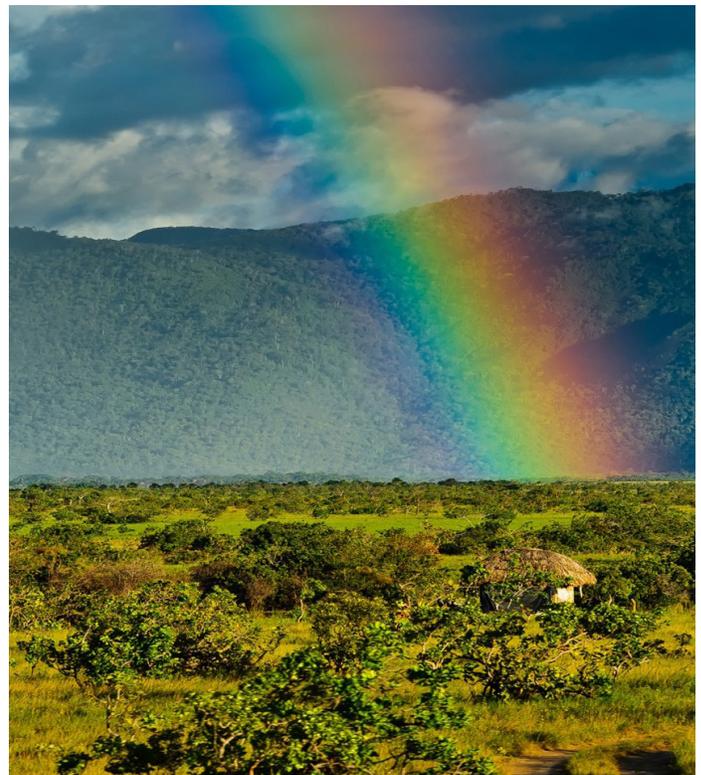
## RESTORE

Guyana aims to regrow about 200,000 hectares of forest as a priority.

## LCDS 2030 and Guyana's Oil Wealth

Following the discovery of the 10 billion barrels of oil equivalent resources discovered off Guyana's coast, the PPP/C Government has outlined in LCDS 2030 that the oil revenues will be managed strategically and responsibly by:

- Ensuring increased social and economic investments, most notably in health and education, to enable all Guyanese to reach higher standards of living and wellbeing.
- Diversifying the economy by supporting non-oil sectors and development all across Guyana. This will involve support for physical infrastructure – including river, road and air transport networks; the national digital connectivity network; and repairing coastal and Hinterland climate protection infrastructure. It will also involve targeted support for agricultural expansion in non-forested parts of Guyana to enable Guyana to become self-sufficient in key agricultural products, as well as an exporter to the region and beyond.
- Participating in a global low-carbon transition. The majority of Guyana's oil and gas will be sold in the global marketplace. The Government believes that this market needs to develop in alignment with the goals of the Paris Climate Agreement, specifically, to stabilise global temperature increases at less than 1.5 degrees Celsius above pre-industrial levels. As a result, most of Guyana's oil and gas will serve global demand, and the trajectory will be set by those who create the demand.



## Solar Photovoltaic (PV)

Solar photovoltaic (PV) is close to being established as a mature technology in the country. As such, it is envisioned that by 2023, the Guyana Power and Light (GPL) will have its first solar on-grid PV farm in Berbice with a total capacity of 10 megawatts-peak (MWp) financed by the Guyana-Norway Partnership. This solar PV farm will generate 1% of the total energy demand in DBIS.

Furthermore, the PPP/C Government has secured US\$75 million funding—including US\$63 million from the Guyana-Norway partnership – to implement 27.8MWp capacity of solar PV farms in eight different grids to convert those grids in hybrid systems. Those systems will be in operation by 2023 and by then the Essequibo coast, Linden, Bartica, Lethem, Mabaruma, Mahdia, Leguan and Wakenaam grids will have an average of 30 % of their electricity consumed generated by solar PV.

The government is currently working with the Inter-American Development Bank (IDB) to further enhance the solar electricity generating capacity for various regions in the country.

In a second phase of the programme for the Hinterland grids, there is a planned increase of the renewable energy share to an average of 50%.

## Wind

Guyana's coast is exposed to the steady Northeast trade winds. In light of this, a private developer has installed a tower with a wind speed data logger to measure the potential to install large wind turbines. The project is expected to provide 25MW of power. Plans are in place to conduct wind measurements along the coast and at Leguan. The measures taken in the other locations together with the practical experience from the 25MW wind farm installation will inform the design of the future wind programme.

## Biomass

There is some practical experience on the use of biomass as an energy resource for self-consumption like rice husk on the rice mills, the use of the distillate waste to produce biomethane at Demerara Distillers Limited (DDL) or the use of bagasse for co-generation at the Skeldon Sugar Estate. The Skeldon Estate Co-generation Power Plant – for 30MW of electricity generation using bagasse from the sugar process – was designed to produce excess power that would be exported to the grid. The plant is no longer working as a co-generation system due to the closure of the sugar factory. An assessment report on the co-generation possibilities at Albion and Uitvlugt Sugar Estates concluded that it is feasible to install at least a total power capacity of 23MW.

# INVESTING IN GUYANA

Guyana, home to the world's largest oil discovery of the past decade. Guyana's economy will grow 47% this year, on top of 20% in 2021 and 43% in 2020, according to the International Monetary Fund.

The government is keen to quickly diversify the economy to avoid the fate of other developing countries that have fallen victim to Dutch disease and the resource-curse effect; whereby a natural-resources boom triggers a decline in other sectors.

Guyana is on the verge of becoming the largest oil producing country in the world on a per capita basis. With these projected growths, there are a wealth of opportunities that exist within the tourism, agriculture, construction, manufacturing, energy, transportation, mining and services sectors.

Under the leadership of President Dr. Mohamed Irfaan Ali, the Government is committed to economic transformation of Guyana and has embraced an investor-friendly and a strong private sector position. To stimulate investment, the Government is offering a wide range of tax and fiscal incentives to investors.



## WHY INVEST IN GUYANA?

- Fastest growing economy
- Resource rich country
- English-speaking
- Multi-sector opportunities
- Low operation costs
- Ideal location to access regional and global markets
- Fiscal incentives for investments
- Tax exemptions for risk bearing investments
- Private sector focused government
- Diverse cultures and heritage
- Affordable labour
- Land availability

## INCENTIVES

The Government of Guyana is pro-business and therefore believes in creating an enabling environment, which offers a number of incentives and opportunities to facilitate investments and spur economic growth in all sectors. Some of these include:

- Provide tax incentives for new investments, re-tooling and technological improvements;
- Establish industrial parks/estates for manufacturing in coastal and Hinterland regions;
- Establish a fund to stimulate innovation and new businesses.
- Provide complementary infrastructure such as roads, bridges, airstrips, training institutes, etc.
- Exemption of Duty and VAT on all critical building materials and equipment.
- Dock yard and shipping building: Exemption of Duty and taxes are available for the operation of dry-docking facilities.
- Recycling: Exemption of Duty and VAT on all machinery and equipment used.
- Land availability
- Incentives for incorporated companies
- ICT liberalisation

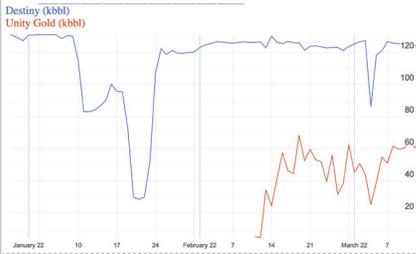




# GOVERNMENT OF GUYANA OPERATIONAL UPDATE

## DATA CENTRE

### OIL PRODUCTION



### OIL LIFTS (Guyana)

Approximately  
**12 MILLION BARRELS**

### OIL REVENUE (Guyana)

**US\$720 MILLION**  
as at March, 2022

## Ministry of Natural Resources introduces Petroleum Management Programme

The Petroleum Management Programme is one of three major initiatives within the Ministry of Natural Resources which contributes to achieving the Ministry's overall mission of developing, implementing and overseeing policies for the responsible exploration, development and utilization of natural resources.

This is being executed while ensuring the protection and conservation of the environment and advancement of the green economy.

The Petroleum Management Programme's objective is to promote and support the exploration, development and production of petroleum (oil and gas) resources by regulating, managing, and monitoring the industry to ensure that the resources are developed in an economically viable manner to attain an improved level of national prosperity that will provide for maximum economic benefits for all Guyanese.

