

# GUYANA ENERGY AGENCY

Annual Report 2021

Picture showing PV Panels at the CARICOM Secretariat

EXECU	ITIVE SUMMARY
1.0	Energy & Energy Statistics Division
1.1	Petroleum-Based Imports5
1.2	Consumption of Petroleum Products
1.3	Acquisition Cost and Retail Prices
1.4	Solar Energy11
1.5	Hydropower
1.6	Energy Efficiency Interventions
1.7	CARICOM Energy Month
2.0	Legal & Licensing Division
3.0	Fuel Marking Division
3.1	Sample Analysis
3.2	Analysis by Site
3.3	Analysis of Test Results
3.4	Incidents of Illegal Fuel
3.5	Quantity of Illegal Fuel Seized
3.6	Volume Analysis
3.7	Prosecutions
4.0	Administration and Human Resource Division
4.1	Professional Development
5.0	Finance Division
Apper	dix: Legislation, Mandate and Overview of the Divisions46
Leg	islation46
E	nergy & Energy Statistics Division
L	egal & Licensing Division
F	uel Marking Division
A	dministration and Human Resource Division52
F	inance Division

#### EXECUTIVE SUMMARY

Works on the installation of a 1.5MW Solar Farm for Bartica and 1 MW Solar Farm for Lethem have advanced in 2021 and are expected to be completed in 2022. The tender for the installation of transmission and fiber optic communication lines for the Lethem and Bartica solar farms was awarded and is expected to be completed in 2022. Due to land issues, there was a delay in the procurement process for the 0.65MW Mahdia Solar Farm which will commence in mid-January 2022, while the 0.6MW Leguan Solar Farm is expected to be tendered later in 2022.

In December 2021, the tender for the installation of 19 solar PV mini-grids was awarded and the project will be executed in 2022. These mini-grids will serve 231 community or public buildings at Sebai, Karaburi, Kwebanna, Haimacabra, Baramita, Canal Bank, Wakapao, Capoey Mission, St. Monica, Tapakuma, Waramadong, Paruima, Jawalla, Kurukubaru, Annai, Karasabai, Aishalton, Kraudarnau and Riversview.

GEA commenced the installation of 64.0 kWp hybrid solar photovoltaic systems in Region 1 at the following buildings: Mabaruma NCN Radio Station, Red Hill Health Post, Barima Kariabo Health Center, Hobodehia Health Post, Wauna Primary School, Arakaka Primary School, Arakaka Health Centre, Moruca Health/Covid Center and the Santa Rosa Secondary School.

GEA also commenced the installation of ten (10) 1.2kWp Off-grid Solar PV Systems at Advent Acres, Loo Creek, Soesdyke/Linden Highway which will benefit about 50 residents of Loo Creek. Seven (7) systems were completed in 2021 and the project will be completed in 2022.

The EPC Contract for the construction of 1.5MW Kumu hydropower plant and rehabilitation and upgrade of the defunct Moco Moco hydropower plant to 0.7MW capacity was tendered, but due mainly to the high Bid prices received, the project has to be retendered in 2022. Also, an Environmental Assessment and Management Plan was completed for Kumu along with a geotechnical survey for Moco-Moco. Work has commenced on mapping the route and preparation of scope of works and tender documents for procurement of design, supply, installation and commissioning of 13.8kV overhead transmission line to connect the Kumu hydropower plant to the distribution network. Consultancy Services for Design Review and Construction Supervision of the hydropower plants was tendered and evaluated in 2021 and is expected to be finalized in 2022.

Under the Project for the Introduction of Renewable Energy and Improvement of Power Systems funded by the Japanese Government, 2x5MVAr reactive power compensators at GPL's Canefield Substation were commissioned in September 2021. Also, the installation of a 400kWp solar PV system with battery storage and a Building Energy Management System (BEMS) for the CARICOM Secretariat will be completed in 2022.

Guyana signed a grant agreement with the International Solar Alliance (ISA) for a solar demonstration project at the Orealla Health Centre in October 2021. The project entails the supply, installation and commissioning of a 9 kWp Grid-Tied Solar Photovoltaic System and 37 kWh Battery Energy Storage System at the Orealla Health Centre to provide adequate electricity needed to improve the quality of medical services rendered in the community. The project is being implemented by the Guyana Energy Agency and will be completed in 2022.

During 2021, the GEA conducted maintenance, upgrades and repairs to three (3) previously installed stand-alone solar PV systems at including 3 locations (the new Maternity Ward of Long Creek Health Centre, St. Cuthbert's Mission Secondary School and Tapakuma Lake Primary School. These interventions benefited the students, teachers, doctors, healthcare workers and residents in these communities. GEA also conducted a lighting change-out activity at Government buildings which resulted in 5,025 LED tubes, and 288 bulbs being installed at 170 buildings in 2021.

GEA also provided technical support to 16 agencies and institutions, including Region 2 RDC, NCN Orealla Radio Station, the Learning Channel (Annai and Aishalton), Georgetown Public Hospital Corporation (GPHC), Guyana Livestock Development Authority (GLDA), Guyana Marketing Corporation and Ministry of Parliamentary Affairs.

Also, GEA is supporting the Office of the Prime Minister with the installation of solar PV systems for ICT Access and E-Services in Hinterland communities. Fifteen (15) installations for ICT hubs were completed in 2021.

GEA continued to undertake Energy Needs Assessments across Hinterland communities in Guyana as part of rural electrification initiatives. A total of sixty-six (66) community energy needs assessments and site visits have been completed in 2021 to ascertain the existing energy needs, energy provision and design renewable energy solutions to cater for the unmet energy demand. To date, seventy-six (76) such assessments have been carried out.

GEA installed level loggers at Eclipse Falls (Region 1), Paruima (Region 7) and Monkey Mountain (Region 8) in 2021 as part of data collection exercises to assess suitable sites for hydropower development. Also, GEA installed a level logger at Amaila Falls in December 2020 and data was still being recorded in 2021. Another site visit is expected in the first quarter of 2022.

GEA also provided technical support to the Hinterland Electrification Company Inc. for the 150kW Kato Hydropower Project. The installation and commissioning expected to be completed in July 2022.

## 1.0 Energy & Energy Statistics Division

#### 1.1 Petroleum-Based Imports

For the year 2021, the Division facilitated the importation of one hundred and eighty-two (182) shipments of petroleum-based products on behalf of the oil companies, an increase from one hundred and fifty-nine (159) shipments in the previous year. About fifty-six percent of the import volume for the oil companies in 2021 was lifted from Trinidad and Tobago; thirty-nine percent of the shipments were sourced via third parties based in the USA, Europe, Brazil, Turkey, Argentina, Turkmenistan, Antigua, USVI, Qatar, Kuwait and Martinique. The remaining five percent was lifted from Suriname<sup>1</sup>.

	TOTAL IMPORTS (BBLS)					TOTAL IMPO	ORTS - OIL COM	VIPANIES (BBL	S)
				%					%
er	Product	2020	2021	change		Product	2020	2021	change
	Mogas	1,505,954	1,676,056	11.30%	oer	Mogas	1,505,954	1,676,056	11.30%
gm	Gasoil	3,148,319	3,597,281	14.26%	E	Gasoil	2,849,055	3.321.424	16,58%
e C G	Kero	80,409	85,962	6.91%	ece	Voro	00,100	00021)121	£ 010/
Ğ	Avjet	130,861	208,371	59.23%	Ğ	Nelo	00,409	00,902	0.91%
۲ <b>۲</b> -	Fuel oil	1,504,966	1,563,278	3.87%	<b>,</b>	Avjet	130,861	208,371	59.23%
nua	LPG	247,151	264,682	7.09%	nai	Fuel oil	111,236	169,913	52.75%
Jai	LNG	9,685	8,263	-14.68%	lan	lpg	233,008	251,968	8.14%
	Avgas	6,903	6,736	-2.41%		Avgas	2,250	1,805	-19.80%
	Total	6,634,247	7,410,630	11.70%		Total	4,912,774	5,715,499	16.34%

The total petroleum imports recorded an overall increase of 11.70% in 2021, with a total of 7,410,630 barrels of petroleum-based products imported and an average of approximately 20,303 barrels per day. There were increases in the imports of Mogas (gasoline), Gasoil (diesel), Kerosene, Fuel oil, LPG (cooking gas), and Avjet (Jet Fuel) while imports for liquid natural gas (LNG) and Avgas (aviation gas) decreased during this period.

Imports for the oil companies also rose by 16.34% in 2021, with a total of 5,715,499 barrels of petroleum-based products imported and an average of approximately 15,659

<sup>&</sup>lt;sup>1</sup> Shipments relate solely to Mogas, Gasoil, Avjet/Kerosene, LPG, Avgas and Fuel oil.

barrels per day. There were increases in the imports of Mogas, Gasoil, Kerosene, LPG, Avjet, and Fuel oil, while imports for Avgas declined during this period.

Consumption of petroleum products was generally calculated based on opening stock, closing stock and import volumes for the year.

Consumption = Opening stock + Import volumes – Closing Stock

Sales data received from Guyoil, Rubis and SOL, as well as consumption data from the Guyana Power and Light Inc. and Bosai Minerals Group (Guyana) Inc. (BOSAI), were also incorporated in the calculation of total consumption. A total of 6,614,993 barrels of petroleum-based products were consumed in 2021, with an average of 18,123 barrels per day. This represents a 6.07% increase when compared to 2020<sup>2</sup>. There were also increases in the consumption of all products except gasoline, kerosene, liquid natural gas and aviation gasoline.



The decrease in gasoline consumption for 2021 can be attributed to an increase in fuel prices, and the relatively larger increase in LPG consumption suggests greater use of cooking gas over kerosene. In addition, there was an increase in overall fuel oil

Page**D** 

<sup>&</sup>lt;sup>2</sup> Gasoil and Fuel oil purchased locally by GPL from the oil companies were discounted to avoid double counting.

consumption, which may be attributed to an expansion in bauxite production and manufacturing and consistent consumption by GPL. Moreover, the rise in jet fuel consumption can be attributed to increased flight travel at international airline carriers and domestic travel, which stemmed from the easing of COVID-19-related restrictions. Conversely, there was a decrease in the consumption of aviation gasoline due to high fuel prices and a contraction in gold mining stemming from the mid-year floods.

There was also a considerable increase in diesel consumption. Despite contractions in the sugar, rice and gold mining activities, consumption rose due to growth in the diamond mining, forestry and fishing subsectors, expansion in the manufacturing and service sectors, and upstream activities. Furthermore, a minor decrease was observed in the volume of liquid natural gas used, which can be attributed to higher fuel prices.

#### 1.3 Acquisition Cost and Retail Prices

For 2021, Gasoil was the most imported product representing 48% of total imports and a CIF value amounting to 48% of total acquisition expense3. Mogas and Fuel oil reflected 23% and 21% of total imports, respectively, with corresponding CIF values amounting to 25% and 19% of total acquisition costs, respectively. The remaining products (Kerosene, Avjet, LPG, LNG and Avgas) constituted no more than 8% of total imports and 8% of total acquisition costs.

TOTAL IMPORTS BY PRODUCTS FOR THE YEAR							
<u>2021</u>							
PRODUCTS	VOLUME		C.I.F VALUE				
	LTRS	BBLS	US\$				
MOGAS: UNLEADED	266,471,618	1,676,056	171,558,363				
GASOIL (0.5S)/DIESEL	571,922,064	3,597,281	326,309,384				
KERO	13,666,866	85,962	7,587,989				
AVJET	33,128,343	208,371	18,657,290				
FUELOIL	248,541,382	1,563,278	125,222,780				
AVGAS	1,071,014	6,736	1,245,786				
L.P.G	42,081,122	264,682	21,708,488				
L.N.G	1,313,655	8,263	1,136,378				
TOTAL	1,178,196,064	7,410,630	673,426,457				





Page 8

Guyana Energy Agency





 $_{Page}9$ 

The average cost per barrel of petroleum-based imports increased from US\$61.56 in 2020 to US\$90.87 in 2021, an increase of 47.63%. This upward trend also continued for each petroleum product's average unit CIF value. There were increases of 53.66%, 45.59% and 40.98% in the average unit CIF value (US\$/bbl) for Mogas (gasoline), Gasoil (diesel) and Jet fuel/Kerosene, respectively. In addition, the average unit CIF value for Fuel oil, Aviation Gasoline (avgas), LPG (cooking gas) and LNG also increased by 46.02%, 23.72%, 47.57% and 9.80%, respectively.



Retail prices for Mogas (gasoline), Gasoil (diesel) and Kerosene increased during 2021 by an average of 9.27%. Specifically, the average retail price for gasoline increased by 20.08%, and diesel increased by 7.88%. Also, the average retail price for domestic kerosene slightly decreased by 2.91%, while the average retail price for cooking gas (LPG) increased by 5.13%.

#### 1.4 Solar Energy

# 1.4.1 Off-grid Solar PV System Repairs and Upgrades:

During 2021 the GEA conducted maintenance, upgrades and repairs to previously installed stand-alone Solar PV systems. These small capacity PV systems provide much needed electrical power at the schools and community health care facility in the respective villages/communities in which they are installed. A total of three (3) such installations were completed in 2021 with details as follows:

<u>No.</u>	<u>Location</u>	System Parameters	<u>Work Done</u>	<u>Beneficiaries</u>
		<u>(K / / // K / / / / / / / / / / / / / / </u>		
1	Long Creek Health	2.28kWp PV Array;	New complete	Doctors, Healthcare Workers
	Centre, Region 10	14.4kWh BESS	system installation	and Residents using services of
	(New Maternity Ward)			Health Centre
2	St. Cuthbert's Mission	6kWp Solar Array	Upgrade of	135 Students; 11 Teachers
	Secondary School, Region 4	47.04kWh BESS	Battery Bank	
3	Tapakuma Lake Primary	1.4kWp Solar Array	System upgrade/	Students and Teachers of the
	School, Region 2	24kWh BESS	inverter replacement	school

2.28kWp Roof Mounted Solar PV Array (Long Creek)



14.4kWh Lead Acid Battery Bank (Long Creek)





4kW Inverter/Charger, DC Combiner Box and 80A MPPT Charger Controller (Long Creek)

# 1.4.2 **Technical Support to other Agencies and Institutions**

The Guyana Energy Agency continued to provide technical support to other agencies and organizations during 2021 in the field of Energy Efficiency Improvements and Renewable Energy System installations, project management and maintenance. The table below details a sample of the types of interventions for which the GEA provided technical support and assistance along with the agencies to which the support was rendered.

No.	Agency Supported	Nature of Technical Support
1	Region 2 RDC	Grid-tied Solar PV System inspection, building energy audit and Solar PV System Designs
2	Hinterland Learning Channel	Energy Audit of Radio Station and Learning Channel equipment and design of upgraded Solar PV systems Annai: 31.2kWp Solar Array; 221.6kWh BESS Aishalton: 37.92kWp Solar Array; 191.48 BESS
3	Queen's College	Design of upgraded Energy Efficient Lighting System for Queen's College Compound
4	Bush Lot	Assist GPL with Residential Load Assessments in Bush Lot due to customer queries of billing information
5	NCN Orealla Radio Station	Repair an existing 4kWp/84kWh Solar PV System, install a new 2.4kWp/10kWh Solar PV System and chemical grounding to limit equipment damage due to lightning strikes
6	<i>Office of the Prime</i> <i>Minister</i>	Assistance with the installation of 15 Hybrid Solar PV Systems (4.125kWp; 21.6kWh Lithium Ion BESS, 5kW Hybrid Inverter) at ICT Hubs in Hinterland Villages

7	GPHC	Prepare Tender Documents for procurement of EPC Contractor, oversee the procurement process and provide project management and supervision services for the installation and commissioning of a 217kWp Grid-connected Solar PV System at the GPHC
8	Brazilian Embassy	Conduct Energy Audit, PV System Design and Project Management
9	Guyana Livestock Development Authority	Conduct PV System Fault Rectification and provide advice for Load Balancing within the facility to enable efficient PV System operation
10	Gafsons Industries Limited	Load Analysis at Gafson's Mc Doom Location
11	Guyana Marketing Corporation	Energy Audit of the GMC Facility towards implementation of Solar PV System
12	Regional Democratic Council Region #2	Energy Audit of Load Analysis and PV System Design
13	BNTFIA 9 <sup>th</sup> Cycle Renewable Energy Sub Projects	Solar PV Systems and Stand-alone Solar Street Lighting Installations inspections at Schools and Early Childcare Centres across Guyana
14	Parliament Building	Technical support to GEI, Cummins Electrical and SPECOM with the interconnection of the Parliament Building to the 125kWp; 253kWh Hybrid Solar PV System, GPL Mains and 400kVA Diesel Generator. Update the Interconnected System Single Line Diagram, Monitor the operation of the Power Supply System via the use of the GEA's Fluke 435 Power Quality Analyzer.
15	Ministry of Parliamentary Affairs	Relocation of 10kWp Grid-tied Solar PV System from former Department of Environment to Ministry of Parliamentary Affairs and Governance. Rewiring and reconnection of monitoring system, Energy Demand and Load Analysis of facility towards integration of 12kW Hybrid Inverter and 30kWh Battery Energy Storage System with existing Grid Tied Solar PV System. Monitor installation of the Hybrid Energy System at facility.
16	Everest Cricket Ground	Design and install a 16.74kWp Grid-tied Solar PV Solution at the Everest Cricket Club Ground

# 1.4.3 Energy Needs Assessments and Solar PV Mini-grids in Hinterland Communities

A major undertaking of the Guyana Energy Agency over the past three years, which has continued in 2021, has been the conducting of Energy Needs Assessments across Hinterland Communities in Guyana. Based on research and visits there are approximately 212 villages and satellites scattered throughout the hinterland regions of Guyana (mainly Regions 1, 2, 7, 8 & 9). A total of sixty-six (66) community energy needs assessments and site visits have been done as of December 2021 to ascertain the existing energy needs, energy provision and design renewable energy solutions to cater for the unmet energy demand. The google earth map illustrates the dispersal of the communities across Guyana.



The table below summarizes the assessments completed:

	Comi	nunity Informat	ion	ENA Status			Number of mini- grids	
Region	Population	Households	Villages	Completed	Required	Not Required	Existing	2021/202 2
1	31464	5835	65	6	50	9	9	6
2	7394	1383	9	8	0	1	3	4
3	10201	2065	3	2	0	1	1	0
4	2202	497	4	2	1	1	1	0
5	1204	149	2	2	0	0	1	0
6	2400	396	2	2	0	0	2	0
7	28568	5858	31	11	17	3	3	3
8	13291	3067	23	4	17	2	3	1
9	30963	6190	58	26	27	5	4	4
10	10088	2233	15	13	1	1	3	1
Total	137,775	27,673	212	76	113	23	30	19

In addition to the community energy needs assessments, 19 communities were selected for installation of Solar PV mini-grids and associated electrical networks for supplying electricity to the public and community-based facilities. The energy engineers of the



Energy and Energy Statistics Division of GEA designed the solar PV mini-grids and network.



The map below shows the distribution of the 19 communities across Guyana:

The table details the population and other relevant data which were used in selection of the communities together with the size of the proposed Solar PV System and electrical network.

0			
Off-grid S	Solar PV Mini-grid	is for Public Building.	s in Hinterland Villages
Region	Village Name	Public Buildings	PV Capacity (kW)
1	Baramita	6	31.5
1	Canal Bank	6	12
1	Haimacabra	4	21.5
1	Kwebana	14	32
1	Karaburi	4	19
1	Sebai	6	19
2	Wakapoa	11	35
2	St Monica	10	27.5

2	Capoey	10	41.5
2	Tapakuma	7	21
7	Waramadong	25	70.5
7	Jawalla	14	38.5
7	Paruima	15	32.5
8	Kurukabaru	9	26.5
9	Karasabai	21	46.5
9	Aishalton	21	27.5
9	Kraudarnau	12	25.5
9	Annai	28	41.5
10	Riversview	8	32.5
		231	601.50

# 1.4.4 Hybrid and Off-grid Solar PV Systems (Region 1 Buildings and Loo Creek)

The GEA commenced the installation of 64.0 kWp hybrid solar photovoltaic systems in Region 1 at the following buildings: Mabaruma NCN Radio Station, Red Hill Health Post, Barima Kariabo Health Center, Hobodehia Health Post, Wauna Primary School, Arakaka Primary School, Arakaka Health Centre, Moruca Health/Covid Center and the Santa Rosa Secondary School.

GEA is also implementing the supply, installation and commissioning of ten (10) 1.2kWp Off-grid Solar PV Systems at Advent Acres, Loo Creek, Soesdyke/Linden Highway which will benefit about 50 residents of Loo Creek.

## 1.4.5 Solar PV System for Orealla Health Centre

Guyana signed a grant agreement with the International Solar Alliance (ISA) for a solar demonstration project at the Orealla Health Centre, Region 6 in October 2021. The project entails the supply, installation and commissioning of a 9 kWp Grid-Tied Solar Photovoltaic System and 37 kWh Battery Energy Storage System at the Orealla Health Centre to provide adequate electricity needed to improve the quality of medical services rendered in Orealla. The



project is being implemented by the Guyana Energy Agency and will be completed in 2022.

## 1.4.6 Solar PV Home Energy Systems

The GEA will be implementing a significant electrification project to supply, deliver and install 30,000 Solar PV Home Energy Systems for Hinterland and riverine communities in Guyana. The systems are designed to provide electricity to unserved homes in Hinterland and riverine communities using a clean and renewable source of energy. Each system is designed to power two (2) 9-watt LED Lamps, one (1) 12-watt Stand Fan, and is equipped with a USB Port for charging of portable electronic devices. At the completion of the project, a total of 4.5 mega-watts will be installed across all ten (10) Administrative regions. The project is expected to benefit over 200 communities and 30,000 households. In addition, a component of the project will entail training technicians within these communities to assist with the installations. Funding through a Line of Credit with the EXIM Bank of India was finalised in October 2021 and data collection activity commenced in March 2021 and is still ongoing.

# 1.4.7 Hinterland ICT Hub PV System Installations

GEA is supporting the Office of the Prime Minister with the installation of solar PV systems for ICT Access and E-Services in Hinterland communities. Fifteen (15) installations for ICT hubs were completed in 2021.

UNDP (OPM-PMU) - ICT Hubs Solar PV Installations							
NUMBER	LOCATION	REGION	MONTH OF INSTALLATION				
1	Paruima	8	Jul-21				
2	Lower Bonasika	3	Aug-21				
3	Karrau	7	Aug-21				
4	Micobie	8	Aug-21				
5	Tapakuma	2	Aug-21				
6	Kumaka	1	Sep-21				
7	Huradiah	1	Sep-21				
8	Kwatamang	9	Sep-21				
9	Kartabo	7	Oct-21				
10	Surama	9	Oct-21				
11	Annai	9	Oct-21				
12	Rockstone	10	Dec-21				
13	Great Falls	10	Dec-21				
14	Kwebanna	1	Dec-21				
15	Kumu	9	Dec-21				



Solar PV System for Surama ICT Hub

# *1.4.8* Project for the Introduction of Renewable Energy and Improvement of Power System in Guyana (G/A1860260)

The objective of the Project is to improve the efficiency of the power systems by enhancing the quality of the substation equipment and distribution lines within the City of Georgetown and the surrounding areas. As well as, by installing and demonstrating a solar photovoltaic system and energy management system at the CARICOM Secretariat, thereby contributing to economic development within Guyana. This project has two components, namely the:

Procurement of electric power distribution materials (293km of Cosmos Wire, 48 polemounted transformers and 2x1500kVA power factor compensators) and 2x5MVAr reactive power compensators for the Guyana Power & Light Inc. (GPL).

Procurement of a 400kWp solar PV power generation system with battery storage and a Building Energy Management System (BEMS) for the CARICOM Secretariat.

On June 27, 2018, JICA signed a grant agreement (G/A No. 1860260) with the Government of Guyana to provide grant aid of up to JPY1.848 billion for the project. An agreement for the provision of consultancy services for implementation of the project

was signed on August 29, 2018 with the firm Kansai Electric Power Inc. JV NEWJEC Inc. for the sum of JPY 153 million. Contracts for the two components were subsequently awarded to the Consortium of Mitsubishi Corporation and Takaoka Engineering Co. Ltd. on February 28, 2019 for the sum of JPY 741.3 million (GPL) and JPY695 million (CARICOM) respectively. The completion dates were June 30, 2020 and September 30, 2020 respectively.

However, on March 31, 2020, the contractor issued a notification of the occurrence of Force Majeure in accordance with GCC Clause 13 of its contract. The COVID-19 pandemic and the ensuing precautionary measures (such as travel restrictions, closure of international airports and mandatory quarantine of persons travelling from high risk countries) implemented by countries to contain the COVID-19 outbreak were cited as the Force Majeure Event. This event will prevent the contractor from performing their substantial obligations under the Contract. Specifically, the contractor will be unable to dispatch supervisory personnel from the equipment manufacturers in Japan to complete the installation, testing and commissioning of equipment and provide O&M training for local staff for both the CARICOM and GPL components of the project. Therefore, the contractor proposed the temporary suspension of these activities until the event cease to The procedures for temporary suspension of the works and project restart exist. condition were subsequently discussed at the monthly meeting on April 9, 2020. It was agreed that some additional maintenance work was required prior to suspension in order to secure all materials and equipment at the sites. The maintenance work was completed at the GPL site on April 28, 2020 and at the CARICOM site on April 30, 2020. Works on the project was suspended effective April 30, 2020. It was agreed that the event constituting Force Majeure will be reviewed at the monthly management meetings with a view to determining a possible resumption date. Works on the project was only able to restart on June 1, 2021 following a relaxation of a travel advisory issued by the Government of Japan preventing its citizens from travelling to certain high risks countries including Guyana. The revised completion dates were September 30, 2021 and December 27, 2021 for the GPL and CARICOM components respectively.

The GPL component was completed and handed over to GPL on September 29, 2021, while the CARICOM component is schedule for completion on December 27, 2021.

The project is expected to result in the following benefits for GPL and CARICOM Secretariat

#### GPL Commissioning Ceremony



400kWp PV System with 416kWh BESS and Classroom training for PV System



PageZ

Guyana Energy Agency



# 1.4.9 Energy Matrix Diversification and Institutional Strengthening of the Department of Energy (EMISDE) – Renewable Energy Solutions for the Hinterland (Component 1)

Guyana will soon benefit from an additional 2.5MW of energy to the existing hinterland mini-grids, thanks to the Renewable Energy Solutions for the Hinterland Project, under the Energy Matrix Diversification and Strengthening of the Department of Energy (EMISDE) Programme funded by the Inter-American Development Bank (IDB). This project seeks to address the energy diversification policy goals of the Government of Guyana, by increasing the energy security and access for the hinterland/rural areas with renewable energy solutions.

On November 11, 2020, the Guyana Energy Agency (GEA) signed a Contract agreement with Farfan & Mendes Limited and SOVENTIX Caribbean S.R.L for the execution of the engineering, procurement, construction and installation and commissioning of solar photovoltaic power plants including Battery Energy Storage Systems for the Hinterland at Bartica and Lethem in two lots. The total contract amount for the two solar PV farms is G\$1.098 billion and will involve the installation of 1.5MW and 1.0MW at Bartica and Lethem respectively, as well as the implementation of a storage capacity to manage intermittency of these sources.

Works have commenced at both sites and significant progress have been made including design, development, purchase, logistics, land clearing and mobilization. All major components and materials including solar modules, mounting structures, inverters have already arrived in Guyana, whereas the remaining components are expected to arrive before the end of the year.



Land Clearing at Dagg Point (Bartica in Region 7)



Arrival of major components and material at the Solar PV project site at Lethem in Region 9



3-d Model of the completed Bartica Solar Farm

It is important to mention at this juncture that the solar project also involves the installation of 0.65MW at Mahdia in Region 8, but the tendering process for Mahdia was delayed due to issues relating to land identification. The land acquisition issue has been resolved and Mahdia Solar PV project is expected to be tendered separately before the end of the year. There is also a consideration of a 0.6MW solar PV farm for Leguan in the pipeline, which if implemented will sum to a total of 3.75MW installed capacity under this programme.

The Renewable Energy Solutions for the Hinterland Project aims to promote socioeconomic development through the supply of reliable and affordable electricity to the target hinterland communities. In keeping with the Guyana's Low Carbon Development Strategy, the project will help reduce the carbon footprint and emissions of the existing hinterland mini grids which are the inimical impact of fossil fuel consumption in electricity generation. Also, by utilising an indigenous renewable energy source, the project will help in the combat against global warming and the effects of climate change. Furthermore, the project during its different phases involving installation and operationalisation, is expected to provide at least 500 direct and indirect job opportunities for both skilled and unskilled workers drawn from the local labour market, including engineers, technicians, handymen, caterers, and security services.

Annual	Energy	Avoided	Diesel	Annual	Cost	Annual	Avoided
Generation		consumpti	on	Savings (C	<b>F\$</b> )	Carbon	Dioxide
(MWh)							



		annually		Emissions
		(barrels)		(tonnes)
Bartica	1,915	3,375	119,000,000	1,398
Lethem	1,512	2,688	75,965,000	932
Mahdia	893	1,570	48,883,600	614
Total	4,320	7,633	243,848,600	2,944

**Major Project Benefits** 

The project is not without its own unique challenges. The prevailing COVID-19 global pandemic resulted in significant delays in meeting deadlines, and they relate to shipping and delivery dates of major components and materials. Also, the inclement weather conditions and heavy downpours would have affected the ground conditions for road transportation of materials and components to the designated locations. Consequently, the projected completion date for both Bartica and Lethem has been extended to March 2022.



Solar structure with solar modules at Lethem in Region 9

## 1.5 Hydropower

## 1.5.1 Small Hydropower Project for the Cooperative Republic of Guyana (GUY1015)

The Small Hydropower Project with Project Code GUY1015 is being funding by a USD14.63million (Installment Sale) loan from the Islamic Development Bank (IsDB).

The objective of the Project is to provide a reliable and affordable supply of electricity to Lethem and nearby villages by construction of two small hydropower plants. The main components of the project include the construction of a new 1.5MW Kumu hydropower plant and the rehabilitation and upgrade of the defunct Moco Moco hydropower plant to 0.7MW capacity.



During 2021, a procurement Specialist was employed under the Project. Public consultations were held on 3 occasions with the communities and the Environmental Assessment and Management Plan was completed for Kumu along with a geotechnical survey for Moco-Moco.

Work has commenced work on mapping the route and preparation of SOW and tender documents for procurement of design, supply, installation and commissioning of 13.8kV overhead transmission line to connect the Kumu hydropower plant to the distribution network. Consultancy Services for Design Review and Construction Supervision of the

Page 26

hydropower plants was tendered and evaluated in 2021 and is expected to be finalized in 2022.

The EPC Contract for the construction of 1.5MW Kumu hydropower plant and rehabilitation and upgrade of the defunct Moco Moco hydropower plant to 0.7MW capacity was tendered in 2021 but due mainly to the high Bid prices received, the project has to be retendered in 2022.

## 1.5.2 Kato Hydropower Project

GEA's Hydropower Engineers provided technical support to the Hinterland Electrification Company Inc. for the 150kW Kato Hydropower Project. Works commenced in March 2020 and the project is approximately 48% completed. Activities completed to date includes the casting of the surge tank (foundation and walls); completed pedestals and laying of penstock pipelines; as well as excavation of road towards the powerhouse etc. The ongoing works include final design of powerhouse, manufacturing of the electromechanical equipment, pipe laying of conveyance pipe, and preparation works for the headworks and weir area etc. The installation and commissioning expected to be completed in 2022.



Conveyance pipeline being laid

## 1.5.3 Hydrological Measurements

*GEA's Hydropower Engineers installed level loggers at Eclipse Falls (Region 1), Paruima (Region 7) and Monkey Mountain (Region 8) in 2021 as part of data collection exercises to assess suitable sites for hydropower development.* 

#### 1.6 Energy Efficiency Interventions

As part of its mandate, GEA conducted a lighting change-out activity at Government buildings which resulted in 5,025 LED tubes, and 288 bulbs being installed at 170 buildings in 2021.

#### 1.7 CARICOM Energy Month

Guyana commemorated CARICOM Energy Month during November 2021 along with other member states across the Caribbean under the theme "From Dependence to Resilience: Fuelling our Recovery with Sustainable Energy". An Energy Month Message from the Prime Minister, Hon. Brigadier (ret'd) Mark Phillips, was published in the newspapers and the Agency distributed 550 "What is Energy?" Booklets to four (4) Primary schools – St. Agnes Primary School, St. Margaret's Primary School, North Georgetown Primary School and St. Angela's Primary School.





 $_{age}28$ 

Guyana Energy Agency

2.0 Legal & Licensing Division

The Legal & Licensing Division serves to execute a primary function of the GEA through 'monitoring the performance of the energy sector in Guyana, including the production, importation, distribution and utilisation of petroleum and petroleum products' (s. 5(2)(c) GEA Act cap 56:05). This is exercised through the implementation of the provisions of the **Petroleum and Petroleum Products Regulations 2014** permitting the issuance of licences of the various categories (import, wholesale, retail, bulk transportation carrier, storage, export, consumer installation) and site and vehicle inspections to ensure safety and environmental compliance.

1512 licences were granted among the various categories: Import, Importing Wholesale, Wholesale, Retail, Storage, Bulk Transportation Carriers and Consumer Installations. This represents a 24% increase compared to 2020.

Lines	in a lanuard							2021							2020	Total
Licen	ices issued	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD	YTD	Growth
	Importing Wholesale	1	2	3	5	2	3	3	5	3	4	1	3	35	42	-17%
	Export	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	Wholesale	0	0	2	5	3	0	3	0	0	0	0	1	14	14	0%
Dotail	Petrol Filling Stations	2	4	4	16	20	18	16	8	3	4	10	3	108	77	40%
Reldii	Others	11	32	45	48	37	60	76	87	59	48	56	36	595	455	31%
	Storage	0	1	0	0	0	0	1	0	0	0	0	0	2	0	-
	Consumer Installation	2	4	7	26	56	10	12	18	3	12	6	22	178	123	45%
Dulle	Road Tanker Wagons	21	10	13	10	16	15	27	17	15	15	15	4	178	182	-2%
Duik	Trucks	30	27	30	20	24	31	27	21	29	30	28	21	318	269	18%
Corrier	Fuel Barges	0	0	0	0	0	0	0	0	0	0	0	0	0	3	-100%
Carrier	Boats	6	8	9	11	6	10	7	5	6	5	3	8	84	58	45%
	Total	73	88	113	141	164	147	172	161	118	118	119	98	1512	1223	24%

# **Table Showing Licences Issued in 2020**

The Division continued to utilise a combination of physical and virtual inspections of sites to be licensed. 547 inspections were conducted across all ten administrative Regions, representing a 12% increase compared to 2020.

In order to enhance the ease with which business is concluded within the Division, particularly in light of the COVID-19 pandemic, the online submission hub was established and licence holders were encouraged to use this platform to submit their applications and supporting documents. Additionally, the Agency introduced the use of Mobile Money Guyana as an additional option for the payment of licensing fees, reducing the need of customers to physically visit the Agency to regularise their license status. The Legal Division completed 22 investigations originating from both the Fuel Marking and Licensing Divisions. Three charges were instituted for various offences under the Petroleum and Petroleum Products Regulations 2014 and one conviction was recorded for the year. Compensation in the sum of \$1,100,000 was also accepted by the Agency in lieu of the institution of charges.

#### 3.0 Fuel Marking Division



Since implementation of the Fuel Marking Programme in 2003, the Division has, in keeping with the legislative mandate, utilised a marking system to add markers to petroleum products imported by every person under an import licence or import wholesale licence for the purpose of identifying such petroleum and petroleum products as having been legitimately imported.

Marking Officers supported a total of 375 bulk marking operations in 2021 compared to 340 for 2020.

The Authentix Country Manager Liaison and Quality Manager provided the following oversight functions:

- Monitoring, verification, assessment, reconciliation and projections for marker concentrate received and used by GEA
- Assistance in repairing/maintaining the injectors
- Training of new staff bulk marking and daily marking
- Training of staff to repair and service the bulk marking injectors
- Training and recertification of Inspectors
- Assisting and supporting the implementation of a quality management system for the laboratory and the development of new procedures for ISO/ IEC 17025 Accreditation.

#### 3.1 Sample Analysis

Samples of petroleum and petroleum products were collected from a number of sites throughout Guyana and tests were conducted to determine the presence or proportion of the markers in the respective samples of petroleum products.





The number of fuel samples collected/logged each year:

As a result of the sites visits conducted in 2021 sample collection improved by 42% between 2020 and 2021 which is more consistent with pre-pandemic figures.

Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	59	273	-	20	41	2	3	0	0	2	28
2	1,408	1,673	2,250	1,894	1,261	2,663	1,502	1,569	1,572	1,111	1,065
3	2,419	3,479	4,167	2,727	1,926	2,582	2,524	2,112	1,509	1,307	2,778
4	3,289	4,595	5,291	5,189	3,866	6,112	6,011	5,672	3,860	3,138	5,516
5	827	1,479	1,274	710	500	1,134	870	920	657	329	1,189
6	829	931	1,167	919	659	1,673	1,078	850	436	540	1,035
7	140	295	354	377	1,982	2,279	2,369	1,527	2,949	2,046	1,614
8	12	135	25	62	72	77	36	89	28	71	20
9	1	64	-	53	94	122	93	68	15	50	22
10	15,858	12,770	24,671	30,452	24,505	26,517	22,008	14,581	14,344	9,137	11,131
Total	24,842	25,694	39,199	42,403	34,906	43,161	36,494	27,388	25,370	17,731	24,398

Number of Quantitative Analyses by Region

Samples tested using the 'quantitative methodology' have increased by 38% over the last two reporting years. Regions of improvement were 1, 3, 4, 5, 6 and 10.

#### 3.2 Analysis by Site

For the year 2021 there has been a dramatic rise in the number of sites visited when compared to the preceding year. In fact, there has been a 95% increase in site visits for this period – 18% at the Linden checkpoint while the other areas combined more than doubling. This has been the best year for recorded site visits since 2017.

Supporting the aforementioned were sampling operations conducted in Buckhall, Lethem, Mahdia and Kwakwani during the course of the year.





Visits by Area	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
McKenzie Bridge	3,994	4,239	3,401	6,105	6,015	5,130	5,488	4,364	3,215	3,148	1,860	2,193
Other Regions	3,975	4,276	4,922	8,917	6,701	7,097	9,095	8,518	8,440	8,290	4,219	9,652
Total	7,969	8,515	8,323	15,022	12,716	12,227	14,583	12,882	11,655	11,438	6,079	11,845

Of the 11,845 total site visits conducted during the year, 1,927 sites were sampled at least once.

11 (1%) of the sites sampled at least once were found with significant dilution (defined as more than 50%) in at least one tank. The percentage of sites found with significant dilution in at least one tank has progressively decreased from 34% in 2006. The incidence of fuel smuggling continues to be low as the number of sites found with significant dilution in at least one tank remains relatively low.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
No. of Sites samples at least once	656	566	592	1,202	1,313	1,179	1,648	2,146	2,200	1,446	2,253	1,852	1,874	1,551	918	1,927
No. of Sites found with significant dilution in at least 1 tank	220	128	57	73	45	21	13	35	51	37	27	29	26	10	4	11
% of Sites found with significant dilution in at least 1 tank	34%	23%	10%	6%	3%	1.8%	0.8%	1.6%	2.3%	2.6%	1.2%	1.6%	1.4%	0.6%	1%	1%

#### 3.3 Analysis of Test Results

The "Test Results" (Quantitative Analyses) refer to the percentage of marker concentrate detected when the sample was analysed. A "correctly marked" sample should be at 100%. The results of samples analyses over the years are categorized in the following four ranges:

0 to 50% : Significant dilution 71 to 90% : Suspected dilution 51 to 70% : Some dilution 91% and more : Legal <sup>age</sup>33



The table below shows that during the assessment phase (2003), 12% of the samples analysed were found to be significantly diluted. This decreased to 6% in the post-assessment phase and throughout 2004. From 2005 to 2007, the testing strategy was focused on areas with a high incidence of illegal activity. For this three-year period, the percentage of significantly diluted samples fluctuated from 9% to 15% and then to 8%. It is believed that this fluctuation was a direct result of the strategy used for sampling

and would have a direct relationship with the number of samples analysed and the focus on areas with a high incidence of smuggling. The year 2008 can be characterized as a mixture of focused, planned and random sampling. The percentage of samples found with significant dilution was maintained at 3% in 2009. The year 2010 set another record with significant dilution reported as 2%, indicative of sustained reduction in the percentage of significantly diluted samples analysed. In 2011 and again in 2012, significant levels of adulteration (defined as more than 50%) were detected in less than 2% of the samples analysed. Significant levels of adulteration were detected in less than 1% of sampled collected from 2013 to 2021.

YEAR	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of Sites samples at least once	573	763	656	566	592	1,202	1,313	1,179	1,648
No. of Sites found with significant dilution in at least 1 tank	72	240	220	128	57	73	45	21	13
% of Sites found with significant dilution in at least 1 tank	13%	31%	34%	23%	10%	6%	3%	2%	1%
YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021
No. of Sites samples at least once	2,146	2,200	1,446	2,253	1,852	1,874	1,551	918	1,927
No. of Sites found with significant dilution in at least 1 tank	35	51	37	27	29	26	10	4	11

% of Sites found with significant dilution in at least 1 tank	2%	2%	3%	1%	2%	1%	1%	1%	1%
--	----	----	----	----	----	----	----	----	----

3.4 Incidents of Illegal Fuel

# The Division recorded a total of 4 Incidents of Illegal fuel in 2020.

			Ar	nnual II	ncident	s Recoi	rded by	Month	ı 2009 -	2020			
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2009	1	3	3	1	6	4	7	6	6	4	3	2	46
2010	6	2	3	3	5	3	6	3	2	2	3	10	48
2011	7	0	2	3	1	1	2	1	1	2	1	0	21
2012	1	0	0	0	0	3	0	3	1	1	2	2	13
2013	1	2	3	3	7	2	3	2	6	0	3	4	35
2014	2	2	1	3	2	1	0	3	2	3	11	21	51
2015	14	1	0	2	1	4	5	1	2	2	1	4	37
2016	3	2	2	2	3	3	4	2	5	1	0	0	27
2017	0	1	4	7	3	3	0	5	0	5	0	1	29
2018	2	4	1	0	1	3	5	3	1	5	1	0	26
2019	2	3	1	0	0	1	0	0	0	2	1	0	10
2020	0	0	0	0	1	0	0	0	1	0	2	0	4
2021	0	0	0	4	2	0	1	3	0	0	0	1	11

# Joint Operations

Joint operations continued during the course of the year:

Month		20	21			20	20			20	19	
wonth	GPF	GDF	GRA	Total	GPF	GDF	GRA	Total	GPF	GDF	GRA	Total
Jan	-	-	1	1	-	-	-	-	-	-	1	1

Page 35

Feb	-	1	1	2	2	1	-	3	1	-	-	1
Mar	-	1	-	1	-	-	-	-	2	-	-	2
Apr	-	1	-	1	-	-	-	-	-	-	-	-
Мау	-	-	2	2	-	-	-	-	1	-	-	1
Jun	-	-	-	-	1	-	-	1	-	-	-	-
Jul	1	-	-	1	1	-	-	1	-	-	2	2
Aug	-	-	-	-	-	-	-	-	-	-	-	-
Sep	-	-	-	-	1	-	-	1	1	-	-	1
Oct	-	-	-	-	1	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	1	-	-
Dec	-	-	-	-	-	-	2	2	-	-	-	-
Total	1	3	4	8	6	1	2	9	5	1	3	9

<u>Key:</u>

*GPF - Guyana Police Force GDF - Guyana Defence Force* 

GRA - Guyana Revenue Authority

3.5 Quantity of Illegal Fuel Seized

		Total Fuel	Seized A	nnually (U	IK GAL) 2	005 – 202	1	
2005	2006	2007	2008	2009	2010	2011	2012	2013
3,011	8,001	21,793	33,560	33,443	21,242	10,273	6,004	2,931
2014	2015	2016	2017	2018	2019	2020	2021	
3,785	6,200	19,721	11,355	13,929	1,932	21,725	10	

The volume of illegal fuel identified and seized during 2021 was small compared to previous years.

#### 3.6 Volume Analysis

An additional metric to evaluate the performance of the Fuel Marking programme is a measure of gasoline, diesel and kerosene consumption (except for large duty-free consumers). For the oil companies, 5,058,078 barrels of petroleum-based products were sold in 2020, with an average of 13,858 barrels per day. This represents a 7.05% increase when compared to 2020<sup>4</sup>. There were increases in the consumption of diesel, jet fuel, fuel oil, and cooking gas, while consumption of gasoline, kerosene, and aviation gasoline declined for the year.

The decrease in gasoline consumption for 2021 can be attributed to an increase in fuel prices, and the relatively larger increase in LPG consumption suggests greater use of cooking gas over kerosene.

	TOTAL (	CONSUMPTIC	ON - OIL CON	/IPANIES (BB	LS)	
		2019	2020	2021	% change	3,5
L.	Mogas	1,503,160	1,509,019	1,383,728	-8.30%	3.0
adr	Gasoil	2,518,440	2,653,662	3,067,418	15.59%	2 5
Cen	Kero	86,221	89,230	66,637	-25.32%	2,5
Dec	Avjet	168,921	128,935	183,209	42.09%	S188
- - >	Fuel oil	94,834	98,491	98,986	0.50%	1,5
an	lpg	229,440	243,656	256,295	5.19%	1,0
anc	Avgas	2,191	2,149	1,805	-16.02%	5
Ĩ	Total	4,603,207	4,725,142	5,058,078	7.05%	
	Bpd	12,577	12,946	13,858	7.05%	



There was also a considerable increase in diesel consumption. Despite contractions in the sugar, rice and gold mining activities, consumption rose due to growth in the diamond mining, forestry and fishing subsectors, expansion in the manufacturing and service sectors, and upstream activities. It may also presumably result from decreased availability of smuggled fuel due to the success of the monitoring and enforcement activities of the Fuel Marking Programme.

<sup>&</sup>lt;sup>4</sup> Gasoil and Fuel oil purchased locally by GPL from the oil companies were discounted to avoid double counting.

3.7 Prosecutions

For 2021, 22 criminal investigations were completed (fuel marking and licensing offences), 3 charges instituted, 1 conviction was secured and Compensation of \$1,100,000 was accepted.

4.0 Administration and Human Resource Division

The Agency commenced the year with a staff complement of one hundred and twelve (112) employees and ended the year with one hundred and seventeen (117) employees.

The following positions were filled during the year:

- Procurement Specialist (ISDB) for the Projects Unit
- Monitoring & Evaluation Assistant (IDB) for the Projects Unit
- Inspector
- Admin/Procurement Clerk
- Driver/Office Assistant
- Internal Auditor

4.1 Professional Development		
		Actual Training for 2021
Organize and install suitable capacity building and professional development programmes to provide employees with requisite knowledge and skills.	Number of training programmes	28
	Number of Officers trained	227

## **Training Summary**

No	Dates	Facilitator	Aim	Participants
1	February 3-5, 2021	Officers, Training Centre	Occupational Safety and Health	Earicka Richards Timothy McIntosh Dhanmattie Lall
		(Ministry of Labour OSH Department)		Devica Sukhnandan-Singh Steve Merai Kendria Drakes Royale Melville John Rawlins

				Maurice Yearwood Godfrey Grant Crystal Bascom Keoma Williams Coleen Fletcher-Perry Alecia Horne Cindy Williams Keshaun Fraser Irene Campbell
2	Feb 8- present	Guyana Learning Institute	Certificate in Psychology Diploma in Organisational Behaviour	Alecia Horne Shareefa Baksh Toolsiran
3	Mar 8-12, 2021	International Solar Alliance	Scaling Solar Rooftop Projects	Brian Constantine Kenny Samaroo Olson Abrams Cyril Ohanwasi, Latchman Shivdat Hemanchan Gokoel Rosshanda Bagot
4	March 15-19, 2021	International Solar Alliance	Solar mini grid for LAC countries	Brian Constantine Kenny Samaroo Olson Abrams Cyril Ohanwasi Latchman Shivdat Hemanchan Gokoel Rosshanda Bagot
5	April 21- 22, 2021	Guyana National Bureau of Standards	Understanding the requirements of ISO/IEC17025:2017	Arjune Deally Billy Holder Nicolas Dookie Earkicka Richards Nikita Niles John Rawlins Quasen Nedd Kiefer Robin Shamica Isaacs Kadeem Cameron Esan Nelson



6	May 18, 2021	Civil Defence Commission	Incident Command Systems 100 & 200	Thandiwe Benn Arjune Deally William Holder Coleen Sparman-Stephen Nicholas Dookie Narisa Samuels Quasen Nedd Kyle Lewis Sanasha Perreira Mohanram Persaud Keshaun Fraser Shevon Wood Yota Burgess John Rawlins
7	May 21, 2021	Civil Defence Commission	IAP Introduction Training	Thandiwe Benn Coleen Sparman-Stephen William Holder Arjune Deally Quasen Nedd
8	May 24, 2021	Civil Defence Commission	IAP Introduction Training	Nicholas Dookie Narisa Samuels Kyle Lewis Sanasha Perreira John Rawlins
9	May 25, 2021	Civil Defence Commission	Disaster Aware (EMOPS)	Thandiwe Benn Arjune Deally William Holder Coleen Sparman-Stephen Nicholas Dookie Narisa Samuels Quasen Nedd Mohanram Persaud Keshaun Fraser Shevon Wood Kyle Lewis Sanasha Perreira Yota Burgess John Rawlins
10	May 25, 2021	Civil Defence Commission	ICS Command Section	Thandiwe Benn Arjune Deally William Holder Coleen Sparman-Stephen Kyle Lewis/Sanasha Perreira

11	May 27, 2021	Civil Defence Commission	ICS Operations Section	Quasen Nedd Arjune Deally Nicholas Dookie
12	May 28, 2021	Civil Defence Commission	ICS Planning Section	Thandiwe Benn William Holder Arjune Deally
13	June 1, 2021	Everblue Training Institute	NABCEP PV System Inspector & Exam; NABCEP PV Associate Exam Prep & Exam	Olson Abams
14	June 7, 2021	School of the Nations	Introductory Spanish	Keshaun Fraser Jonquil Croker Greganne Garnett Nicholae Leacock Leon Burnett
15	June 14- 16, 2021	Guyana National Bureau of Standards	Internal Quality Auditor	John Rawlins
16	June 17, 2021	Computer World	Foundation Microsoft Office	Kendria Drakes Geneva Cumbermack
17	July 19, 2021	Guyana Fire Service	Fire Safety Training	Lisa Nassy Dale London Jonquil Croker Abigail Bijader Deochand Boodhoo Rahim Mohamed Michael Peters
18	August 9- 13, 2021	Public Service Ministry	Communication in the Office	Geneva Cumbermack
19	September 13-17, 2021	Public Service Ministry	Change Management	Shanamay Daniels-King
20	September 17, 2021	Cara Lodge	Authentix training on Site Visit Form review, care of LSX, understanding Quality Control mechanism of Lab ISO 17025	Rahim Mohamed, Greganne Garnett Nicholae Leacock Simeon Butcher Doneeta Ramlakhan Aliza Imdad Nikita Niles Gaitri Khemraj Ramish Amyan Earicka Richards, Satyanand Singh Michael Peters

21	October 4-29, 2021	National Intelligence & Security Agency	Basic Intelligence and Analysis Course	Cindy Williams Leon Burnett, Devon Brummell Antadeo Singh Quasen Nedd Shamica Isaacs Paul Fraser Arjune Deally Nirvan Jaiprashad
22	October 13-26, 2021	Bilateral Training Course - Photovoltaic Power Generation	Photovoltaic Power Generation	Cyril Ohanwusi, Brian Constantine, Olson Abrams, Latchman Shivdat, Ian Duncan, Christopher Nelson, Osbert Smith, Julian Smith
23	November 2, 2021	Ministry of Human Services	Sexual Harassment	Orlando Arno Rosshanda Bagot Ryhan Stephens Shanamay Daniels, Shareefa Toolsiram Shevon Wood Simeon Butcher Thandiwe Benn Timothy McIntosh Tray Brammer Doneeta Ramlakhan Yota Burgess Nikita Andrews Jonquil Croker Julian Smith Kendria Drakes Lisa Nassy Maurice cave Namesh Persaud Narisa Samuels Nelta Dainty Nicholas Dookie Olson Abrams Brian Constantine, Christopher Nelson Cindy Williams Coleen Fletcher Crystal Bascom

				Cyril Ohanwusi Dale London Deochand Boodhoo Devica Sukhnandan Daywattie Narain Gaitri Khenraj Hance Manohar John Rawlins Ian Duncan Adrian Webster Frida Rampersaud Irene Campbell Joy Duke Angela Trotman Dhanmattie Lall
24	November 12, 2021	Cara Lodge	Statement Writing	Antadeo Singh Quasen Nedd Simeon Butcher Roshawn Heywood Navindra Jaikarran John Rawlins Rahim Mohamed Ramish Amyan Satyanand Singh Earicka Richards Michael Peters Adrian Webster Nikita Niles Shamica Isaacs Paul Fraser Greganne Garnett Yota Burgess Arjune Deally Esan Nelson Thandiwe Benn Diana Maxwell Mohanram Persaud
25	November 16-18, 2021	Public Service Ministry	Monitoring & Evaluation	Rosshanda Bagot



	November 18, 2021- January 2022	CARICOM Secretariat	Solar PV System and BEMS JICA Project	Christopher Nelson, Ian Duncan, Osbert Smith, Julian Smith
26	November 25-26, 2021	Public Service Ministry	Personnel Policies and Practices	Alecia Horne
	November 22-24, 2021	Public Service Ministry	Occupational Health & Safety	Godfrey Grant
27	November 23, 2021	International Renewable Energy Agency (IRENA)	National experiences in long- term energy scenarios (LTES Network	Rosshanda Bagot
28	November 30- December 2, 2021	Guyana Red Cross	First Aid training	Kendria Drakes Godfrey Grant Kyle Lewis Coleen Fletcher Earicka Richards Maurice Yearwood Wayne Nurse Dhanmattie Lall Antadeo Singh Hamraj Narine Navindra Jaikarran Royale Melville

#### 5.0 Finance Division

The activities of GEA are financed from Government subventions and from revenue generation. Revenue was generated by the Agency from administrative fees (Agency Fees) for the marking and handling of fuel and from the issuance of licences to import, sell, store and transport petroleum and petroleum products.

Appendix: Legislation, Mandate and Overview of the Divisions

Legislation

The GEA, a body corporate, was established in 1997 by the <u>Guyana Energy Agency Act</u> <u>1997 (Act No. 31 of 1997)</u>. The GEA Act has been amended over the years to foster harmonization, increased monitoring, better regulation and greater enforcement in the energy sector.

The GEA falls under the purview of the Minister of Public Infrastructure as the Minister responsible for energy and electricity. GEA's organization structure consists of a Board of Directors, Chief Executive Officer, Deputy Chief Executive Officer, Secretariat and the following five Divisions:

- i) Energy & Energy Statistics Division,
- ii) Legal & Licensing Division,
- iii) Fuel Marking Division,
- iv) Administration/Human Resource Division, and
- v) Finance Division.

The GEA's organization structure was revised during 2010 to accommodate the following new positions: Energy Economist, Energy Engineer, Hydropower Support Engineer, Licensing Administrator, Internal Auditor, Public Communications Officer, Human Resource Officer, [additional] Legal Officer, Field Operations Coordinator, Senior Investigator and Investigator.

The mandate and activities of the Guyana Energy Agency (GEA) are governed by the following legislation:

- Guyana Energy Agency Act 1997,
- Energy Sector (Harmonisation of Laws) Act 2002,
- Guyana Energy Agency (Amendment) Act 2004,

- Guyana Energy Agency (Amendment) Act 2005,
- Guyana Energy Agency (Amendment) Act 2011,
- Petroleum and Petroleum Products Regulations 2014,
- Hydroelectric Power Act and Regulations 1956,
- Hydroelectric Power (Amendment) Act 1988,
- Electricity Sector Reform Act 1999,
- Public Utilities Commission Act 1999,
- Electricity Sector Reform (Amendment) Act 2010, and
- Public Utilities Commission (Amendment) Act 2010.

The GEA Act of 1997 established the Guyana Energy Agency (GEA) as a body corporate. On March 31, 2004 the **GEA (Amendment) Act 2004** was assented to and published in an Extraordinary Issue of the Official Gazette which made provisions for the implementation of the fuel marking system, creation of offences and also for the grant and issue of the various classes of licences, viz- Import Licence; Wholesale Licence; Importing Wholesale Licence; Retail Licence; Bulk Transportation Carrier Licence; Storage Licence; and Consumer Installation Licence.

The core functions listed in section 5 of the principal Act are:

- to advise and make recommendations to the Minister regarding any measures necessary to secure the efficient management of energy and the source of energy in the public interest and to develop and encourage the development and utilisation of sources of energy other than sources presently in use;
- to develop a national energy policy and secure its implementation;
- to carry out research into all sources of energy including those sources presently used in Guyana for the generation of energy, and securing more efficient utilization of energy and sources of energy;
- to monitor the performance of the energy sector in Guyana, including the production, importation, distribution and utilization of petroleum and petroleum products;

- to disseminate information relating to energy management, including energy conservation and the development and utilization of alternative sources of energy;
- to grant and issue licences relating to petroleum and petroleum products, including import licences, wholesale licences, importing wholesale licences, retail licences, bulk transportation carrier licences, storage licences and consumer installation licences;
- to utilise a marking system to add markers to petroleum and petroleum products imported by every person under an import licence or import wholesale licence for the purpose of identifying such petroleum and petroleum products as having been legitimately imported;
- to take samples of petroleum and petroleum products from any person at random throughout Guyana and carry out tests and examinations to determine the presence or level of the markers in the samples of the petroleum and petroleum products;
- to perform the necessary tests to determine whether the marker(s) is (are) in the required proportion and any further test necessary to determine whether the petroleum and petroleum products have been lawfully obtained, stored, possessed, offered for sale, blended or mixed with any substance that is not approved;
- to prosecute in the Magistrates' Courts persons who are in possession of petroleum and petroleum products bearing no markers or at a concentration contrary to that required;
- to prosecute in the Magistrates' Courts persons who import petroleum and petroleum products without an import licence or wholesale import licence;
- to prosecute in the Magistrates' Courts persons who purchase, obtain, store, possess, offer for sale, sell, distribute, transport or otherwise deal with illegal petroleum.

Section 6 of the Act further outlines several advisory functions of the Agency:

- to study and keep under review matters relating to the exploration for, production, recovery, processing, transmission, transportation, distribution, sale, purchase, exchange and disposal of energy and sources of energy;



- to report thereon to the Minister and recommend to the Minister such measures as the Agency considers necessary or in the public interest for the control, supervision, conservation, use and marketing and development of energy and sources of energy;
- to prepare studies and reports at the request of the Minister on any matter relating to energy or any source of energy, including research into alternative sources of energy, or the application of such research, and to recommend to the Minister the making of such arrangements as the Agency considers desirable for cooperation with governmental or other agencies in or outside Guyana in respect of matters relating to energy and sources of energy;
- to advise the Minister or assigned authority on matters relating to the administration and discharge of the functions of the Electricity Sector Reform Act 1999.

The Fuel Marking Programme was charged with the responsibility of ensuring that all gasoline, diesel and kerosene are properly marked at a known concentration at all legitimate import points and also collecting and testing samples of fuel from various parts of the country including wholesalers, retailers, distributors, transporters, commercial consumers and any person in possession of fuel for the relevant marker(s).

#### Energy & Energy Statistics Division

- to ensure that petroleum products are readily available in the country;
- to manage the purchase and importation of petroleum and petroleum products;
- to facilitate payment arrangements between the Oil Companies, the Bank of Guyana and other petroleum importers;
- to collaborate with sector agencies on energy and related matters;
- to develop Guyana's Energy Policy and revise as necessary;

- to study and review matters relating to the exploration for, production, recovery, processing, transmission, transportation, distribution, sale, purchase, exchange and disposal of energy and sources of energy within and outside Guyana;
- to prepare studies and reports at the request of the Minister on any matter relating to energy;
- to develop and execute projects relating to alternative sources of energy;
- to update the country's energy data with respect to acquisition prices, wholesale prices and retail prices;
- to prepare and analyse energy demand and supply data;
- to supply petroleum information and analysis of the relevant energy data as required;
- to supply the **CEIS** and **OLADE** databases with energy information.

## Legal & Licensing Division

- to inspect all sites, motor vehicles, machinery and equipment for which a licence may be required under the Regulations;
- to grant/issue the relevant licences pertaining to
  - o importation of petroleum or petroleum products;
  - bulk transportation of petroleum or petroleum products;
  - storage of petroleum or petroleum products;
  - wholesale of petroleum or petroleum products;
  - retail of petroleum or petroleum products;
  - storage and own-use of petroleum or petroleum products.
- to suspend, cancel, cease licences in accordance with the regulations made under the <u>Guyana Energy Agency Act 1997</u> as amended by the <u>Guyana</u> <u>Energy Agency (Amendment) Acts 2004, 2005 and 2011;</u>
- to ensure that files for prosecution are completed promptly and dispatched to the Office of the Director of Public Prosecutions for advice;

- to oversee and coordinate the assignment of cases for prosecution;
- to prosecute in the Magistrates' Courts persons who are in possession of petroleum and petroleum products bearing no markers or at a concentration contrary to that required;
- to prosecute in the Magistrates' Courts persons who import petroleum and petroleum products without an import licence or wholesale import licence;
- to prosecute in the Magistrates' Courts persons who purchase, obtain, store, possess, offer for sale, sell, distribute, transport or otherwise deal with petroleum without the relevant licence (s);
- to coordinate the representation of the Agency in civil litigation;
- to prepare Amendments to the Legislation as required and work in collaboration with the Drafting Department of the Ministry of Legal Affairs regarding same;
- to provide management with the necessary legal guidance in execution of the Agency's overall mandate and in relation to other stakeholder agencies, where necessary.

#### Fuel Marking Division

- to utilise the respective marking system to add markers to petroleum and petroleum products imported by every person under an import licence or import wholesale licence for the purpose of identifying such petroleum and petroleum products as having been legitimately imported, whether domestic or duty-free;
- to add the relevant covert proprietary chemical markers to petroleum and petroleum products at the concentration determined by the Minister by notice in the <u>Gazette:</u>
- to maintain the integrity of the marking system;
- to test the accuracy and monitor the effectiveness of the marking system;
- to take samples of petroleum and petroleum products from any site at random throughout Guyana and carry out tests and examinations to determine the

presence or level of the markers in the samples of the petroleum and petroleum products;

- to perform the necessary laboratory tests to determine whether the marker(s) is (are) in the required proportion;
- to determine the composition and grade of petroleum and petroleum products and determine whether same have been blended or mixed with any substance that is not approved;
- to give testimonial evidence in the prosecution of offences under the Act;
- to provide, through the Analyst's Certificate, expert/scientific evidence as proof of the legality of petroleum and petroleum products.

Administration and Human Resource Division

- to maintain and update the Agency's personnel files and other records;
- to aid in the recruitment, selection, replacement and continuous professional development of staff;
- to address staff concerns related to wages and salary administration, contract negotiation and separation procedures;
- to improve staff morale through cogent policies and remuneration;
- to manage and maintain the Group Pension, Group Life, Medical and National Insurance Schemes while ensuring that claims, benefits and queries are processed expeditiously and to the satisfaction of the staff;
- to handle all grievance procedures with the objective of reaching mutually acceptable solutions;
- to ensure that office supplies, equipment, and vehicles are adequately provided and maintained;
- to ensure that the Agency's edifices, facilities and compound are kept clean and properly utilized and maintained;

- to monitor the security services for reliability and adequacy in the execution of their duties;
- to develop and enforce the Agency's Policy Manual and Disciplinary Code;
- to provide general support services to the officers of the Agency in the execution of their duties;
- to ensure adherence to health and safety regulations in the work environment;
- to manage the procurement, receipt and issue of stationery, stocks, office equipment and assets of the Agency and monitor use of same to prevent abuse of the Agency's resources.

#### Finance Division

The Finance Division is tasked with the responsibilities of the day to day management of the Agency's financial resources. The Division's duties and responsibilities are:

- to advise management on the Agency's financial matters, and where necessary, other agencies;
- to manage and maintain the Agency's income and expense accounts and all other accounting records;
- to prepare the Agency's financial statements;
- to prepare the Agency's budget documents;
- to prepare monthly wages and salaries and other allowances;
- to process payments;
- to ensure that goods and services procured by the Agency are so procured in compliance with the **Procurement Act** and other relevant guidelines;
- to verify the accuracy of bills and receipts provided and investigate suspicious or fraudulent bills/receipts;

- to maintain and update the Agency's asset register.

