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Guyana Utility Scale Solar Photovoltaic Program

Project Summary – Trafalgar Berbice

The Guyana Power and Light
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Georgetown.



PROJECT SUMMARY - TRAFALGAR

- *A detailed description of the proposed project, including:*
 - Physical location and its characteristics along with GPS coordinate/s; where applicable distances from the closest town, settlement, indigenous community, and nearby waterways such as creeks, rivers, closest town, etc; general/predominant land use (residential, tourism, agricultural, commercial, industrial, etc.) of the area; sensitive receptors (daycare facilities, schools, hospitals, etc.) likely to be affected by the proposed project; the relative abundance of natural resources in the area; and the non-disputed nature of the land.*

TRAFALGAR - BERBICE

Three solar farms are proposed for the Berbice region – Trafalgar on the West Coast of Berbice is one such. Trafalgar will boast 4MWp and is proposed to interconnect to the Onverwagt 69kV busbar via a 2km 69kV Line. Although the farms will be a part of the DBIS and satisfy a fraction of the demand of the DBIS, it will support the distribution network and reduce losses by supplying power closer to the load.

The proposed solar PV farm for Trafalgar recognised on the Cadastral Survey as “Tract Y” comprises three plots, that is, C, D, E all being portions of state lands is situated in rear of the east one-third of Plantation Trafalgar on the West Coast of Berbice, in the county of Berbice. Southeast of the proposed site is recognised as reserve with a dam immediately outside, followed by a drainage canal then the Onverwagt Road (0.03km from the site) which connects to the public road. Beyond the road, there is an irrigation canal, then state lands (in the rear of Plantation Onverwagt). Northeast of the facility is an abattoir, (Plots A and B = 26. 458 acres) which is the property of the Guyana Livestock Development Authority, whilst farmlands characterise the opposing boundary (southwest). Northwest of the proposed site is recognised as reserve inclusive of a dam and irrigation canal which is followed by more state lands, in the rear of centre one third of Plantation Trafalgar.

From the north-eastern boundary of the solar PV site, the 28 Railway Line is 1.49km, thenceforth is the community of Trafalgar with several amenities available including two schools (Trafalgar

Nursery School and Number 29 Primary School), a Number 28 Cemetery, a church, a convenience store, the Guyana Power and Light West Coast Berbice Generating Plant, Mahaica Mahaicony Abary - Agricultural Development Authority, the Guyana Water Incorporated – Region 5, a recreation centre and an entertainment park.

The Trafalgar site can be accessed from the West Berbice Public Road and has an established asphalted road. A bridge across the trench estimated to be 10m wide to get access to the project site must be constructed.



Map Showing Project Site

ii. A description of all feasible and reasonable alternatives.

Following discussions with the General Manager of Mahaica Mahaicony Abary - Agricultural Development Authority (MMA/ADA), a joint site visit was made on April 12, 2021. The land is suitable for project use. A formal request for the acquisition of the identified site was dispatched on April 21, 2021, to the Minister of Agriculture. The MMA/ADA granted GPL permission to utilise the site identified on April 27, 2021. GPL submitted a formal application for the land on May 4, 2021, and the lease is being processed.

iii. Description of any existing baseline information on the physical (landscape, soil, water, air, the use of natural resources), ecological (flora and fauna), and social environment (economic and cultural aspects).

Based on the ESA carried out the following existing baseline information was gathered:

PHYSICAL ENVIRONMENT -

a) LANDSCAPE

Trafalgar falls on the Coastal Plain, one of Guyana's five physiographic region. The Coastal Plain occupies 8.5 percent of the total land mass or an area of 18,033 km². It is a narrow belt (ranging between 8 and 65km in width with a length of 440km) stretching from the Corentyne River in the east to Waini Point in the west and providing most of the agricultural production in the country.

East of the Essequibo River, the plain consists of recent and old sediments with recent deltaic and fluvio-marine clays and silts occurring on the coast with silty clays and sands inland. The recent plain occurs at elevations of 2m below to 3m above sea level with sandy old beach ridges forming higher ground. The older coastal plain lies at an altitude of about 3-9 m above sea level. The normal tidal range is about 3m with resultant flooding (particularly sea invasion) especially during the wet seasons from April to August and November to January and during high tides.

Many areas of the coastal plain are below sea level while other areas are manufactured and built-up to raise them above the surrounding land level. An elaborate system of sea defences, along with irrigation and drainage canals, is required to protect the area from flooding. West of the Essequibo

River, the coastal plain narrows with extensive organic wetland ‘pegasse’ deposits inland. While these are most extensive in the west of the country primarily in Regions 1 and 2, they also occur scattered between the Essequibo, Demerara and Berbice Rivers. East of the Berbice River, the pegasse area is small and the coastal ‘frontland’ and ‘riverain’ clays relatively wide.

b) SOIL

The coastal plain is part of the flat, low-lying coastal lands that extend along the coast of South America from the Amazon to the Orinoco. The plain is composed of a wide variety of soils developed from a variety of parent materials such as marine and fluvio-marine deposits with back-swamp organic soils. In general, the soils closer to the shore and along rivers are more fertile than the soils behind which can have extremely low fertility and toxicity in some instances. The soils have been mapped as:

- **1a-** Low humic gleys of high base status, marine phase "frontland clay" (Hydraquents with Sulfaquents, Fluvaquents)
- **2a-** Low humic gleys of high and medium base status, fluvio marine phase, riverain soils (Fluvaquents with Endoaquents, Medhemists)
- **3a-** Bog soils, peat and muck phases, deep pegasse (Medihemists with Sulfohemists, Medisaprists)
- **4a-** Low humic gleys of low base status, including groundwater laterites and planosols (Endoaquepts with Fluavaquents, Sulfaquepts)
- **5a-** Groundwater laterites (Humaquepts with Endoaquepts, Fluvaquents, Psammaquents)

1a Low humic gleys of high base status, marine phase "frontland clay" (Hydraquents with Sulfaquents, Fluvaquents)

This mapping unit occurs on the coastal plain of eastern Guyana from the Essequibo to the Corentyne river stretching some 32km inland in places. It contains fertile, poorly drained clay soils developed on unconsolidated sediments with associated sandy ‘reefs’ that are old beach ridges. Some saline soils and organic ‘pegasse’ soils also occur in patches. The soils need drainage prior to agricultural production but are fertile. The main limitations for agriculture are the need for drainage and occasional areas of salinity and acid sulphate and

aluminium toxicity. In much of the coastal plain, these soils have a land use of rice and sugar with coconuts on the sandy reefs. In cases of no agricultural development, the vegetation is one of mangrove and swamp forest and marshy grassland.

2a Low humic gleys of high and medium base status, fluvio-marine phase, riverain soils (Fluvaquents with Endoaquents, Medhemists)

This mapping unit describes poorly drained, deep, silty loam to silty clay over clay textured soils that have developed over alluvial deposits. They occur between the Berbice and Corentyne rivers, along the Demerara River as far south as Linden and 100km up the Berbice River and at the Essequibo River mouth. The soils have moderate to high fertility which decreases away from the coast. The need for drainage is the main limitation. The soils are extensively cultivated with rice and sugar as the main crops but with a natural vegetation like 1a where not cultivated.

3a Bog soils, peat and muck phases, deep pegasse (Medihemists with Sulfohemists, Medisaprists)

These organic bog soils known as ‘pegasse’ occur as coastal back-swamps and are most extensive in north-western Guyana, west of the Pomeroon River where they can extend 65km inland, although they also occur in patches behind the rest of the coastal plain. The soils are organic accumulations of peat and other organic matter occasionally interlayered with clay and can be as deep as 9m. They are very acid and have extremely low fertility. Drainage, fertility and acid sulphate toxicity are the main limitations to agriculture. The land cover is mainly natural vegetation of grassland and swamp forest with characteristic ite palms.

4a Low humic gleys of low base status, including groundwater laterites and planosols (Endoaquepts with Fluavaquents, Sulfaquepts)

This unit represents a complex of different soils in which Low Humic Gleys (Endoaquepts) are predominant. The unit occurs primarily in the backlands of the Mahaica-Berbice area, between the Berbice River and Canje Creek and in small patches between the Essequibo and Demerara rivers. The soils are very poorly drained clays often with a peat topsoil with better drained laterite ‘islands’ and planosols that show an abrupt silt pan. The soils have

extremely low fertility and often exhibit acid sulphate and aluminium toxicity. Drainage, fertility and acid sulphate toxicity are the main limitations to agriculture. The land cover is mainly natural vegetation of scrub, waterlogged grassland/marsh and swamp forest.

5a Groundwater laterites (Humaquepts with Endoaquepts, Fluvaquents, Psammaquents)

This mapping unit occurs at the boundary of the coastal plain and the White Sand Plateau and is most extensive between the Berbice and Demerara rivers and south of the Torani Canal in Region 6. The soils are poor to moderately well drained, deep silty clays to clays of low fertility. Drainage is the main limitation in some areas, but the low fertility can be enhanced through appropriate land management. The land cover is largely forest with some areas of savanna.

c) WATER QUALITY

Trafalgar is found in Region 5 – West Coast Berbice. The area occupies 4,300 km² or 2 percent of Guyana. It is considered a densely populated region with the Atlantic Ocean on the northern border. Surface Water dominates about half of this region, which lies within the coastal lowlands, where massive quantities of fresh water are available from April through August and November through January. Along the coast and along the Demerara and Mahaica Rivers, large to enormous quantities of brackish water are plentiful year-round, which is about half of the region. The Mahaica, Mahaicony, and Abary Rivers lie in this region. Small to moderate quantities of fresh water are available the rest of the year. Along the coast, large to enormous quantities of brackish water are available year-round, which covers about 30 percent of the region (US Army Corps of Engineers , 1998).

Exploration of ground water in the south is recommended in majority of this region but lack of roads renders this challenging. Many water wells are in northernmost part of the region, including the coastal area and the population centres of Mahaica Village, Mahaicony, and Catherina's Lust including the coastal aquifer system (US Army Corps of Engineers , 1998).

d) AIR QUALITY

When assessing the air quality at the proposed site for the Trafalgar solar PV farm, no points were above the stipulated level by the US National Ambient Air Quality Standards. Since this is an agricultural/ industrial zone, dust emissions will be high due to the constant flow of traffic inclusive of heavy machines for these activities. Moreover, an abattoir is proposed next to the proposed solar farm. PM10 ranged from 16.8 to 54.2 µg/m³ but did not exceed allowable limits. Total volatile organic compounds were not detected at the site.

e) NOISE LEVEL

Although situated in an agricultural-commercial zone with a steady movement of heavy machines and trucks, the proposed site for the Trafalgar solar PV farm is not above limits outlined by the EPA Guyana. The highest dB was noted at TRA-10 which was 53.2 dB (TRA-10).

ECOLOGICAL ENVIRONMENT –

i. FLORA

This is a coastal region which also utilizes cultivated fields for agricultural purposes like rice, sugarcane, etc. Huber, Gharbarran, & Funk, 1995 categorized vegetation within this region as:

A. Flooded coastal and lowland forests:

Low, evergreen, seasonally flooded swamp forest

Coastal 0-50m, macro thermic, ombrophilous, 18-24 m tall

Pterocapus, Macrolobium, Virola (major timber species)

B. Flooded shrublands of the coastal

plains: Arborescent swamp

Costal/lowland 0-400m, macro thermic, ombro-to tropophilous

Machaerium – Pithecellobium

C. Savannas and meadows

Herbaceous swamp

Coastal/lowland 0-400m, macro thermic, 1-4m tall, perennial

Cyperus, Montrichardia, Sagittaria, Typha, Mauritia

D. Non-flooded interior savannas and meadows
 Lowland savanna on white sand (intermediate savannas) Lowland
 30-100m, macro thermic, 0.2-1m tall, perennial
Panicum, Lagenocarpus, Aboiboda, Xyris

According to the area proposed for the solar PV site for Trafalgar is currently regarded as cultivated/residential area. Additionally, the floral species occurring within the site were recorded as part of the biological survey.

Species occurring at the proposed solar PV site for Trafalgar include:

SPECIES NAME	COMMON NAME
<i>Cassia alata</i>	Carrion Crow Bush
<i>Cordia macrostachya</i>	Black sage
<i>Jatropha gossypifolia</i>	Belly ache bush
<i>Oyza sativa</i>	Rice (seedlings)
<i>Maranta spp.</i>	Mukru
<i>Lantana camara</i>	Sweet sage
<i>Randia spp</i>	Indigoberry
<i>Echinochloa oryzoides</i>	Barnyard grass
<i>Mimosa spp</i>	Shame bush
<i>Abelmoschus spp</i>	Wild ochro
<i>Stachytarpheta spp</i>	Blue Rat's Tail
<i>Brachiaria brizantha</i>	Signal Grass
<i>Eleocharis elegans</i>	Bisi bisi
<i>Randia spp</i>	Indigo berry
<i>Cyperus rotundus</i>	Red nut sedge

ii. **FAUNA**

Most of the species recorded during the surveys were listed as Least Concerned (LC) or Non-CITES according to IUCN/CITES. One Spectacle caiman (*Caiman crocodilus*) which is listed as least concern Appendices II (CITES II) was sited in Trafalgar, Berbice. Overall, no ecologically significant or critical habitat was found at the proposed sites, so there is no risk of disturbance to any critical habitats. No endemic species were found inhabiting the proposed sites, a few species were CITES listed and most were LC Least concern.

SOCIAL ENVIRONMENT -

a) ECONOMIC ASPECT

Trafalgar is an estate located in Mahaica-Berbice, Guyana. The village is referred to as Number 28 Village and is bordered by Union and Number 27 villages. It is a highly agricultural area and is home to approximately 904 residents.

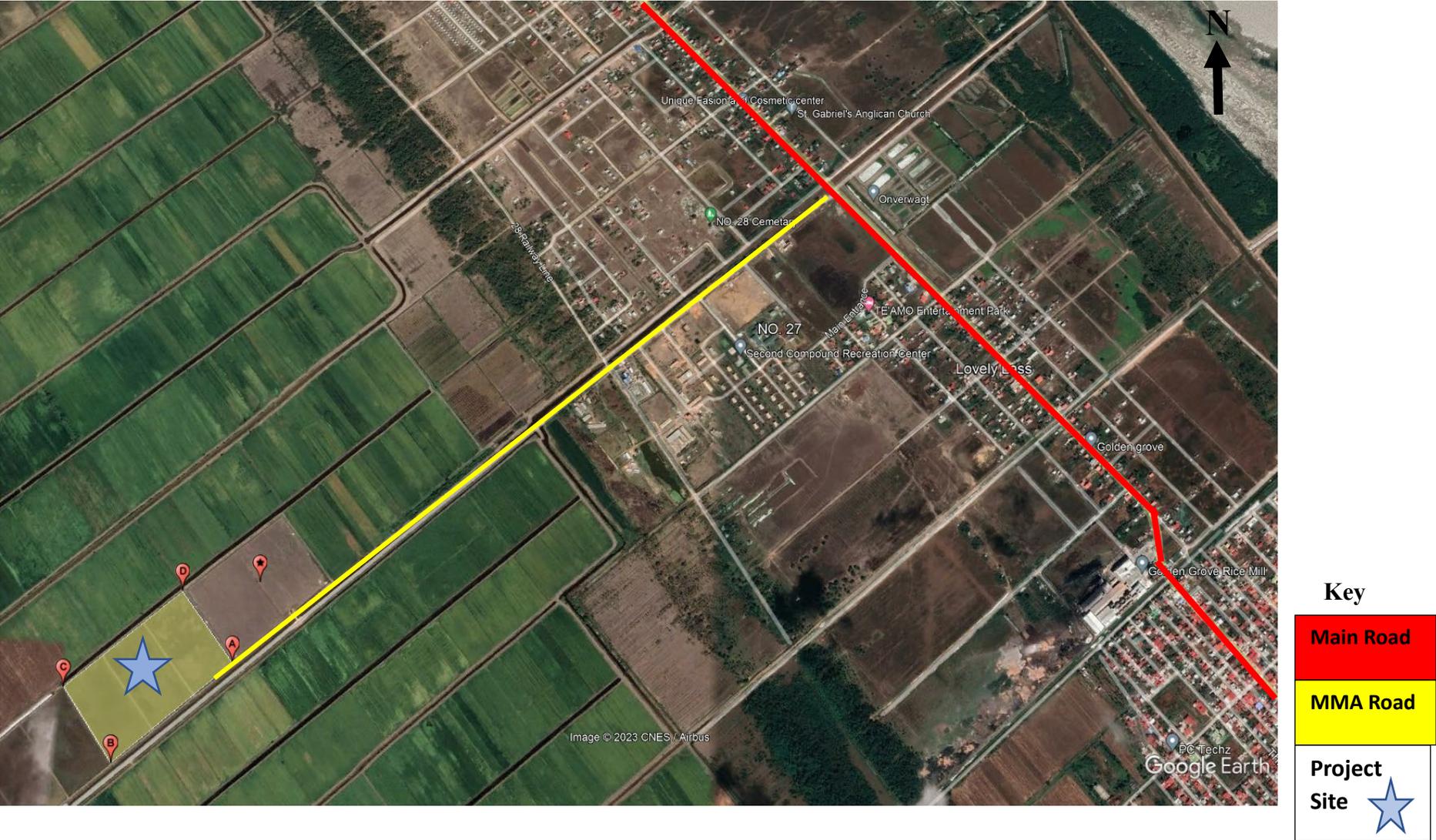
It was found that residents of Trafalgar had educational levels ranging from none to tertiary level, with the largest 38.9% holding a secondary education level (25.6% females and 13.3% males). Twenty-eight point seven (28.7%) had a tertiary level education (14.4% females and 13.3% males). On the other hand, 20% of residents had a primary level of education, 5.6% technical, 4.4% Sixth Form, and 1.2% had vocational level. Meanwhile, the remaining 2.2% did not hold any educational level. Assessment of employment status revealed 47.8% of respondents were employed. This consisted of 32.2% females, and 15.6% males. On the other hand, 4.4% of residents were found to be unemployed, consisting 3.3% of females, and 1.1% males and 4.4% of the population were retired.

The average monthly income of each household ranged from \$54,000 – >\$175,000. The largest percentage, 42.2% earned an income between \$55,000 to \$94,000, 25.5% earned between \$95,000 to \$134,000, 14.4% <\$54,000, 10% \$135,000 to \$174,000. Meanwhile, the smallest amount, 7.8% earned greater than \$175,000. In Trafalgar, an average of 14.4% of the households are working below a monthly income of \$55,000.

In the community, 96.7% of respondents indicated that lack of employment was the main social

issue. Meanwhile, the remaining 3.3% categorised as poverty. The respondents had no indications of any problems with crime, discrimination or any other social issues. Concerning the level of social cohesion, 72.2% of the respondents indicated that the community had a good cohesion, whilst 13.3% indicated that the level of cohesiveness was excellent, 11.1% indicated that it was average, and 3.3% stated that they were unsure. Majority (97.8%) stated that there was no opportunity for local employment, whilst 2.2% indicated that there were employment opportunities available. For the respondents who thought there were job opportunities, these were identified as police officers and supermarkets attendants.

iv. Layout of the project, presented on a map with a scale relevant to the size of the development with the following details:



v. A description of the design of the proposed which shall include:

a) Design\construction drawings, specification of any structures, volume of expected pollutants, etc.

The construction drawings are currently being developed and as soon as they are accepted and approved, they will be submitted to the agency.

b) The project size, e.g. capital investment, number of employees projected for each stage of the project, rates of production, transportation route etc;

The Capital investment for the entire GUY SOL project is 83.3 million united states dollars. The number of employees is yet to be determined. It is estimated that this project site will have an output of 4MWp.

c) Activities associated with all development stages from construction to closure:

a. operation and production processes and alternative design/s considered.

This will be proved when the information is available

b. a guide for all stages of the project from raw material to the finished product.

This will be proved when the information is available

c. technical description of the proposed project's process/activity accompanied by a Process Flow Diagram/s;

This will be proved when the information is available

vi. **Use of Natural Resources: approximate quantities of raw materials required at each stage of the project and their possible sources;**

The only foreseeable natural resources that will be utilized are white sand and loam to fill the project site and to create the accesses. Their quantities are yet to be determined.

- vii. Source of utility services such as water supply and treatment options, energy/electricity and communication facilities;**

The source for water supply will be from GWI. While in this case GPL transmission lines

- viii. Waste production: types of waste, the monthly quantity/volume of waste managed (generated, stored, transported), the volume of effluent to be discharged along with a chemical analysis indicating the effluent's composition and methods of waste disposal/treatment. Potential locations for recovery/disposal sites shall be identified with justifications for the site selection;**

The waste produce will only be domestic waste. Which will be disposed of by a hired service provider.

- ix. The duration of the project for each phase; and**

Response: This will be provided when the information is available

- x. Decommissioning plan (where applicable).**

Response: This will be provided when the information is available

- xi. Potential Impacts and their Significance**

- xii. An assessment of the potential impacts of the proposed development and its significance in relation to:**
- a. the extent of the impact or the area of influence: the geographical area that may be affected by the proposed activity and the manner in which the various aspects of the environment: physical (landscape, soil, water, air, the use of natural resources), ecological (flora and fauna), and social (economic and cultural aspects) may be impacted;**

Site	Construction Phase	Operation	Decommissioning
	Dust generation		
Trafalgar	Dust Generation		
	Dust generated during projects works is expected to be brief, frequent and localized. It will be attributable to site preparatory works mainly involving heavy machinery (clearing, levelling, excavation, grading). This impact is considered minor as it is site specific and short term. Effects are mitigable.	This is not expected during operation.	This is expected to be brief, frequent, and localized due to dismantling of the site and use of heavy machinery (clearing, levelling, excavation, grading). The impact is considered minor.
	Reduction of carbon emissions (+)		
	This impact is not likely to during construction.	There is an expected long-term reduction of Greenhouse gas emissions. Given the current and projected loads at each site, the Berbice component is expected to save a total of 10,671 tCO2 annually. The generation of energy through the PV system provides a source of green power generation and significantly reduces dependence on fossil fuels. The impact is considered major.	This impact is not likely to occur during decommission.
	Nitrogen and Carbon oxides emissions		
	This is expected to be brief and localized due to the operation of light and heavy vehicles, transportation	The process of generating electricity from a solar power plant does not emit any	This is expected to be brief and localized due to the operation of heavy machinery, transportation trucks, generators,

	trucks, generators, compressors and other construction equipment. This impact is considered minor.	harmful Greenhouse gases and/or waste products. since substation only distributes power. The impact is considered insignificant.	compressors and other construction equipment. The impact is considered minor.
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Site	Construction Phase	Operation	Decommissioning
	Noise level		
	The presence of and operation of light and heavy vehicles, transportation trucks, generators, compressors and other construction equipment will generate noise; however, this site is situated within an agricultural/industrial zone therefore this impact is reduced to minor.	This phase will produce localized low levels of noise due to operation of electrical components of the PV plant, maintenance activities, and vehicular traffic. The impact is considered minor.	Brief, frequent and localized elevated noise levels due to dismantling of facilities, increased vehicular traffic, and movement of equipment. This impact is considered minor.

Site	Construction Phase	Operation	Decommissioning
	Loss of topsoil		
Trafalgar	Loss of topsoil		
	Long-term and localized loss of topsoil during site clearing and preparation activities is expected, however this site was used as farmlands therefore the topsoil was already disturbed. The impact is considered minor.	This impact is not likely to occur during operation.	Removal of facilities and supporting structures will disturb topsoil once more. This impact is considered minor as it is localised and short-term.
	Soil compaction		
	Long-term and localized soil compaction may cause soil erosion and surface water runoff and riverbed silting. Effects can be minimized with adequate mitigation measures. The impact is considered minor.	This impact is not likely to occur during operation.	Soil may become compacted because of heavy machines which may be used for removal and transportation of structure, if it is determined that the structures will be removed. This is considered short-term, localised and minor.
	Soil contamination		

	Brief and localized soil contamination due to oil spills or other hazardous substances. Effects can be avoided with adequate mitigation measures. The impact is considered minor.	With adequate mitigation measures in place, this impact will not be likely during this phase.	Brief and localized soil contamination due to oil spills during dismantling activities is expected. Effects can be avoided with adequate mitigation measures. This impact is considered minor.
		Soil erosion	
	Erosion/disturbance of the soil is expected during construction from activities including land clearance and assembling of foundation structures for mounting of solar modules. Potential impacts associated with transmission line infrastructure is minimal since the site has established lines. The scale is localized at activity areas. This impact is considered minor and temporary.	Erosion of the soil may occur during this phase due to vehicle movement which will only happen during the occasional maintenance activities. Furthermore, water that falls on solar PV panels run down the panel to the dripline to the soil which may potentially cause localised erosion. This impact has the potential to be moderate however, with adequate mitigation measures like ground cover and proper drainage to manage runoff this is likely to be reduced to negligible/low risk.	During this phase, this impact is likely from the removal of infrastructure like mounting structures, however, if land cover is maintained throughout operation and soil is put back after removal, the potential for this impact is significantly reduced. This impact is expected to be low due to its occurrence at specific localised areas and existing erosion control measures from operation.

Site	Construction Phase	Operation	Decommissioning
	Land use		
Trafalgar	The site is 30 acres of state-owned land. The current land use of the land can be considered as commercial/industrial. The installation of the PV systems will not significantly impact the economic activities of the communities and the surrounding area. The impact is considered minor. Current land use of the right of way (ROW) which are also road reserves commonly used for installation of infrastructure networks such as the one recommended for the Project. The	The site will be used for energy generation for the lifetime of the facility. There is no significant change in the land use of the site. The installation of the PV systems will not significantly impact the economic activities of the area. The impact is considered insignificant.	The farm will be dismantled, and the facilities removed. The future site use shall be in line with the land use of the area or be restored to its initial stage. The impact is considered minor.

new transmission lines for interconnection of PV Farm to the grid and substations will be done within the existing right of ROW. Therefore, there is no expected modification of the current land use of the proposed transmission lines. It is proposed that the Trafalgar Solar Farm be interconnected to the Onverwagt 69kV Busbar via a 2km 69kV line along an existing road. The impact is considered insignificant.

Site	Construction Phase	Operation	Decommissioning
	Visual landscape		
Trafalgar	The installation of the PV system will alter the visual landscape of the project site. The components of the PV system will become a dominant feature of the environment. The impact is considered moderate, however, in consideration of the existing land zone (industrial), it is reduced to minor.	The PV systems will reflect sunlight and may become a distraction for motorists and aircrafts. The effects can be minimized with adequate mitigation measures. The impact is considered moderate. Conversely, solar PV farms are seen as tourist attractions and often open for school visits and opportunities for training, which reduces this impact to minor.	The decommissioning of the system will reverse the visual impacts at the proposed site. The impact is considered minor.

Site	Construction Phase	Operation	Decommissioning
	Solid waste generation		
Trafalgar	Waste generation will be significant during the construction phase. Minimal to no green waste is expected at this site considering the land was previously used for rice farming and has low grass.	Domestic waste generation may be expected during operation from permanent maintenance staff. Although the generation will be long-term and	Solid waste generated is expected to increase in the decommissioning stage. Solid waste generated is expected to be localized, temporary and significant

	<p>Construction and domestic waste generation is expected to be temporary and localized but significant in volume. As an indirect impact, it likely that temporal food supply businesses will increase nearby the project site. These businesses will also be a source of increased generation of solid waste that must be considered. Poor solid waste management on site may lead to improper disposal, burning, and pollution of water resources.</p> <p>The effects can be minimized with adequate mitigation measures. The impact is considered moderate.</p>	<p>localized, the volume generated can be considered low.</p> <p>The effects can be minimized with adequate mitigation measures. The impact is considered minor.</p>	<p>volume of domestic, scrap metal, construction waste, and hazardous waste.</p> <p>The effects can be minimized with adequate mitigation measures. The impact is considered moderate.</p>
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Site	Construction Phase	Operation	Decommissioning
	Surface water pollution		
Trafalgar	<p>Construction activities may result in pollution of nearby surface water due to runoff (increased turbidity, organic load). This is expected to be temporary and controlled with adequate drainage and wastewater management at the site. Potential spills of oil could cause contamination of the nearby surface water through run-off. This aspect is temporary and avoidable.</p> <p>Wastewater generation from construction staff living quarters may also cause increased organic load to nearby water bodies, if not adequately managed.</p> <p>The impact is considered moderate.</p>	<p>During operation, wastewater will be generated from security/maintenance staff offices and cleaning of the PV cells. The effect is expected to be long term and can be mitigated with adequate collection and management practices. The removal of soil cover might generate minor impacts due to erosions during operation also.</p> <p>Potential spills of oil and any other hazardous substances could cause contamination of the nearby public irrigation canals. This aspect is very localized, temporary and easily avoidable.</p> <p>The impact is considered minor.</p>	<p>Surface water pollution: Activities may result in pollution of public irrigation canal due to runoff (increased turbidity, organic load). This is expected to be temporary and controlled with adequate drainage at the site.</p> <p>Potential spills of oil could cause contamination of the nearby public irrigation canals. This aspect is very localized, temporary and easily avoidable.</p> <p>The impact is considered moderate.</p>

Site	Construction Phase	Operation	Decommissioning
	Groundwater contamination		
Trafalgar	Groundwater resources may be impacted during the construction stage from oil spills and leaks or due to improper storage and handling. Improper solid and wastewater management can also impact the groundwater resources. The effects are considered temporary and moderate. Adequate measures can avoid potential effects. The impact is considered minor.	Improper solid and wastewater have the potential to negatively impact ground water resources. Adequate measures can avoid potential effects. The impact is considered insignificant.	Groundwater resources may be impacted during the decommissioning stage from oil spills and leaks or due to improper storage and handling. Improper solid and wastewater management can also impact the groundwater resources. The effects are considered short term and minor. Adequate measures can avoid potential effects. The impact is considered insignificant.

Site	Construction Phase	Operation	Decommissioning
	Creation/loss of natural habitat		
	Creation/loss of habitat		
Trafalgar	This project site is considered highly disturbed in relation to vegetation, since the land allocated for the PV plant was agricultural land (previously rice fields). Also, there are low levels of faunal biodiversity. There is no indication of the presence of threatened or protected flora or fauna species at the proposed site for construction. The impact is localized, long term, with low intensity due to the disturbed conditions and zone in which the site is located. The impact is considered minor.	The increase in ground shade and humidity may promote growth of vegetation which can open opportunities for agrivoltaic farming (Corbley, 2022). This impact is positive and long-term. Another potential impact may be the reflection of solar panels may have on birds as the main wildlife in the surroundings, and transmission lines may affect bird mortality. The effects will be long term and localized. Solar PV farms can impact bird communities through habitat loss and the risk of avian collision mortality. An extrapolated mortality study based on a bird density of 38 to 50 species per ha	The impact of this stage may be determined by the activities designated during operational aspects of the farm.

		(15 to 20 species per acre) may occur 4.5 bird fatalities per MW per year (Visser, Elke et. al 2019). A PV plant with 50 acres area or 10 MW is expected to impact 45 bird fatalities per 10 MW per year in a modest projection. Future data is needed to have a better accuracy in bird density and to understand the risk of PV solar energy developments on birds. The impact can be considered moderate.
	Noise levels	
	Noise generated by construction workers and machinery is more likely to impact wildlife in the surrounding areas of the site. The effects are limited to the project site and immediate surroundings. Due to the low faunal biodiversity at this site and industrial development, this impact is considered minor.	Due to the isolated location of the site and barriers (to be established), this impact will be localised and mitigable. It is considered minor.
		Noise generated by construction workers and machinery is most likely to add to existing noises in this phase. These noises are not likely to impact wildlife as there may have been migration from this area after a prolonged presence. Any potential impacts will be temporary and localised. This impact is considered minor.
	Aesthetics	
	The increased traffic during construction may increase the heavily used major road for other large-scale operations. This impact is considered temporary and minor.	The presence of a solar PV farm in this area may not have an impact as it is designated for industrial activity. This impact is noted as long-term and insignificant.
		The increased traffic during construction may increase the heavily used major road for other large-scale operations. This impact is considered temporary and moderate.

Site	Construction Phase	Operation	Decommissioning
	Demography		
Trafalgar	Demography		
	During the construction phase, an increase in population is expected in the area. While residents are expected to take part in some	Operation of the PV systems requires little staff. Additionally, maintenance and operational activities are expected to be carried out by GPL staff residing	Decommissioning activities will need to ensure the quality of the GPL service is not affected negatively. In such case, the removal of the system is more likely to have an impact in the

	<p>construction activities, there may be an influx of workers with specific skills. The effects are considered temporary, and localized. In general, this will bring a positive socio-economic impact to the area. However, demographics are not expected to be significantly impacted during this stage. The impact can be considered as minor.</p>	<p>the areas of influence. The effects will be long term, localized but insignificant as it is not expected to change the demography of these areas. The impact is considered minor.</p>	<p>socio-economic activities of the area and its demography. To this assessment, it is assumed that GPL service after decommissioning will be maintained, therefore, decommissioning of the system is not considered to have a significant impact.</p>
Socioeconomics			
	<p>Increased activities due to construction will temporarily increase the economic activities within proximity to the construction sites to accommodate the current needs of the workers. This impact is considered positive and minor.</p>	<p>An expected indirect impact of the operation of the PV systems is the increase of population in the area. The increase of energy production with the current reliable service from GPL, will naturally promote an expansion of socio-economic activities in the area thus also impacting the demography. This effect is considered high spread, long term and significant for the community. The impact is considered major.</p>	<p>An influx of construction workers will increase economic activities within the area temporarily. This impact is considered positive and minor.</p>

Site	Construction Phase	Operation	Decommissioning
	Employment		
Trafalgar	Employment		
	<p>During the construction phase, employment opportunities will be generated for skilled and unskilled labour. There will also be a demand for local goods and services which will have an impact on the earning capacity</p>	<p>The operation of the PV systems will be managed by GPL staff, however permanent roles like security services and scheduled upkeep. Therefore, a direct impact on employment generation is expected during this phase. This impact is considered minor.</p>	<p>During this phase, there may be temporary employment opportunities during the dismantling of the plant. However, this is expected to be in a much lesser extent than in the construction phase.</p>

	of local businesses. These impacts while positive are expected to be only temporary and localized. The impact is considered minor.		The impact is considered minor.
Socioeconomic activities			
	This impact is insignificant at this phase.	An indirect impact of the operation of the PV systems is the increase of employment in the district. The expected improvement on the reliability of the GPL service, will naturally promote an expansion of socio-economic activities in the area thus impacting employment opportunities. This impact is considered major. Additionally, the Programme intends to finance training and apprenticeships in solar PV installation and energy management projects which will be designed for diversity and inclusion, targeting women and persons with disabilities, adding to specific job skills and thereby employment within the sector. This effect is considered high spread, long term and significant for the community.	This impact is negligible at this phase considering the Government of Guyana's long-term plans for low-cost energy generation.

Site	Construction	Operation	Decommission
	Displacement		
Trafalgar	The site is state owned land. The current land use of the land can be considered as commercial/industrial. There are no human settlements or economic activities currently at the proposed site. Therefore, the project will not cause any type of displacement. This impact is considered insignificant.	This impact is not likely to occur during this phase.	This impact is not likely to occur during this phase.

Site	Construction Phase	Operation	Decommissioning
	Livelihood		
Trafalgar	This impact is negligible in this phase.	The construction and operation of the PV system will increase energy security and access in the area and will support the development of a greener economy. It is highly likely the project economic activities will expand and diversify economies with employment opportunities and improving the quality of life in the community. The effects will spread at the community level and can be considered long term. There is also an anticipated positive effect on income generation opportunities for women.	It is assumed that GPL service after decommissioning will be maintained, therefore, decommissioning of the system is not considered to have a significant impact.

Site	Construction Phase	Operation	Decommissioning
	Social/cultural		
Trafalgar	While there may be a temporary increase of construction workers in the area, the local customs, cultures, and social relations are not expected to be significantly impacted. There are no cultural sites or near to the project site. This impact is considered minor.	This phase of the PV systems will be managed by local GPL staff. There are no expected impacts on local customs, culture, and social relations directly related to the operation of the PV systems. This impact is considered insignificant.	There are no expected impacts on local customs, culture, and social relations directly related to the decommissioning of the PV systems. This impact is considered insignificant.

Site	Construction Phase	Operation	Decommissioning
	Infrastructure		
Trafalgar	There is no expected disruption of energy or other services during construction activities. Any unexpected events would have a brief and	During the operation of the PV system, the energy service is expected to be reliable. Modular PV systems are resilient to disruptive events. If a module is damaged, the system remains	For this assessment, it is assumed that GPL service after decommissioning will be maintained, therefore, decommissioning of the system is not considered to have any impact.

	<p>widespread effect. However, effects can be minimized with adequate planning. Upgrading of the access road to the proposed site may create traffic disturbances. The use of any current trail should be considered and relevant stakeholders contacted to ensure no significant disruption of activities to local users. The impact is direct and moderate.</p>	<p>operational. This will benefit the customers and will minimize power outage in the area. Water supply service is expected to be impacted positively, since power disruptions to the distribution system will also be minimized. Effects will be long term and at the community level. The impact is considered direct and major.</p>
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Site	Construction Phase	Operation	Decommissioning
	Health and safety		
Trafalgar	<p>During construction, there will be health and safety hazards on site and in surrounding area due to increase vehicular traffic, heavy machinery operation, excavation, and other construction activities. The effects will be localized and temporary. However, the effects can be minimized by strict adherence of the approved safety procedures mandatory under the Laws of Guyana.</p> <p>Influx of construction workers may lead to increase in the prevalence of sexually transmitted diseases among the local population, as well as sexual violence. Considering that labour is expected to be filled locally, this concern can be regarded as low. However, health and awareness campaigns as well as a code of</p>	<p>During operations, workers will be exposed to occupational hazards especially during maintenance. The probability of occurrence can be minimized by strict adherence to occupational safety procedures. The impact is considered indirect and minor.</p>	<p>Increased exposure to hazards is expected in the decommissioning activities. Strict adherence to health and safety procedures will minimize these effects. The impact is considered direct and moderate.</p>

conduct indicating clear repercussions can minimize any potential effects. The impact is considered indirect and moderate.

Site	Construction Phase	Operation	Decommissioning
Trafalgar	Supply Chain Risk		
	<p>The solar PV supply chain is vulnerable to impacts like natural disasters, wars, pandemics, technical incapacities, individual company decisions, etc. which can impact project costs and management. This impact is considered medium as it is unpredictable and direct, however, it can only be expected during this phase.</p> <p>This impact can be reduced by greater understanding of price mechanisms and competition by the PEU to inform decisions about capital costs before hiring a Contractor.</p>	<p>This impact is not likely to occur during this phase.</p>	<p>This impact is not likely to occur during this phase.</p>

b. the trans frontier nature of the impacts i.e. does it cross country borders or boundaries;

Response: Not applicable

c. the magnitude and complexity of the impacts;

Response: Not applicable

d. the probability of the impacts;

Response: Not applicable

e. the duration, frequency and reversibility of the impacts; and

Response: Not applicable

f. Cumulative impacts with other projects: additional surveys and assessment may be required to determine whether existing projects in combination with the proposed project will have a significant cumulative effect on the receiving environment.

Response: Not applicable

xiii. Description of proposed environmental management and mitigation measures for all environmental, ecological and social impacts.

Table 6-1: Environmental and Social Management Plan – Construction of the Trafalgar Solar PV Farm

	Issue/ Impact	Mitigation Measures	Monitoring Indicators	Responsibility for Implementation	Responsibility for Monitoring	Estimated Cost (US\$)
Air Quality	Dust generation	<ul style="list-style-type: none"> ▪ Cover stockpiles to minimize dust generation. ▪ Suppress dust from construction, stockpiles and increased vehicular traffic by sprinkling water. ▪ Consider wind direction when stockpiling construction materials. Orientation will avoid downwind residences or sensitive locations. ▪ Implement vehicle speed control through signage and speed bumps, whenever necessary. 	<ul style="list-style-type: none"> ▪ PM monitoring ▪ Dust generation observation ▪ Complaints register 	All contractors on site	Site Supervisor	5,000
	NO _x and CO _x emissions	<ul style="list-style-type: none"> ▪ Maintain vehicles and on-site construction equipment regularly. 	<ul style="list-style-type: none"> ▪ Equipment maintenance records according to schedule ▪ Vehicle fitness certificates 	All contractors on site	Site Supervisor	10,000
	Noise	<ul style="list-style-type: none"> ▪ Use padding/noise isolators for construction equipment and machinery. ▪ Carry out fixed noise sources or activities away from site boundaries, particularly 	<ul style="list-style-type: none"> ▪ Monitoring of dB ▪ Complaints register ▪ Equipment maintenance records according to schedule ▪ Workers' compliance to H&S procedures 	All contractors on site	Site Supervisor	5,000

		<p>boundaries close to sensitive environments.</p> <ul style="list-style-type: none"> ▪ Maintain construction vehicles and machinery adequately. ▪ Use ear plugs or earmuffs for specific activities by workers, visitors and any individuals working in proximity to the works. ▪ Consult stakeholders (immediate surroundings of site) to plan activities accordingly. 	<ul style="list-style-type: none"> ▪ Consultation records ▪ Environmental Annual Reports 			
Soil	Topsoil loss	<ul style="list-style-type: none"> ▪ Limit the removal of vegetation to the site footprint. ▪ Whenever possible, removed topsoil should be conserved and used for remediation of affected areas. 	<ul style="list-style-type: none"> ▪ ESMP Compliance records ▪ Environmental Annual Report 	All contractors on site	Site Supervisor	15,000
	Soil compaction and erosion	<ul style="list-style-type: none"> ▪ Develop suitable drainage in consideration of the physical characteristics of the site. ▪ Plant grass or consider use of rocks under the solar panels is also recommended to reduce erosion at the drip line. 	<ul style="list-style-type: none"> ▪ ESMP Compliance records ▪ Environmental Annual Report 	All contractors on site	Site Supervisor	
	Soil contamination	<ul style="list-style-type: none"> ▪ Adequately dispose of waste materials. ▪ Provide bunded areas or secondary containment for storage of oil/fuel and/or any other hazardous materials or substances like batteries with 110% capacity of the stored material. 	<ul style="list-style-type: none"> ▪ Complaints register ▪ ESMP Compliance records ▪ Environmental Annual Report 	All contractors on site	Site Supervisor	

		<ul style="list-style-type: none"> ▪ Provide spill kits at strategic locations. ▪ Service construction vehicles and machinery regularly. ▪ Ensure that any vehicle maintenance is handled on impervious surfaces to avoid soil contamination. ▪ Treat or dispose contaminated soil with a commercial oil-absorbing product, if possible. 				
Land Use (ROW)		<ul style="list-style-type: none"> ▪ Current land use of the right-of-way (ROW) is considered road reserved commonly used for infrastructural works like installation of networks of the solar PV farm. ▪ The proposed transmission lines for interconnection of PV Farm to the grid and substations will be done within the existing ROW. ▪ It is proposed that the Trafalgar Solar Farm be interconnected to the Onverwagt 69kV Busbar via a 2km 69kV Line. Therefore, there is no expected modification of the land use of the proposed transmission lines at no site. The impact is considered insignificant. 	<ul style="list-style-type: none"> ▪ Complaints register ▪ ESMP Compliance records 	All contractors on site	Site Supervisor	
	Landscape and visual impact	<ul style="list-style-type: none"> ▪ The site proposed for the proposed solar PV farm is an agricultural/commercial zone and will be situated next to an 	<ul style="list-style-type: none"> ▪ ESMP Compliance records ▪ Consultation meeting records 	All contractors on site	Site Supervisor	5,000

		<p>abattoir. However, grass is present and should be maintained, where possible.</p> <ul style="list-style-type: none"> Consult with aeronautical authorities with regards positioning and direction of solar panels to avoid conflicts with flying airplanes. 				
	Solid waste generation	<ul style="list-style-type: none"> Dispose of waste in the authorized landfill as regulated by the local authority. Plan and coordinate with the local NDC/RDC to manage the increased volume expected to be generated from the site. Provide the site with adequate number of bins for the disposal of domestic waste. Burning of waste on-site is strictly prohibited. Ensure adequate arrangements are made for the frequent collection of domestic, construction and hazardous materials. Provide bins to facilitate waste from food supply entrepreneurs within the proximity to the site. Clean and maintain site and immediate surroundings. 	<ul style="list-style-type: none"> ESMP Compliance records Consultation records with solid waste management authorities. Complaints records Valid contract with solid waste collection contractor Existence of at least one container bin outside the project site where food services providers are located (if necessary). 	All contractors on site	Site Supervisor	50,000
	Hazardous waste	<ul style="list-style-type: none"> This phase is expected to produce much hazardous waste due to ongoing construction process which requires regular 	<ul style="list-style-type: none"> Compliance with hazardous waste management plan and Environmental Permit 	All contractors on site	Site Supervisor	5,000

		<p>maintenance and servicing of machines and vehicles.</p> <ul style="list-style-type: none"> ▪ A hazardous waste management plan must be developed by the contractor for spent oil, oily rags, grease, filters, etc. that will be used on site. ▪ Hazardous all hazardous materials on site and dispose according to stipulations outlined Environmental Protection (Hazardous Waste Management) Regulations 2000 and Environmental Permit. ▪ Any oil from machines serviced should be collected and stored in a bunded area or secondary containment for storage of any hazardous materials or substances like batteries with 110% capacity of the stored material. ▪ Machines and parts should not be serviced or cleaned near to or in any standing water body. 	<ul style="list-style-type: none"> ▪ Environmental Annual Report where quantities generated are recorded and intended method of disposal 			
	Surface water pollution	<ul style="list-style-type: none"> ▪ Design drainage for the site to minimize run-off and in consideration of any nearby water bodies. ▪ Monitor and maintain drainage system regularly. ▪ Provide adequate temporary sanitary facilities for workers on- 	<ul style="list-style-type: none"> ▪ ESMP compliance records ▪ Existence of temporary sanitary facilities ▪ Valid contract with waste collection contractor 	All contractors on site	Site Supervisor	30,000

		<p>site while permanent facilities are constructed.</p> <ul style="list-style-type: none"> ▪ Ensure frequent collection of waste generated by sanitary facilities by an EPA approved contractor. ▪ Provide bunded areas or secondary containment for storage of oil/fuel with 115% capacity of the stored material. 				
	Groundwater pollution	<ul style="list-style-type: none"> ▪ Clean oil spills, fuel spill and other site contaminants rapidly and immediately. ▪ Frequent collection of waste generated by sanitary facilities will be done by an EPA approved contractor. ▪ Provide bunded areas or secondary containment for storage of oil/fuel with 115% capacity of the stored material. 	<ul style="list-style-type: none"> ▪ ESMP compliance records ▪ Existence of temporary sanitary facilities ▪ Valid contract with waste collection contractor 	All contractors on site	Site Supervisor	
	Loss of natural habitat	<ul style="list-style-type: none"> ▪ At the site proposed for the Trafalgar solar PV farm, the natural habitat was previously disturbed by agricultural activity. ▪ Monitor and maintain noise levels as recommended by the EPA Noise Regulations to minimize potential effects to fauna in the surrounding areas i.e., Construction ▪ 90dB daytime limits (06:00 – 18:00h) 	<ul style="list-style-type: none"> ▪ dB monitoring 	All contractors on site	Site Supervisor	500

		<ul style="list-style-type: none"> 75dB night-time limits (18:00 – 06:00h) Ensure the Fauna Rescue Plan is consulted if any animal is encountered. 				
	Demography and Employment	<ul style="list-style-type: none"> Maximise the local labour market. Ensure the recruitment process is transparent. 	<ul style="list-style-type: none"> Employment records Number of local labours employed at the site 	All contractors on site	Site Supervisor	1,000
	Socio-cultural	<ul style="list-style-type: none"> Regularly consult with the community through meaningful stakeholder consultations. 	<ul style="list-style-type: none"> Monthly community consultation records 	All contractors on site	Site Supervisor	5,000
	Infrastructure	<ul style="list-style-type: none"> Ensure timely and adequate public announcements with regards to any service interruption because of the project, including road closures if necessary. 	<ul style="list-style-type: none"> Service interruption records. Duration of service interruption 	All contractors on site.	Site Supervisor	5,000
	Health and Safety	<ul style="list-style-type: none"> A health and safety plan should be implemented by the contractor on site. Workers' awareness sessions on health and safety issues should be carried regularly. Provide awareness campaigns to the population and training to workers on the mitigation of any potential community health and safety impacts. All personnel on site must be provided with PPE. 	<ul style="list-style-type: none"> H&S Plan compliance records H&S awareness sessions attendance records Site emergency response and Fire Safety plans developed and implemented ESMP compliance records Visible traffic and speed signage 	All contractors on site	Site Supervisor	20,000

		<ul style="list-style-type: none"> ▪ Site emergency response plans should be developed including a fire safety plan. ▪ Provide adequate fire-fighting equipment on site. ▪ Ensure clear, visible signage throughout the site and surrounding areas always. ▪ Traffic control and speed limits must be observed. ▪ Limit work hours to daytime limits (06:00-18:00h), unless otherwise agreed with relevant stakeholders. ▪ If work needs to be completed during the evening, night-time limits are (18:00 -6:00h). ▪ Occupational hazards should be marked on site and staff trained on hazard recognition. ▪ Cleanliness of the site must be always maintained. 				
	Health: HIV/AIDS	<ul style="list-style-type: none"> ▪ Use code of ethics, conduct, and good practices based on existing GPL standards and guidelines. ▪ Training on awareness, and education on safe practises in the workplace during the period of construction must be done. ▪ Equip staff with appropriate equipment and materials to protect colleagues from the risk of exposure to STIs. 	<ul style="list-style-type: none"> ▪ Compliance with the code of ethics ▪ Behaviours which facilitate unintentional injuries and violence, ▪ Tobacco use, ▪ Alcohol and drug use, ▪ Sexual behaviours related to pregnancy and sexually transmitted diseases, ▪ Unhealthy dietary behaviours, and 	Health and Safety Officer. Program should be adapted to comply with local laws.	Health and safety officer	3,500

		<ul style="list-style-type: none"> ▪ Disseminate information on safe practises including occupational health and first aid training. 	<ul style="list-style-type: none"> ▪ Physical inactivity and being overweight. 			
	Supply chain	<ul style="list-style-type: none"> • Ensure that there is greater understanding of price mechanisms and competition by the PEU to inform decisions about capital costs before hiring a Contractor. • Research suppliers and products for adequate quotations. 	<ul style="list-style-type: none"> ▪ International price comparisons ▪ Reputation of suppliers and products 	PEU-GPL	GPL	0

xiv. A summary of minutes of any public consultations/ meetings held by the Project proponent with key stakeholders expressing their views and opinions.

SUMMARY OF MINUTES

The consultation meeting related to the above-mentioned project was conducted with the community members, as it was seen that they are the most crucial part of the implementation of the project; whilst taking into consideration the social and environmental impacts of such a project, as well as issues surrounding land ownership. All other relevant stakeholders were invited, and the meeting was held on Tuesday, 21st June 2022 in the Church Hall, Trafalgar, Berbice. The meeting was called to order at 5:00 PM with 48 signed attendees.

MATTERS ARISING FROM THE MEETING:

Location of the Abattoir: Mr. Dillawar indicated that the project would take approximately 12 acres of land next to the Trafalgar abattoir.

Starting of the Project: Mr. Dillawar indicated that tender to local and international agencies is slated to begin in July. The process has many checks and balances from agencies such as IDB, and Cabinet among others. Therefore, the project is expected to begin at the end of the year or the beginning of the new year. He assured residents that they will know when the project commenced and will be updated on who is the contractor of the project.

Training for women: Mr. Dillawar communicated there is a component of the project which is expected to address a gender gap by initiating women's classroom and advanced training in the installation of Solar PV training. This project would be modelled using GEA's similar project, therefore plans are still in the works.

Funding of the project: Mr. Dillawar indicated that the project is funded by Guyana's earnings from the Norway Agreement to maintain our forest. It is administered through the International Development Bank (IDB) and managed by Guyana Power & Light (GPL).

Employment of the community: Mr. Dillawar communicated that telling a contractor that they must employ members within the community always comes with an added cost and risks due to the unknown skill sets. This project intends to gather a list of skill sets within the community and present it to the contractor for consideration. The contractor should realize that employing persons within the community is more economical.

Local content: Mr. Dillawar indicated that both international and local contractors will benefit because the duties would be split among the nationwide solar PV installation. Local subcontractors would turn to local people to get the job done. A scoring mechanism for local

content could be considered for awarding contracts.

Skill sets: Mr. Dillawar indicated that a list of needed skillsets can be provided to the NDC so that youths within the community can be aware of what is needed.

Money allocated for capacity building: Mr. Dillawar indicated that US\$850,000 was allocated for women and people with disability and the energy apprenticeship program for training. The energy apprenticeship would cater for persons with a certain level of education such as budding engineers, attached to gain experience which must have a gender and disability parity. The other project is targeted toward the community. The project should ideally start before the contractor is ready so that candidates can benefit from the hands-on experience. Mr. Dillawar also indicated that he was unsure of the number of persons that would benefit.

ANY OTHER BUSINESS: Residents expressed concern about an area in Trafalgar of approximately 65 houses which received no power from GPL for approximately 4 years. Mr. Dillawar explained some of the issues that may affect the process such as a low voltage area, and lack of materials due to shipment issues. The regional vice-chairman is aware of the issue, as there is an unserved area process with GPL. Mr. Dillawar promised to understand why there is a problem with power in the area and follow up on the issue of the location. There is a possibility that the leased land may have legal issues involved which can prevent GPL from providing power, which brings a different complexity to the situation.

CLOSING REMARKS: Mr. Dillawar thanked the residents for attending the consultation meeting. He also mentioned that the large turnout in attendees indicates that the community is interested, and GPL is willing and ready to work with the community.

xv. A description of any assumptions, uncertainties and gaps in knowledge.

NA

xvi. A non-technical summary of the project (a summary of what the project is about in layman's language that clearly describes your project).

Funds from the Guyana-Norway Partnership will be utilized to execute a National Solar PV Project aligned with its plans to increase renewable energy penetration and grid stability in the power system. The project will be administered through the Inter-American Development Bank (IDB), with GPL as the Executing Agency. The execution of the projects that are a part of this program will support Guyana's transition to renewable energy and the diversification of the energy matrix via the use of cleaner and renewable energy sources in the electricity generation mix. Eight projects are currently proposed under Component 1: three sites (Prospect, Hampshire and Trafalgar) are vacant agricultural fields owned by the Government, to avoid land conflicts; two sites are former mining sites, those are Dacoura and Retrieve) in Linden; two sites are located on vegetated areas (Block 37 and Onderneeming) being the only feasible technical option for the respective areas, and one site in Charity.

The project will consist of 33MWp solar PV in three different grids as follows:

- ✓ 15MWp of Solar PV with a minimum of 22MWh (11MW, 2h) of battery storage for the Linden Isolated System.
- ✓ 8MWp of Solar PV with a minimum of 12MWh (6MW, 2h) of battery storage for the Essequibo Coast Isolated System.
- ✓ 10MWp of Solar PV for the Demerara-Berbice Interconnected System, specifically in Berbice.

Benefits

The development of a National Utility Scale Solar PV Program will generate benefits including:

- **Economic**
 - a) Diversification of the local economies within each proposed project area and overall, nationally due to a more reliable, stable form of electricity
 - b) Increase resilience to the volatility of the global fuel market:
 - ✓ The diversification of the energy generation matrix of these grids will result in operational and maintenance cost savings for GPL.
 - ✓ Significant reduction in Government subsidies which can be used for:
 - ✓ System upgrades, including digitisation, improving overall system reliability and the resilience of GPL's and LECI's Transmission and Distribution networks.

Thereby, allowing GPL and LECI to provide increased value to their customers through more reliable and affordable electricity services in Guyana.

- **Social and Gender**

- a) Improved efficiency in the health, education, water, and public safety sectors
- b) Employment during construction and operation
- c) Local training and institutional capacity

- **Environment**

- a) Contribution to the mitigation of global climate change by reduced emissions of Greenhouse Gases.
- b) The reduction and avoidance of CO₂ emissions in electricity generation via the diversification of the energy supply matrix with the introduction of renewable energy-based sources of energy specifically,
 - Linden is purposed to conserve 17,259 tCO₂ (valued = US\$1.04M).
 - Essequibo will conserve 9,390 tCO₂ (valued = US\$1.04M).
 - Berbice will save 10,671 tCO₂ (valued = US\$0.64M).
- c) Reduction in the consumption of and dependence on fossil fuel for electricity generation.