

GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: MEDIUM-SIZED PROJECT

TYPE OF TRUST FUND: GEF Trust Fund



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1. PART I: PROJECT INFORMATION

Project Title:	Mainstreaming Low-emission Energy Technologies to build Guyana's Green Economy		
Country(ies):	Guyana	GEF Project ID:	9650
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5831
Other Executing Partner(s):	Ministry of the Presidency, Office of Climate Change (OCC)	Submission Date:	11 February 2017
GEF Focal Area(s):	Climate Change	Project Duration (Months)	48
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/> Corporate Program: SGP <input type="checkbox"/>		
Name of parent program:	N/A	Agency Fee (\$)	166,266

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
CCM-1 Program 1 Category b - Acceleration of low emission technology innovation and uptake through demonstration, deployment, and transfer using policies and mechanisms.	GEFTF	1,750,172	7,400,000
Total Project Cost		1,750,172	7,400,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To promote low-emission energy technologies¹ across prioritized sectors, thereby increasing competitiveness and climate-resilience of the national economy.

Project Components	Financing Type ²	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
I. Sustainable business and financing models for low-carbon energy technologies.	TA	1. The feasibility of low-carbon energy investments has been enhanced through innovative business and financing models reducing project risks.	1.1 Identification and detailing of innovative business and financing modalities for low-carbon energy investments in prioritized sectors ³ . 1.2 Delivery of manuals and model contracts for the application of innovative business and financing modalities in public and private sectors.	GEFTF	250,000	450,000

¹ In this proposal, the term "low-emission" refers to reduced carbon (CO₂) emissions compared the baseline scenario. Low-emission energy technologies include: (i) renewable energy technologies (excluding large hydropower); and (ii) energy efficiency technologies. Given Guyana's climate conditions, the focus is on electric energy systems.

³ Tentatively, the following sectors are proposed in line with Guyana's Climate Resilient Strategy and Action Plan (CRSAP): (i) small and medium enterprises (SME); (ii) agriculture; (iii) public health; and (iv) water management and drainage.

			1.3 Strengthening of technical and commercial skills of contractors, installation companies and suppliers of renewable energy systems and energy-efficient equipment.			
II. Policy framework and institutional capacities.	TA	2. Policy instruments and institutional capacities for implementing low-carbon energy technologies in prioritized economic sectors, have been strengthened.	2.1 Preparation of a low-emission energy strategy for Guyana, including targets for energy efficiency and adoption of renewable energy technologies. 2.2 Implementation of financing window for low-carbon energy technologies under sectoral climate change mitigation plans in prioritized economic sectors. 2.3 Mainstreaming of low-carbon energy technologies into procurement mechanisms of the public sector. 2.4 Promotion of renewable energies and energy efficiency among public officers, sector organizations, private enterprises and other stakeholders.	GEFTF	200,000	450,000
III. Deployment of low-emission energy technologies.	TA	3. Innovative business and financing models for low-emission energy technologies have demonstrated in prioritized economic sectors.	3.1 Feasibility studies and technical specification of low-emission energy projects in prioritized sectors.	GEFTF	200,000	200,000
	INV		3.2 Financing, installation and operation of low-emission energy projects. 3.3 Supervision and monitoring of performance and operation of installed energy systems.	GEFTF	850,000	6,000,000
IV. Monitoring and Evaluation	TA	4. The Project monitoring & evaluation plan has been implemented.	4.1 A monitoring and evaluation plan is designed and implemented, including reporting on progress indicators and targets.	GEFTF	120,000	50,000

			4.2 Terminal Evaluation and (optional) Mid-term Review are conducted 4.3 Project audits are conducted.			
			Subtotal		1,620,000	7,150,000
			Project Management Cost (PMC)	GEFTF	130,172	250,000
			Total Project Cost		1,750,172	7,400,000

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Recipient Government	Ministry of the Presidency – Office of Climate Change	In-kind	700,000
Recipient Government	Guyana REDD+ Investment Fund	Loans	2,000,000
Recipient Government	Guyana REDD+ Investment Fund	Equity	1,000,000
Others	Multilateral banks	Loans	3,000,000
Donor Agency	Bilateral donor agencies in Guyana	In-kind	600,000
GEF Agency	UNDP	Grants	100,000
Total Co-financing			7,400,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
UNDP	GEFTF	Guyana	Climate Change	Mitigation	1,750,172	166,266	1,916,438
Total GEF Resources					1,750,172	166,266	1,916,438

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes No

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: \$50,000					PPG Agency Fee: 4,750		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee (b)	Total c = a + b
UNDP	GEF TF	Guyana	Climate Change	(select as applicable)	50,000	4,750	54,750
Total PPG Amount					50,000	4,750	54,750

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁴

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>Hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>Hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	0.139 million metric tons CO _{2eq}
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

PART II: PROJECT JUSTIFICATION:

A. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed.

1. Guyana is very vulnerable to climate change because of high levels of exposure and sensitivity to climate risks, combined with limited capacity to adapt. The primary exposure factor is the low-lying coastal plain along the Atlantic coast, which concentrates the majority of the population and economic activity, including agricultural production systems. Since the 1960s, Guyana has observed significant changes in its climate system with marked increases in temperatures, sea levels and the frequency and intensity of extreme rainfall events. Repeated floodings over the last decade and the droughts of 1997/8, 2009/10, and 2015, severely affected the country in terms of economic losses, degradation of natural resources, infrastructure, human livelihoods, and casualties.⁵
2. The Government of Guyana has acknowledged this threat in an early stage and taken action to build resilience and adapt to climate change, principally by improvements to the drainage and irrigation and sea defence systems. The country situation and national policies concerning vulnerability and adaptation strategies are reflected in Guyana's Second National Communication (SNC) to the UNFCCC, the National Integrated Disaster Risk Management Plan, the National Adaptation Strategy to Address Climate Change in the Agricultural Sector, Guyana's Intended Nationally Determined Contributions to the UNFCCC (INDC, 2015), and the recent Climate Resilience Strategy and Action Plan (CRSAP, 2015).
3. Notwithstanding Guyana's recent ascent to the status of lower middle-income country, it is still one of the poorest countries in Latin America and the Caribbean with a GNI of US\$ 3,970 per capita. Guyana ranks 117th out of 187 countries on the UNDP HDI index. At a total population of approx. 742,000 people (2015)⁶, about 71% (527,000 people) live in rural areas, the remainder (215,000) being concentrated in and around Georgetown.⁷ Guyana's trade balance is systemically negative due to its dependence on imported fuel, manufactured products and machinery (-US\$ 77.3 mln in July 2016).⁸ Government budget to invest in climate-resiliency and to stimulate the national economy is very limited and conditions to borrow on the international capital markets are unfavourable; in fact, some preferential instruments for heavily-indebted poor countries (HIPC) are no longer open for Guyana. Some multilateral banks, including the IDB, have a long-term presence supporting the country under social and sector development programmes.
4. Acknowledging its status as one of the few countries in the World that are a net carbon sink, Guyana attempts to capitalize on its vast, pristine native forests to attract needed investment capital, thereby linking global climate change mitigation to the national climate-resiliency and adaptation agenda. Underpinning this vision is Guyana's Low Carbon Development Strategy (LCDS, 2009) and consecutive updates thereof (2010 and 2013). A concrete result of this policy was the creation of the Guyana REDD+ Investment Fund (GRIF) as a trust fund for the financing of activities identified under the LCDS. The main contributor until present is the Kingdom of Norway following an agreement (November 2009) to provide up to US\$ 250 mln by 2015 in performance-based payments for avoided deforestation. Under the LCDS, Guyana has led in the development of a highly-regarded forest Measurement, Reporting and Verification System (MRVS), which forms the basis for the national REDD+ model.⁹
5. Following the change in Government in May 2015, the Green Economy has been identified as Guyana's national development thrust. Although further articulation of this concept is still needed, it refers to a more decentralized development strategy built on economic diversification and social inclusion while preserving the country's

⁵ In the period 2005-2015, floodings occurred yearly with the exception of 2007 and 2012. To illustrate the scale of economic losses: damage associated to the floodings in 2005 amounted to US\$ 465 million (60% of GDP).

⁶ Source: Guyana Bureau of Statistics, Statistical Bulletin, Annex 5 (<http://www.statisticsguyana.gov.gy/census.html>)

⁷ Source IFAD: <http://www.ruralpovertyportal.org/country/home/tags/guyana>.

⁸ Source: <http://www.tradingeconomics.com/guyana/>.

⁹ For more information, see: <http://www.guyanareddfund.org/> and Guyana's INDC (2015).

natural resources. Energy efficiency measures and the adoption of modern renewable energy technologies are a key element in this strategy to take benefit from Guyana’s extensive solar, biomass, wind and hydropower resources. An immediate Government objective for the Green Economy approach is to replace costly imported fossil fuel by local, renewable energy resources and decrease the annual financial burden to the fiscal budget. Moreover, private sector fuel spending is also massive, severely jeopardizing competitive operation of businesses and potentially leading to job losses. As a concrete case, the Government is developing plans for a “Green Bartica”, concerning the expansion of inland town Bartica under a sustainable, low-emission development scheme.

6. The draft Climate Resilience Strategy and Action Plan (CRSAP) provides an overarching framework for planning and implementing climate resilience actions towards a green economy. The CRSAP builds on the work that has been done in Guyana over the years and identifies key climate risks and prioritized resilience building actions. The CRSAP addresses the five cross-cutting transversal themes identified in the SNC: (i) information, research and systematic observation; (ii) institutions and capacity building; (iii) policy and legal frameworks; (iv) infrastructure and technology; and (v) finance. It further depicts a road map for the next five years and identifies climate risks and required resilience actions across 15 sectors. The CRSAP is largely synchronized with the newly commenced government term and national planning cycle (2015-2019). The CRSAP further presents Project Concept Notes (PCNs) for four priority sectors: (i) “Building Climate-Resilient Agricultural Systems”; (ii) “Guyana’s Sea Defence Enhancement and Maintenance”; (iii) “Public Health Adaptation to Climate Change”; and (iv) “Strengthening Drainage and Irrigation Systems”.

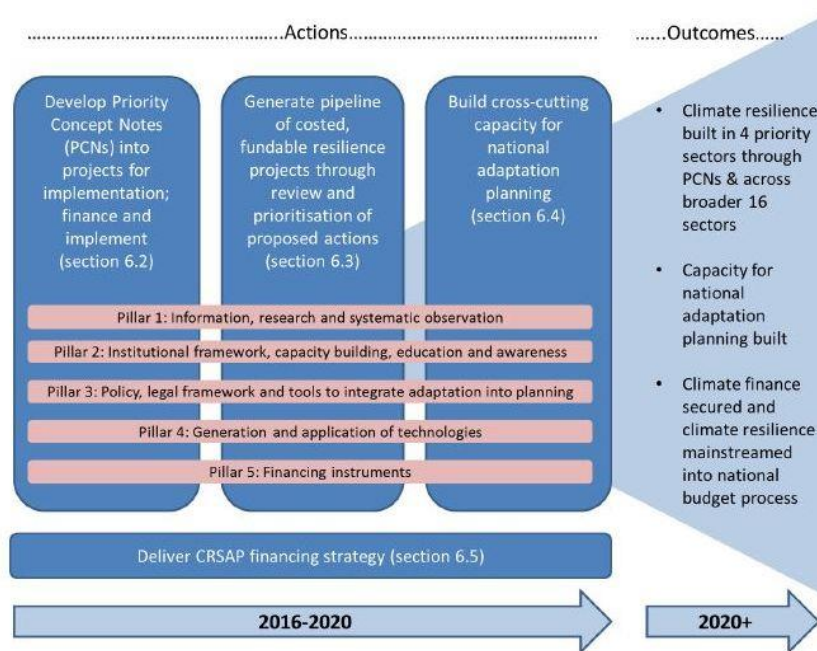


FIGURE 1 KEY ACTIONS AND OUTCOMES OF THE CRSAP.

7. The total financing requirements for these four PCNs is estimated at about US\$ 110 mln. The CRSAP aims to implement institutional arrangements and capacities for financing of the identified climate-resilience investments, including national budgeting for climate change. Besides the energy sector itself, the following sectors described in the CRSAP have a nexus with energy: (a) agriculture; (b) indigenous peoples; (c) community and regional development; (d) health; (e) housing; and (f) water. The identified prioritized actions for each sector are summarized in the following table.¹⁰

¹⁰ Source: CRSAP, Table 7 (p.36-40).

ENERGY-DEPENDENT CLIMATE-RESILIENCE ACTIONS IDENTIFIED IN THE CRSAP.	
SECTOR	PRIORITIZED ACTION
Agriculture	Promotion of drip irrigations
	Upgrade and maintaining of drainage and irrigation supporting systems
Indigenous peoples	Expand the use of renewable energy
Community and regional development	Effective water and waste management
	Health care and education,
	Energy and transport
	ICT programmes
Energy	Enforce law, policy, regulation, and national strategies for climate resilience in energy;
	Increase national capacity to provide renewable energy options;
	Increase energy and energy supply security;
	Promote “climate smart” energy practices and technologies
	Promote awareness and knowledge of energy conservation and efficiency;
	Increase access to financial resources for energy sector;
Health	“Climate smart” health facilities that incorporate renewable energy sources;
Housing	Improve drainage and irrigation systems within housing areas;
	Increase access to financial resources for “climate smart” buildings
Water ¹¹	Provision of reliable supply of potable water especially during drought.

8. Many observers have highlighted the need for a comprehensive, articulated energy strategy in Guyana. The latest full-fledged policy document dates back to 1994 covering the timespan until 2004.¹² It already highlights the need to reduce fuel dependency proposing the development of hydropower and fuelwood plantations as strategic domestic energy sources. Since 1999, the sector is governed by the Electricity Sector Reform Act (ESRA). The responsibility for the energy sector as well as GPL's operations now lies the Ministry of Public Infrastructure. The Guyana Energy Agency (GEA), founded in 1997 has a broad mandate to recommend on energy policy development, to monitor the energy sector and to promote energy conservation and alternative sources of energy. Since 2004, it also acts as the licenser and supervisor of the fuel market and combats illegal imports and trading. Other sector institutions are the Environmental Protection Agency (EPA), the Government Electrical Inspectorate (GEI) and the Public Utilities Commission (PUC).
9. Over the last decade, the Inter-American Development Bank has supported the Government and public company Guyana Power & Light (GPL) to strengthen sector governance, reduce technical and commercial losses, and upgrade infrastructure and management and information systems. In 2010 a power sector policy and implementation strategy was issued.¹³ Up to now GPL operates with a large deficit that is yearly replenished by the Government; power outages are frequent while consumer tariffs and energy production costs are well above the regional average.¹⁴ In the smaller towns, the public electricity service is delivered by authorized private companies. Electrification of the interior of the country (the “Hinterlands”) is pursued by the Hinterland Electrification Company Inc. under the OPM, which has delivered over 11,000 PV home systems, as well as two

¹¹ Note that Guyana Water Inc. is the largest public energy consumer in the country.

¹² Energy Policy of Guyana, prepared by the National Energy Policy Committee, 1994.

¹³ Klass, Verlyn (2010). Guyana Power Sector and Implementation Strategy. Georgetown: Government of Guyana.

¹⁴ Annual expenditures on fuel imports are about US\$ 600 mln, of which 33% (US\$ 209 mln) is for electricity production by GPL. By consequence, the share of fuel costs as part of GPL's operational costs amount to approx. US\$ 0.21 per kWh. Source: GEA Strategic Plan 2014-2018, p17-18.

5-kW grid-connected PV systems to hospitals in Mahdia and Port Kaituma.¹⁵ A detailed assessment of energy needs in the Hinterlands was conducted for the Government in 2012 with financial support from UNDP.¹⁶ Recently, the Government has announced commissioning of a consultancy for drafting a new energy policy for the country.¹⁷

10. The development of Guyana's energy sector however is hampered by a series of barriers, including: (a) the absence of a national energy strategy with objectives and targets, and sustainable business models attributing appropriate roles to the public and private sector; (b) inadequate capacity for energy planning and for identifying, developing, implementing and maintaining energy investments; (c) a weak and poorly articulated institutional framework, leading to high transaction costs and ineffective enforcement of regulation and policies; (d) high capital costs and a poorly developed financial sector; there are no financial products to support investments in renewable energy and energy efficiency; (e) lack of awareness of the benefits of energy efficiency among households and private sector; and (f) poorly developed supply chains to deliver renewable energy and energy efficiency technologies to end-users.
11. This situation is exacerbated by systemic barriers including the overall small market size; a small population with emigration of qualified people; and frequent occurrence of natural disaster, causing setbacks in the development process. Historically, little importance has been given to monitoring and evaluation of interventions (projects), which is an impediment for verifying the performance of installed energy technologies and to assess economy, social and environmental impacts. Moreover, information and statistical data are often incomplete, outdated, or based on unclear methodologies. Technical and institutional capacities definitely need to be improved, but it is hard to assess the baseline situation in an objective manner.
12. The problem targeted by the proposed Project can be formulated as follows: *“Specific and systemic barriers in Guyana’s energy sector affect the delivery of adequate, low-emission energy systems required for building a green economy following a climate-resilient development path”*.

B. The baseline scenario or any associated baseline projects.

13. The baseline scenario consists of the following, initially identified initiatives and projects implemented by: (A) The Government of Guyana (GoG) and its dependencies; financing is provided through the national budget and multilateral funds (grants and loans). And: (B) External organizations, with funding from multilateral and/or bilateral agencies. The baseline will be updated and further detailed during the PPG phase:

A. Government of Guyana

Ministry of the Presidency (MotP and OCC):

- a) Ongoing development and consultations for the CRSAP and LCDS. The draft CRSAP was submitted by the Consultants pending submission to the Cabinet for approval. A gap review is to be conducted by a special committee to determine how the document can be aligned with the new Administration's priorities, since the CRSAP process was aligned to the LCDS.
- b) Technology Needs Assessment (TNA) implemented by UNEP-DTE under GEF funding.¹⁸ The TNA is a country-driven set of activities directed mainly at the identification and prioritization of climate change mitigation and adaptation technologies. Activities in Guyana started in 2015 and are coordinated by the Office of Climate Change (OCC). Energy and mining are among the prioritized sectors.

¹⁵ The HEI has evolved from the Hinterland Electrification Unit (HEU) as created under the IDB-sponsored Unserved Areas Electrification Programme (UAEP).

¹⁶ Energy Access at Community Level for MDG Achievement in Hinterland Areas - Final Report, by A. Karner et. al., ConPlusUltra GmbH, St. Poelten, Austria, for the Government of Guyana and UNDP, December 2012.

¹⁷ Verbally announced during mission April 2016.

¹⁸ GEF Global Technology Needs Assessment (TNA) programme. See also: <http://www.unep.org/energy/Projects/Project/tabid/131381/language/en-US/Default.aspx?p=daa050ff-795d-47f8-bf3e-0b561da110ea>.

- c) The “Green Bartica” initiative, demonstrating the concepts of a Green Economy and climate-resiliency. Bartica is a mining community on the left bank of the Essequibo River. It is also known as the “gateway to the forests”, whose township status will be announced in 2016, the year of Guyana's 50th Anniversary of Independence. Bartica has grown from 7,423 inhabitants (Census 2002) to about 13,000. The Green Bartica initiatives aims to organize urban planning, deliver adequate public services, and reduce environmental impact including emissions to the extent possible. The initiative is still in a conceptual stage but should provide an example for other towns to follow.

Ministry of Public Infrastructure:

- d) A multi-ministry / multi-agency committee is in the process of developing a National Energy Policy. This process is led by the Ministry.
- e) Hinterland Electrification Company Inc. (HECI): development and installation of PV systems and small hydropower plants for community energy supply (island grids) and households. The project “Sustainable Energy Program for Guyana (GY-1004)” is funded by the IDB through a GEF grant.¹⁹

Guyana REDD+ Investment Fund (GRIF):

- f) The Micro and Small Enterprise Development (MSED) Project, executed by the Small Business Bureau. This project aims to support business development through training of entrepreneurs and funding of business activities. The project is administered by the IDB and monitored by the Project Management Office with oversight by the Ministry of Finance. Total budget is US\$ 10 mln allocated under the GRIF. The MSED is a two phase project; the current Phase 1 being implemented is US\$5 million. Once execution is completed this should trigger preparation of Phase 2 taking into consideration the lessons learned. The project started March 23, 2013.

B. External organizations

CARICOM/GIZ:

- g) The “Renewable Energy and Energy Efficiency Technical Assistance (REETA)” project, commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), is executed by CARICOM and GIZ. The focus of the REETA project is on developing a regional energy strategy, creating regional expertise and promoting networks between actors. An important achievement up to date has been the adoption of the Caribbean Sustainable Energy Roadmap and Strategy in June 2013 as part of the CARICOM Energy Programme. The project further supports the implementation of model projects in the region. Guyana is one the target countries; the REETA project coordinated through CARICOM’s Energy Unit in Georgetown, Guyana. Total budget is US\$ 5 mln for technical assistance plus US\$ 3 mln to be channelled through the Caribbean Development Bank.²⁰

C. The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project.

14. The Project “Mainstreaming Low-emission Energy Technologies to build Guyana’s Green Economy” will address several of the identified barriers. The focus of the project will be on distributed or stand-alone renewable

¹⁹ GEF ID 4520, CEO Endorsed 20 March 2013. Total grant is US\$ 5,000,000.

²⁰ For more information see: <https://www.giz.de/en/worldwide/29362.html>.

energy systems and energy efficient devices, leaving the formal energy sector (energy production, generation and distribution by Guyana Power & Light) outside the scope of the project.²¹ The Project will specifically address the business models and finance barriers, which is key for triggering project delivery and to increase access to finance. Innovative elements are introduced including the Derisking Renewable Energy Investment (DREI) framework, developed by UNDP, which assists policymakers in developing countries to cost-effectively promote investment in renewable energy.²² The Project will further draw upon output and experiences obtained from parallel GEF-funded UNDP initiatives in the Caribbean, including the DREAM project in Barbados (GEF ID 5453) and the LCDP in Dominica (GEF ID 5686), both currently under implementation.

15. The following Table summarizes the project strategy in response to the identified barriers.

RELATION IDENTIFIED BARRIERS AND PROJECT STRATEGY AND SCOPE	
<i>IDENTIFIED BARRIER</i>	<i>PROJECT RESPONSE</i>
(a) lack of energy strategy	output 2.1 (conditional to PPG assessment)
(b) lack of sustainable and innovative business models	output 1.1-2
(c) lack of technical capacity power sector institutions	outside project scope
(d) weak institutional framework power sector	outside project scope
(e) poor mobilization of investment capital, especially non-donor funds	output 1.1, 1.3; output 2.2, 2.3, 2.4; output 3.2
(f) lack of awareness of low-carbon energy technologies (RE/EE)	output 2.3, 2.4
(g) poorly articulated supply chains and weak technical and commercial skills	output 1.3

16. Project will act upon the capabilities of policy makers, public officers, and the supply chain for project delivery including equipment suppliers, contractors, and non-for-profit organizations implementing infrastructure projects in rural areas. The project will facilitate and co-fund the preparation and implementation of energy systems in sectors prioritized in the CRSAP thereby creating direct impact among small businesses and farms, rural communities, and public services (water management). The delivery of tangible benefits to the population is deemed highly relevant for a country in which many people still lack access to basic services, adding legitimacy to the Project.

17. The proposed Project is aligned with GEF-6 CCM Program 1 “Promote the timely development, demonstration, and financing of low-carbon technologies and mitigation options”, specifically category “b - Acceleration of low emission technology innovation and uptake through demonstration, deployment, and transfer using policies and mechanisms”.²³ The Project is structured along three key components as described in the next paragraphs:

Component I. Sustainable business and financing models for low-carbon energy technologies.

Outcome 1. The feasibility of low-carbon energy investments has been enhanced through innovative business and financing models reducing project risks (GEF: US\$ 250,000; cofinance: US\$ 450,000).²⁴

18. This component aims to widen the options for investment and operation of renewable energy and energy efficiency systems by designing innovative business and financing models. Innovative business and contracting models include energy performance contracting (ECP), arrangements based on revised roles and responsibilities

²¹ It is noted that the formal power sector is addressed by other multilateral agencies, specifically the IDB.

²² See: http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climateresilientdevelopment/derisking-renewable-energy-investment.html.

²³ GEF-6 Programming Directions document (GEF/A.5/07/Rev.01, May 22, 2014), pp 59-64.

²⁴ Tentatively, the following sectors are proposed in line with Guyana’s proposed Climate Resilient Strategy and Action Plan (CRSAP): (i) small and medium enterprises (SME); (ii) agriculture; (iii) public health; and (iv) water management and drainage.

for project ownership and operation (such as build-own-operate-transfer – BOOT) and financial lease. The introduction of such schemes would be a major step forward for Guyana to attract private businesses to invest in RE and EE technologies in Guyana. Guidelines, manuals and model contracts will be delivered for outreach to key stakeholders.

19. This component will further strengthen the technical and commercial skills of agents along the delivery chain for low-emission energy systems including suppliers, project developers, and businesses and institutions in the prioritized sectors. The supply chain for RE and EE technologies is still poorly articulated in Guyana. In spite of Guyana’s small population, there is a substantial latent market for energy efficient appliances (lighting, electric motors and pumps) and small-scale renewable energy systems (including solar panels and solar water heaters). Payback times can be short given the high energy costs. The PPG will explore the possibility for a certification scheme for technicians that have demonstrated their skills in association with relevant stakeholders.
20. Indicatively, the following set of outputs has been identified under this component:
 - 1.1 Identification and detailing of innovative business and financing modalities for low-carbon energy investments in prioritized sectors;
 - 1.2 Delivery of manuals and model contracts for the application of innovative business and financing modalities in public and private sectors; and
 - 1.3 Strengthening of technical and commercial skills of contractors, installation companies and suppliers of renewable energy systems and energy- efficient equipment.

Component II. Policy framework and institutional capacities.

Outcome 2. Policy instruments and institutional capacities for implementing low-carbon energy technologies in prioritized economic sectors, have been strengthened (GEF: US\$ 200,000; cofinance: US\$ 450,000).

21. The objective of this project component is to mainstream low-emission energy technologies into public sector policy instruments and procurement mechanisms. Building upon Guyana’s (draft) Climate Resilient Strategy and Action Plan (CRSAP) and the Low-carbon Development Strategy (LCDS), the Project aims to formalize and implement a financing window to access climate funding for low-emission energy technologies. The prioritization of energy interventions, technologies, and beneficiary groups, will be aligned with the accents set by the (planned) sectoral GHG mitigation plans. As such, the Project will contribute to the operationalization of the CRSAP.
22. The lack of energy policy in Guyana is an overarching barrier affecting the deployment of the formal energy sector as well as the transition of energy generation and consumption towards a low-carbon, climate-resilient energy infrastructure. Government ownership to address this barrier has increased, offering an opportunity for the Project to enhance momentum and facilitate the process. The feasibility of delivering an energy sector strategy will be carefully assessed during the PPG; this will include engaging with other agencies and multilaterals supporting Guyana’s energy sector. The Project would focus on the integration of distributed low-emission energy technologies into the energy strategy envisage under the baseline.
23. As part of the project exit strategy, the Project will anchor RE and EE technologies into public procurement for prioritized sectors, including health and water management by providing technical and financial criteria and guidelines or formal instructions endorsing their application. Key staff in public agencies will be trained to acquire relevant knowledge of technical and financial aspects of technologies, their field of application and benefits, and the conditions that need to be in place for sustainability. Promotion and awareness are transversal themes contributing to the effectiveness of the Project and will address public officeres, sector organizations, private enterprises and other stakeholders, including the financial sector.
24. The following outputs are proposed under this component:
 - 2.1 Preparation of a low-emission energy strategy for Guyana, including targets for energy efficiency and adoption of renewable energy technologies;
 - 2.2 Implementation of financing window for low-carbon energy technologies under sectoral climate change mitigation plans in prioritized economic sectors;

- 2.3 Mainstreaming of low-carbon energy technologies into procurement mechanisms of the public sector; and
- 2.4 Promotion of renewable energies and energy efficiency among public officers, sector organizations, private enterprises and other stakeholders.

Component III. Deployment of low-emission energy technologies.

Outcome 3. Innovative business and financing models for low-emission energy technologies have demonstrated in prioritized economic sectors (US\$ 1,050,000; cofinance: US\$ 6,200,000).

25. The specific objective of this project component is to demonstrate the market potential of decentralized, low-emission energy technologies in Guyana through a number of pilots in prioritized sectors, thereby creating confidence among prospective users, policy makers and investors. The purpose of these pilots is: (i) to apply and demonstrate innovative business and financing models and contracting modalities for low-emission energy technologies; (ii) to demonstrate the technical and economic performance of these technologies to policy makers and end-users; and (iii) to demonstrate the suitability of these technologies for building climate-resilient systems and infrastructure²⁵.
26. Tentatively, this component will support three priority sectors identified in the CRSAP for which Project Concept Notes have been prepared, namely: (i) agricultural systems; (ii) public health; and (iii) drainage and irrigation systems. As such, the following beneficiary groups have been identified: (a) micro, small and medium enterprises; (b) farmers and businesses in the agricultural sector; (c) public health facilities in rural areas (which can be extended to other critical community services including education); and (d) private and public drainage and irrigation systems as managed by farmers and the National Drainage and Irrigation Authority (NDIA). Small private businesses are explicitly included in order to promote the Green Economy concept and support job creation and economic diversification, which are key national development priorities.
27. Tentatively, a total amount of US\$ 850,000 GEF funding is foreseen to co-invest in energy systems, which is to leverage additional equity and debt capital from other sources, presumably the private sector, the GRIF and multilateral banks and donors (such as CDB, IDB, CAF, EU). An amount of US\$ 200,000 is destined for preparation and development of the energy projects. The following outputs are foreseen under this component:
- 3.1 Feasibility studies and technical specification of low-emission energy projects in prioritized sectors;
 - 3.2 Financing, installation and operation of low-emission energy projects; and:
 - 3.3 Supervision and monitoring of performance and operation of installed energy systems.
28. The following table presents a tentative overview of the sectors addressed, delivery channels, distribution of investment funds, and co-financing type.

TENTATIVE DISTRIBUTION OF PROJECT FUNDS PER SECTOR				
SECTOR	DELIVERY CHANNEL	GEF GRANT	COFINANCE	
		US\$	US\$	TYPE
Small enterprises	private sector	500,000	500,000	equity
			3,000,000	loan
Agriculture	private sector	200,000	300,000	equity
			2,000,000	loan
Public health and services	CSOs, GEA, private sector	100,000	100,000	equity
Drainage and irrigation	private sector	50,000	100,000	equity
TOTAL		850,000	6,000,000	

²⁵ To this purpose, specific indicators can be identified and evaluated, including: redundancy of systems such as water pumps, cooling equipment, energy generators (risk to fail); cost of unserved energy; availability of critical services such as healthcare and education; frequency and intensity of floodings; etc.

29. It is expected that, towards the end of the Project: (i) planned energy systems have been successfully delivered and are operational; (ii) business and financing models have been assessed on their merits and recommendations for improvement have been shared with stakeholders; (iii) co-financing partners feel confident to continue investment in low-emission technologies in Guyana.

D. Incremental/additional cost reasoning and expected contributions from the baseline the GEFTF, LDCF, SCCF, and co-financing.

30. The Project will deliver key technical assistance to the Ministry of the Presidency and its Office of Climate Change (OCC) for mainstreaming low-emission energy options into national development policy and sectoral plans, in alignment with the priorities identified in the CRSAP. The Project will establish a financing window for low-emission energy technologies to access climate fund under the LCDS, which adds to the financing mechanisms to be detailed under the CRSAP baseline. The Project Concept Notes (PCNs) described in the CRSAP serve as the point of departure to address the following sectors: (i) agriculture; (ii) micro, small and medium enterprises; (iii) public health; and (iv) water and drainage. All these sectors have a strong energy nexus.
31. The Project aims to strengthen the value chain for delivering energy technologies; a critical barrier which has largely been overlooked in the past. (i) The project will introduce innovative business and financing models to attract project developers, suppliers, financiers and energy consumers. Due to the small market, the lack of specific know-how and effective demonstration, such advanced modalities will not develop under the baseline. (ii) The Project will contribute to the professionalization of the supply chain for low-emission energy technologies to ensure adequate after-sales services and increase sector competitiveness. Given Guyana's traditionally small and opportunistic internal market, a professionalization of the supply chain will unlikely take place under the baseline scenario. At the demand side, the Project aims to increase user awareness and acceptance and incorporate low-emission energy technologies into public procurement.
32. The Project will add critical mass to the CRSAP's efforts for designing a financing strategy for climate-resilient actions. By co-funding an initial set of energy projects, GEF resources are intended to leverage equity and (preferential) debt capital through the GRIF and multilateral banks. This may serve as a model financing scheme for the CRSAP. Compared to the baseline scenario, GEF project funding will add financial means and creditworthiness to sector stakeholders to mobilize the capital resources needed to deliver (tangible) impact.
33. The identified Government baseline partners including the Ministry of the Presidency, its Office of Climate Change, the GRIF, multilateral banks, UNDP and external partners (including –tentatively, CARICOM and GIZ) will provide in-kind and cash contributions to the Project. Investment is foreseen under the outputs 3.4 and 3.5 (procurement of low-emission energy technologies) up to a total of US\$ 6,000,000. The total leveraged cofunding is estimated at US\$ 7,400,000. UNDP will provide continuous support to the Executing Partners through its Country Office in Guyana and the Regional Support Centre in Panama.

E. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF).

34. The Project will deliver global environmental benefits by reducing GHG emissions by the energy sector in Guyana in comparison to the baseline (business-as-usual) scenario. These benefits are obtained by decreasing fuel consumption for the provision of energy services, predominantly for electricity generation, by promoting the application of low-emission energy technologies (renewable energies and energy efficiency technologies) in prioritized sectors of the economy. These measures translate into a reduction of the release of CO₂, other gases (mainly CO) and particles. Direct emission reductions are expected as a result of investment in selected energy projects funded under the project. Indirect emission reductions are expected as a result of a strengthened policy and institutional framework and increased technical capacities along the supply chain. The proposed interventions are directly supportive to the national adaptation agenda by strengthening resilience of national systems and livelihoods, in alignment with the priorities and actions set forth in Guyana's Climate Resilient Strategy and Action Plan.

35. The table below provides an estimate of attainable GHG emission reductions under the Project by the implementation of renewable energy and energy emission technologies. Conservative unit costs are assumed considering the high capital costs and project implementation costs in the country. Based on the tentative distribution of available investment budget (see under Component III), the total installed capacities are estimated. Energy yields for PV systems as based on an average solar irradiance of 1,600 kWh/m²-yr and an annual output of 1,400 kWh per kWp installed. For drainage and irrigation, 5,000 operating hours per year are assumed and an efficiency gain of 35% compared to the baseline situation.

TENTATIVE ENERGY PRODUCTION AND GHG REDUCTIONS PER SECTOR						
SECTOR	REFERENCE TECHNOLOGY	UNIT COST	BUDGET	CAPACITY	ENERGY ²⁶	GHG SAVINGS ²⁷
		US\$/kW	US\$	kW	MWh/yr	t CO _{2eq} /yr
Small enterprises	PV	3,000	4,000,000	1,333	1,867	1,766
Agriculture	PV	3,000	2,500,000	833	1,167	1,104
Public health and services	PV	3,000	200,000	67	93	88
Drainage and irrigation	efficient water pumps	500	150,000	300	525	497
TOTAL			6,850,000	2,533	3,652	3,454

36. The estimated total electric energy generation and savings is of order of 3.6 GWh per year (3,652 MWh/yr), offsetting fossil fuel-based grid electricity and reducing GHG emissions to the amount of 3,454 ton CO_{2eq} per year. The annual savings in fuel expenditures are estimated at about US\$ 765,000, at an investment cost of US\$ 6.85M (at an estimated average fuel cost of 210 US\$/MWh).
37. Direct emission reductions over a 10-year lifetime are estimated at about 35 kton CO_{2eq}. The cost-effectiveness of the Project, considering only direct GHG emission savings, would be US\$ 50 per ton CO_{2eq}. Indirect emission reductions are expected to occur by replication of investment under the envisaged CRSAP financing strategy. A replication factor of 3.0 is assumed, delivering 104 kton CO_{2eq} indirect emission reductions; combined GHG emission reductions are thus of the order of 139 kton CO_{2eq}. The cost-effectiveness considering the combined emission reductions is estimated at US\$ 12.6 per ton CO_{2eq}. A detailed assessment of GHG emission reductions will be produced under the PPG.

F. Innovation, sustainability and potential for scaling up.

38. The Project aims to increase the utilization of low-emission energy technologies in Guyana with the purpose to increase climate-resilience of national systems, infrastructure and livelihoods. Departing from Guyana's recent Climate Resilient Strategy and Action Plan (CRSAP, 2015), the energy nexus of priority sectors have been identified and specific energy interventions suggested (to be detailed during the PPG phase). The utilization of domestic, renewable energy sources to drive decentralized, robust and climate-resilient development models offers a range of social, economic and environmental benefits that go beyond the economic savings and avoided GHG emissions by replacing fossil fuels. Mainstreaming of low-emission technologies into national climate change policy instruments and sector plans would be a key asset for sustainability of the Project's outcomes.
39. The Project will introduce innovative business and financing models making investment in low-emission energy projects more attractive for project developers and/or suppliers, investors, and downstream (institutional and business) energy consumers. Innovative elements include the Derisking Renewable Energy Investment (DREI)

²⁶ Energy yields for PV systems as based on an average solar irradiance of 1,600 kWh/m²-yr and an annual output of 1,400 kWh per kWp installed. For drainage and irrigation, 5,000 operating hours per year are assumed and an efficiency gain of 35% compared to the baseline situation.

²⁷ Based on the GHG emission factor for Guyana's grid of 0.9485 t CO_{2eq}/MWh. Source: Second National Communication, p.397. This factor is based on the PID for the Skeldon bagasse project presented under CDM.

framework, developed by UNDP, energy performance contracting modalities (ECP), and shifts in roles and responsibilities for project ownership, operation, and finance.

40. Innovative aspects of technology include the attention for energy-efficient lighting electric motors and water pumps. Since real fuel costs rise dramatically in the interior, fuel-saving measures gain particular relevance for both electricity generation and transport. In this context, the use of electric-powered small boats to facilitate river transport within inland communities is an option which deserves further exploration. Innovative for Guyana is also the intention to anchor the concept of energy chain efficiency into national policy -and implement some practical examples thereof- as this can offer substantial savings in fossil fuel consumption in the power sector, water management, transport, and private businesses, among others.
41. Moreover, the Project aims to implement a financing window under the LCDS, thereby capitalizing on the existence of the Guyana REDD+ Investment Fund. Intelligent combinations of grant and debt capital, in combination with advanced business models, will improve financing conditions for the private sector while moving away from donor-funded assistance programmes to support public services. It is envisaged to draft proposals into this direction during the PPG phase in coordination with OCC, thereby building upon the financing plans to be developed for the CRSAP.
42. The economic potential for up-scaling of low-emission technologies in Guyana is very substantial; an educated guess is that at least 50% of current primary energy use can be saved or replaced by domestic, small-scale renewable energy technologies. The main barriers are finance, technical know-how and sheer implementation capacity. A reference is provided by the private energy generation market, which makes up about 40% of total power demand. Here, upscaling potential of low-emission technologies during the Project’s impact horizon (10 years) would be of the order of 20% of current electricity consumption.
43. The technical sustainability of the delivered energy projects will largely depend on the quality of after-sales services and proper care and maintenance by the end-users. The Project will pay attention to quality assurance as part of the delivery chain. Assuming a due diligence process during preparation and implementation of energy projects, user acceptance and technical sustainability are expected to be positive. At the policy and development level, sustainability primarily encompasses the adoption of a robust, economically sound energy policy by the Government, and the operationalization of a long-term financing strategy as pursued by the CRSAP.

STAKEHOLDERS

44. The following table provides a preliminary listing of identified project stakeholders and partners.

LIST OF STAKEHOLDERS AND PROJECT PARTNERS		
TYPE	NAME	ROLE
National Government	Ministry of the Presidency (MotP)	The Ministry of the Presidency is the highest policy and executive level of the Government of Guyana. MotP sets priorities and outlines high-level strategies including the LCDS and CRSAP.
	Office of Climate Change (OCC)	The Office of Climate Change is in charge of climate change policy development, data collection, dissemination of information and design of mitigation and adaptation actions plans and programmes. OCC is the key counterpart for international agencies supporting Guyana in the field of climate change.
	Ministry of Public Infrastructure	The Ministry of Public Infrastructure is responsible for investment in and maintenance of civil infrastructure. HECI is hosted by the Ministry.

Public agency	Hinterland Electrification Company Inc. (HECI)	The Hinterland Electrification Company (formerly: HEU) is responsible for the design and implementation of electrification projects in Guyana's inland. It was formed in 2007 under the Unserved Areas Electrification Programmes (UAEP). It is responsible for execution of the GEF project ID 4520.
	Guyana Energy Agency (GEA)	The Guyana Energy Agency was created to advise the Government on energy policy, to monitor performance of the sector, to promote energy conservation and renewable energy technologies, and to combat illegal fuel trading. It has a good track record implementing communication and information campaigns, and further executes (pre-)feasibility studies for renewable energy projects.
	Guyana Power & Light (GPL)	Guyana Power and Light is the main electricity generator and distributor in Guyana, covering Georgetown and its surroundings.
	National Drainage and Irrigation Authority (NDIA)	The NDIA is in charge of maintaining and expanding the drainage and irrigation infrastructure in Guyana.
	Public Utilities Commission (PUC)	The mandate of the Public Utilities Commission is to supervise the delivery and quality of public services.
	Government Electrical Inspectorate (GEI)	The Government Electrical Inspectorate is responsible for issuing technical standards in the electricity sector and to settle disputes between electricity companies and consumers.
	Environmental Protection Agency (EPA)	EPA's mandate is to oversee the effective management, conservation, protection and improvement of the environment. It further implements strategies for prevention and control of pollution, assessments of the impact of economic development on the environment, and on the sustainable use of natural resources.
Private sector	Private suppliers and contractors	Private suppliers and contractors are key agents of the delivery chain for renewable energy and energy efficient energy systems. A market survey would be needed to map national technical and financial capacities.
	Private electricity companies	In towns outside Georgetown such as Linden and Lethem, electricity generation and distribution to the public is concessioned to independent companies.
CSOs	Private Sector Commission (PSC)	The Private Sector Commission of Guyana was established in 1992 by five Private Sector Associations with the aim of bringing together all Private Sector Organs and Business Entities under the purview of being one National Body. The PSC gathers most of the regional Chambers of Commerce and sector associations. See also: http://psc.org.gy/members/sectoral/ .
	Georgetown Chamber of Commerce and Industry (GCCI)	The GCCI represents the voice of the business community in Guyana and strives to advocate policies, stimulate trade and investment, connect businesses, sustain economic growth and expand member opportunities with the aim of contributing to a stable and sustainable economic and social environment in Guyana where businesses can prosper.
	Guyana Manufacturing and Services Association (GMSA)	The Guyana Manufacturers' Association (GMA) was registered in 1967. In 2005, the Services sub-sector was placed under the umbrella of the GMA, then becoming the Guyana Manufacturing and Services Association (GMSA).

		<p>It includes the following subsectors: agriculture and agro-processing; construction and engineering; services; fast-food production; chemicals and pharmaceuticals; forestry and forest products; minerals and related industries.</p> <p>The GMSA implements an energy efficiency project co-funded by the IDB. See: http://gmsagy.org/projects/gmsaidb-energy-efficiency-project/.</p>
Financial sector	Guyana REDD+ Investment Fund (GRIF)	<p>The Guyana REDD+ Investment Fund (GRIF) is a multi-contributor trust fund for the financing of activities identified under the Government of Guyana’s Low Carbon Development Strategy (LCDS). The GRIF represents an effort to create an innovative climate finance mechanism which balances national sovereignty over investment priorities while ensuring that REDD+ funds adhere to the highest internationally recognized standards for financial, environmental and social safeguards. The GRIF was established in October 2010, with the World Bank as Trustee, following an agreement signed between Guyana and Norway in November 2009, in which Norway agreed to provide Guyana up to US\$250 million by 2015 in performance-based payments for avoided deforestation in support of Guyana’s LCDS. (For more information, see: http://www.guyanareddfund.org/).</p>
	Multilateral banks (e.g. IDB. CDB)	<p>Multilateral banks play an important role for Guyana to access external capital under preferential conditions. Especially the IDB as a long-term presence in Guyana supporting modernization of the power sector.</p>
Multilateral and bilateral organizations	CARICOM	<p>The Caribbean Community (CARICOM) is an organization of 15 Caribbean nations and dependencies. It promotes economic integration and cooperation among its members and coordinates foreign policy. The CARICOM headquarters are in Georgetown, Guyana.</p>
	GIZ	<p>The German Corporation for International Cooperation, owned by the Federal Government of Germany, implements bilateral and multilateral development programmes and projects in more than 130 countries, including the Caribbean and Guyana. Relevant recent projects include CREDP and REETA.</p>

GENDER EQUALITY AND WOMEN’S EMPOWERMENT

45. Gender equality is expected to be relevant for this Project in terms of final energy use, ownership of assets, exposure to social and environmental externalities, and sharing of Project benefits. The mentioned “Energy Needs Assessment (2012)” provides valuable information enabling a pro-gender approach for designing community and household energy systems.²⁸ Envisagedly, more information and analysis is needed to assess the scope and nature of gender inequalities in the prioritized sectors. The UNDP Social and Environmental Screening

²⁸ See “Energy Access at Community Level for MDG Achievement in Hinterland Areas” A. Karner et. al. (2012), p. 38-41. This survey identifies special energy needs of women, including ironing clothes, washing facilities, hair dryers and kitchen appliances such as blenders, fridges and freezers. The women indicated that some facilities such as washing can also be centralized in a community building. Special needs of men are oriented towards workshop tools like drills, chain saws and sanders. Youth stress the need for ITC technologies including cell phones and computers. Fuel for operating local boats is mentioned as a problem affecting all population groups but specifically affects secondary school attendance (and probably access to medical assistance as well).

Procedure (SESP) has been activated during preparation of the PIF. The PPG can draw on expert knowledge from within the UNDP organization, if required complemented with an external consultancy. The SESP process will iteratively assess gender issues and mitigation measures to enhance project design between the project developers and UNDP’s reviewers.

RISKS

46. The proposed Project is subject to a series of risks as described in the following table. The development context of the Project is complex and characterized by substantial risk factors. Although these are not expected to affect efficient project implementation and the achievement of short-term results, long-term impact and sustainability may be compromised. Potential social, gender and environmental risk also exist, which have been identified in the Environmental and Social Screening Template. The overall risk profile of the Project is therefore assessed as moderate to high.

TABLE OF IDENTIFIED RISKS AT PIF STAGE			
DESCRIPTION	TYPE OF RISK	RISK LEVEL	MITIGATION MEASURES
1. The effective adoption of a low-emission energy strategy by the GoG would prove not feasible.	Governance and public policy	Moderate	The Project will assist the Government to develop an energy policy that is supportive to a climate-resilient, “green” development path. Such policy should draw a road map for the adoption of low-emission energy technologies by public and private actors, set targets and identify an appropriate timeline. However, governance and articulation of involved institutions are rather weak, which is an impediment for policy making and translation thereof into action plans. Under leadership of the Ministry of Public Infrastructure, a multi ministry/multi agency committee is in the process of developing a National Energy Policy. In the past, energy policy development has proven to be tedious. Therefore, the viability of this proposed project output will be re-assessed under the PPG.
2. The Executing Partner would fail to implement the Project in alignment with established procedures and guidelines.	Fiduciary	Low	This risk is assessed as low, given OCC’s track record of implementing internationally funded programmes, including GEF projects with UNDP and UNEP. The institutional arrangement for the Project will ensure clarity of roles and responsibilities. Specific activities, such as investment pilots, will be undertaken following short lines for decision making and project monitoring.
3. Financing for upscaling of investment in low-emission energy projects would not become available as expected.	Sustainability	Low/moderate	The Project aims to prepare a series of low-emission energy projects to be funded by the GEF and external partners. As part of its exit strategy, the Project aims to operationalize a financing window linked to climate finance funding accessed by Guyana (for example through the CRSAP or the GRIF). Without such financing window, the long-term impact of the Project would be substantially reduced. Experiences in Guyana with the GRIF so far are encouraging, hence extension of new carbon funding under GRIF, CRSAP or Green Economy schemes appears to be a viable path. As such, this risk has been assessed low to moderate.
4. The general investment climate in Guyana would refrain multilateral banks from supporting the private sector.	Finance	Moderate	Guyana has demonstrated to be economically fairly stable during recent years. However, the economy relies heavily on commodity exports, while imports of fuel products represent a large burden for the national economy and the fiscal budget. Moreover, prospects of world trade and trends in the international financial system are uncertain. The Project builds

			on the assumption that the investment climate in Guyana will be stable and may even improve in the near/medium future, but this factor cannot be controlled by the Project. As a mitigation measure, it is proposed to monitor this risk and adjust Project ambitions and investments accordingly, if required.
5. Technical issues would impede envisaged energy systems to perform successfully.	Sustainability	Low	Technical failure and underperformance of installed energy systems may result in financial losses, and undermine the credibility of low-emission energy solutions among end-users, financiers and policy makers. This risk is mitigated by opting for mature technologies, leaving installation and operating skills as the most critical success factors. Given: (i) Guyana's track record for solar energy; (ii) planned activities for enhancing the delivery chain under the Project; and (iii) programmed monitoring of system operation plus corrective actions if required; technical risks are assessed as low.
6. Social, cultural and gender issues would adversely affect acceptance of low-emission energy technologies.	Development	Moderate	<p>Acceptance of low-emission energy systems plays a role at various levels. At the national level, fossil fuels play a predominant role for electricity generation and transport. By consequence, people perceive fuel-based generators and cars as the reference in terms of reliable energy services. As such, more wealthy citizens and businesses may need time to accept renewable energy solutions as a valid alternative.</p> <p>A culture to save energy is still in an early stage; energy-efficient technologies are not commonplace, even if these would pay off in a short time. Given the high energy prices in Guyana, energy efficiency measures would likely first become accepted by small businesses and agriculture. For public services such as water management, a rational approach towards energy efficiency and cost savings is also expected.</p> <p>In rural communities, work done under the Hinterland electrification programmes has made solar energy systems accepted; although this seems not properly documented. A differentiated approach towards women, men and youth is recommendable, as outlined by an earlier energy needs assessment carried out for UNDP (2012). Although not specifically addressed, the pilot energy projects may involve Amerindian peoples, in which case, the established consultation and decision-making processes will be followed.</p> <p>As a whole, acceptance issues will likely occur in relation to the power sector and the general public, and specific issues may arise. The Project will control these risks by properly preparing its activities and develop a communication strategy to interact with all stakeholder groups.</p>
7. Agents along the delivery chain would prove unable or reluctant to attain required quality standards.	Development	Moderate	<p>As discussed above, acceptance of new energy technologies by stakeholders cannot be taken for granted. Equipment suppliers, contractors, installation firms and individuals may prefer to stick to their usual business, in particular in a small market as Guyana. Smaller businesses lack information and may not properly understand the benefits and functioning of modern energy equipment. There is no tradition of adequate training of employees; in fact, a substantial part of the economy is informal.</p> <p>It is envisaged to make eligibility of suppliers under the Project conditional to the existence of some quality standards; and to support local companies willing to attain higher standards (under the prospect of expansion to new markets and products).</p>

			Since inertia in the market is expected, this risk is assessed as moderate.
8. Sustainability of installed energy systems and services would be affected by the impact of climate change.	Sustainability	Low	Climate-resilience is at the heart of this Project. The vulnerability of the planned projects will be assessed during the design and engineering stage. Specifically, the impact of floodings will be taken into account during the design phase. By incorporating climate resiliency in the conceptual design and engineering phase, operational availability should be guaranteed for the full lifetime. As such, this risk is deemed low.

COORDINATION

47. At national level the Project expects to coordinate with the following relevant GEF-financed and other initiatives:

- The GoG/GEF Project “Sustainable Energy Program for Guyana” (GEF ID 4520) implemented by the Inter-American Development Bank (IDB). This project has an important Hinterland electrification component and is executed by the Hinterland Electrification Company Inc. (HECI) under the Ministry of Public Infrastructure. Coordination would potentially concern the selection of project sites in the Hinterland, as well as the and incorporation of lessons learned with respect to project implementation, environmental and socio-economic (including gender) effects, and operational sustainability.
- The GOG/GEF Technology Needs Assessment project implemented by UNEP and coordinated by OCC. Activities in Guyana have recently started. Technologies were prioritized in March 2016 and include solar, wind energy, and hydropower. Critical technologies with an energy nexus are further: early warning systems and mobile water pumps for flood control; and agro-meteorological early warning systems. The Project will communicate closely with OCC’s TNA coordinator during the PPG phase to identify specific barriers and design adequate capacity building actions.
- The CARICOM/GIZ REETA Project has an important capacity building component and aims to integrate national energy policies into a regional energy policy for the Caribbean. Specific conditions for Guyana such as its vulnerability to climate change and the existence of a low-carbon national policy (LCDS, CRSAP; and financing strategies) make it unique in the CARICOM community. The Project will build upon inputs delivered by the REETA project where appropriate (including training and promotion of renewable energy technologies). Synergies may exist as part of the development of a portfolio of low-emission energy projects.

CONSISTENCY WITH NATIONAL PRIORITIES

48. The proposed Project is consistent with national priorities and conditions as described in Guyana’s Second National Communication (SNC, 2012), Low-Carbon Development Strategy (LCDS, 2009, 2013), Climate-Resilient Strategy and Action Plan (Draft CRSAP, 2016), and Intended Nationally Determined Contributions (INDC, 2015). It is further aligned with the prioritization of several technologies under Guyana’s Technology Needs Assessment (TAN, 2016 -in progress). Guyana’s SNC reads (p.27): “Renewable energy (RE) *technology would substantially reduce Guyana’s reliance on imported oil products. Thus more studies on RE potential, actual implementation of feasible projects, improvement of transmission losses and especially modernisation of power plants (energy efficiency, retro-fitting, decarbonisation, distribution efficiency) are key recommendations in the short term. There is a need for Guyana to develop a market base to effectively distribute renewable energy technologies; raise the level of confidence in renewable energy technology and guarantee a competitive price compared with fossil fuels. Switch to less carbon-intensive fuels and renewable energy production, thus reducing the country’s dependency on fossil fuels and its carbon emissions.*”
49. The approach and activities pursued by the Project are supported by the SNC, which lists fields of intervention presented in the following table.

SNC 2012 - KEY INTERVENTIONS FOR REDUCING GHG EMISSIONS IN THE ENERGY SECTOR ²⁹	
1	Capacity building and institutional strengthening
2	Supportive policy and regulatory environment
3	Measures that encourage investment in more energy efficient or low carbon technologies
4	Education, communication and public awareness
5	Mobilization of financial resources
6	Development and transfer of appropriate technology
7	International connections and partnerships
8	Measures for participation in global carbon markets

50. The proposed interventions are supportive to the following sectors described in the CRSAP that have a nexus with energy: (a) agriculture; (b) indigenous peoples; (c) community and regional development; (d) health; (e) housing; and (f) water.³⁰ The project is further supportive to the following commitments made in the INDC: (a) *“Guyana is in the process of reviewing our options toward the rapid expansion of a renewable energy supply. Our goal is to develop a mix of wind, solar, biomass and hydropower to supply both the demand of the national grid and the energy requirements for towns and villages in Guyana’s Hinterland”*; (b) *“Guyana will power all of the six newly established townships, starting with Bartica, using renewable energy sources”*; and (c) *“Legislation has been enacted to remove import duty and tax barriers for the importation of renewable energy equipment, compact fluorescent lamps and LED lamps to incentivize and motivate energy efficient behaviour. (...) Public education and awareness programmes will continue to play a major role in providing consumers with information (...) Guyana will implement other policies to encourage energy efficiency and the use of renewable energy, including building codes and net-metering of residential renewable power.”*

KNOWLEDGE MANAGEMENT

51. The assumptions and analysis underpinning the Project proposal are documented in the policy documents prepared under responsibility of MotP-OCC, including the CRSAP. This body of work combined with the lessons learned from ongoing interventions will be used as inputs for sector policy development (including the low-emission energy strategy and mitigation action plans). Experiences gained during Project implementation will be documented on an annual basis as inputs for fine-tuning of proposed activities and for updating of NCs, INDCs and other reporting instruments under the UNFCCC.
52. Communication with stakeholders (OCC, GEA, CSOs, private sector and financiers) will be an integrated part of the full project cycle, with a view on securing their engagement and establishing a solid platform for post-project activities and investment. In collaboration with the national Project partners, active communication will be maintained with CSOs to design energy interventions according to confirmed needs and mitigate social externalities and gender issues, as and if required. Involvement of GEA, CARICOM, GIZ and other agencies is expected to ensure the analysis and exchange of experiences with peer professionals in Guyana and the region. UNDP will assume a proactive role in systemizing lessons learned for sharing with peer agencies and the GEF.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)


²⁹ Adapted from: Second National Communication to the UNFCCC, prepared by the Government of Guyana with support from the UNDP and the National Communication Support Programme, March 2012 (p.30).

³⁰ CRSAP, Table 7 (p.37-40).

Dr. Indarjit Ramdass	GEF Operational Focal Point	MINISTRY OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION AGENCY	
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B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Adriana Dinu UNDP / GEF Executive Coordinator		02/11/2017	Marcel Alers PTA - EITT	212-906-6199	marcel.alers@undp.org