

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

GUYANA

**SUSTAINABLE ENERGY PROGRAM
FOR GUYANA**

**GLOBAL ENVIRONMENT FACILITY (GEF)
(GY-G1004)**

INVESTMENT GRANT PROPOSAL

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ELECTRONIC LINKS

REQUIRED

1. Annual Operative Plan
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37077217>
2. Monitoring & Evaluation Arrangements
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37108721>
3. Procurement Plan
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37079701>

OPTIONAL

1. Economic Analysis
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37105315>
2. GEF Full Size Document
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37677918>
3. GHG emissions calculations
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37079456>
4. GEF Logical Framework Document
<http://idbdocs.iadb.org/WSdocs/getDocument.aspx?DOCNUM=37079427>

Abbreviations

bbl	Barrels
CARICOM	Caribbean Community and Common Market
CBA	Cost-Benefit Analysis
CIF	Cost Insurance and Freight
CREDP-GIZ	Caribbean Renewable Energy Development Program
CS	Country Strategy
EA	Executing Agency
EE	Energy Efficiency
ERR	Economic Rate of Return
ESIA	Environmental and Social Impact Assessment
ESMR	Environmental and Social Management Report
ESS	Environmental and Social Strategy
ESRA	Electricity Sector Reform Act
EU	European Union
GEA	Guyana Energy Authority
GEF	Global Environment Facility
GEI	Government Electrical Inspectors
GhG	Greenhouse Gas
GOG	Government of Guyana
GP&L	Guyana Power & Light Inc.
GRIF	Guyana REDD+ Investment Fund
GWh	GigaWatt-hour
HEP	Hinterlands Electrification Program
HEU	Hinterland Electrification Unit
IDB	Inter-American Development Bank
IPP	Independent Power Producer
Kato SHP	Kato Small Hydroelectric Plant
kV	kiloVolts
kW	kiloWatts
kWh	kiloWatt-hour
kWp	kiloWatt peak
LAC	Latin America and Caribbean
LCDS	Low-Carbon Development Strategy
MIF	Multilateral Investment Fund

MoAA	Ministry of Amerindian Affairs
MW	MegaWatt
MWh	MegaWatt hour
NGO	Non-Governmental Organization
NPV	Net Present Value
O&M	Operation & Maintenance
OPM	Office of the Prime Minister
PIU	Project Implementation Unit
PM	Program Manager
POD	Proposal for Operation Development
POM	Program Operations Manual
PPA	Power Purchase Agreement
Program	Sustainable Energy Program
PSC	Program Steering Committee
PUC	Public Utilities Commission
PV	Photovoltaic
RE	Renewable Energy
REDD+	Reduce Emissions from Deforestation and forest Degradation
RET	Renewable Energy Technology
SHP	Small Hydroelectric Power
SSF	Safeguard and Screening Form for Screening and Classification of Projects
TC	Technical Cooperation
UAEP	Un-served Areas Electrification Project
UNDP	United Nations Development Program
USAID	United States Agency for International Development
Wp	Watts peak

PROJECT SUMMARY
GUYANA
SUSTAINABLE ENERGY PROGRAM FOR GUYANA
(GY-G1004)

Financial Terms and Conditions	
Beneficiary: Co-operative Republic of Guyana	
Executing Agency: Office of the Prime Minister (OPM)	
Disbursement Period:	72 months
Execution Period:	66 months
Currency:	US\$
Source of Financing	Amount
IDB (Investment Grant from the Global Environment Facility - GEF)	5,000,000
Local Counterpart (in kind)	1,250,000
Total	6,250,000
Project at a Glance	
Project Objective: The general objective is to improve institutional capacities of the Public Utility and OPM, through the training of said institutions' staff and promotion of the use of non-conventional Renewable Energy Technologies (RET) in the urban areas and the Hinterlands with the aim to: (i) implement sustainable business models for Operation and Maintenance (O&M) of Renewable Energy (RE) projects; (ii) increase quality energy access in Guyana; (iii) reduce the long-term operational costs of on-grid and off-grid electricity service; and (iv) contribute to sector sustainability and reduction of Greenhouse Gas (GhG) emissions.	
Special conditions precedent to the first disbursement: The Executing Agency (EA) must provide evidence to the satisfaction of the IDB of the fulfillment of the following conditions: (i) the following experts of the Program Implementation Unit (PIU) have been selected: Project Manager (PM), Procurement Specialist, Financial Specialist, Electrical Engineer, and Social-Environmental Specialist; (ii) the Program Operations Manual (POM) has been approved by the EA, in accordance with the terms agreed upon with the IDB; (iii) a high-level Project Steering Committee (PSC) has been established; and (iv) the use of an accounting system with training activities commenced.	
Exceptions to Bank policies: None	
Project qualifies for: SEQ[X] PTI[] Sector[] Geographic[] Headcount[]	
Procurement: The procurement of works, goods and services, will be carried out by the Executing Agency in accordance with IDB Policies for the Selection and Contracting of Consultants (GN-2350-9) and Policies for the procurement of works and goods (GN-2349-9); and the respective procurement plan.	

I. DESCRIPTION AND RESULTS MONITORING

A. General Context, Problem Addressed, Justification

- 1.1 **General Context.** With an area of 216,000 square kilometers (km²), Guyana is the largest country of the Caribbean Community and Common Market (CARICOM). More than 90 percent (%) of its total population of 778,000 people is concentrated in and around Georgetown and along the nearby coastline, whereas the rural areas in the interior (Hinterlands) are sparsely populated.
- 1.2 Energy consumption in Guyana is predominantly based on imported oil derivatives, which in 2010 accounted for 4.1 million Barrels (bbl) for a Cost Insurance and Freight (CIF) value of US\$376.8 million. Diesel accounted for 38% of imported products, mainly for transport and electricity generation, followed by fuel oil with a share of 29% and gasoline 24%.
- 1.3 **Electricity Sector.** Most of Guyana's electricity generating capacity is thermal-based, using heavy-fuel oil or diesel. Guyana Power and Light Inc. (GP&L) is the main public supplier of electricity, with an installed nominal generating capacity of 172-MegaWatt (MW), producing approximately 489-GigaWatt-hour (GWh) annually. In spite of Guyana's relatively large size, the area covered by GP&L is approximately 500-km². Private companies generate and distribute electricity in the mining town area of Linden and other villages in the coastal areas and the Hinterlands, with an estimated installed capacity of 35-MW.
- 1.4 The cost of electricity in Guyana is among the highest in the region, with tariffs ranging from US\$0.28/per kiloWatt-hour (kWh) to US\$0.32/kWh. This high cost of electricity can be attributed to different factors including: (i) dependence on expensive heavy fossil-fuels for power generation; (ii) inadequate system operation; and (iii) a high level of technical and commercial losses in the distribution system. The Government of Guyana (GOG) transfers funds to GP&L in the form of different subsidies to compensate the financial deficit.¹
- 1.5 The electrification of rural communities in the vicinity of Georgetown on the coast is being gradually increased by GP&L. Electricity coverage in the coastal zone is close to 90%. In the Hinterlands, infrastructure is yet to be developed and access to electricity is still limited due to distance from major load centers. Over 80% of the Amerindian population of Guyana lack basic access to electricity.²
- 1.6 The sector is governed by the Electricity Sector Reform Act (ESRA) of 1999, which assigns the responsibility for the overall administration of the power sector, high-level policymaking and regulatory functions, to the Office of the Prime Minister (OPM). The OPM also houses the Hinterland Electrification Unit (HEU), with demonstrated institutional capacity to implement rural electrification

¹ In 2008 GOG injected US\$17 million cash into GP&L to compensate for the increase in fuel costs during a year of peak oil prices.

² See more detail in the link: [Hinterland Electrification and the use of RETs.](#)

programs. The electrification of Hinterlands is done in coordination with the Ministry of Amerindian Affairs (MoAA) and with technical support from GP&L.

- 1.7 **Sector Challenges.** The institutional and regulatory framework of the sector requires strengthening, as adequate regulation for RE and the enforcement thereof are necessary for the diversification of the energy mix. Progress has been made under the Power Sector Support Program³ funded by the Inter-American Development Bank (IDB), to implement reforms in the electricity sector but some necessary steps still await full GOG commitment and approval with regard to non-conventional RE.
- 1.8 The execution of previous loans and technical cooperation approved by the IDB to the GOG has revealed areas for strengthening of the Public Utility's staff to adequately execute interventions aimed at the delivery of tangible and verifiable results. In part, such circumstances have hindered the effectiveness in the achievement of project objectives and key indicators. GP&L's current operational state exhibits a lack of financial sustainability mainly due to: (i) high generation costs; and (ii) high technical and commercial losses. In the last five years, and with financing from the Un-served Areas Electrification Project (UAEP),⁴ funded by the IDB Loan 1103/SF-GY, GP&L implemented a set of measures to reduce commercial losses.^{5, 6}
- 1.9 **Rural electrification.** The electrification of the Hinterlands remains a challenge for Guyana. There are few basic-infrastructure in place; grid expansion to interior location is not cost-effective given the combination of small loads and long distances from the major load center.⁷ Some hinterland communities have intermittent electricity provided by diesel generators, in most cases, at a cost of up to US\$0.40/kWh. In 2008, four villages benefited from solar-PV panels under the UAEP, funded by the IDB and executed by OPM's HEU, providing energy to low-income population.⁸

³ GY-L1014 - Power Sector Support Program, Policy Based Loan 2008-2011 (Final Report June 2010). This Program has made important contributions to increasing the transparency, accountability and performance of the electricity sector and highlighted challenges that will need to be overcome in the sector in the near future, including recommendations to consider non-conventional RET in the short, medium and long-term planning of the sector.

⁴ The UAEP financed the first actions to assess and reduce the level of non-technical losses in GPL. At program closure, the level of losses was reduced by 5%, from 38% to 33% in December 2010. About 20,000 new people were benefited from the UAEP having access to electricity in previous unserved areas of the coastal zone and from the Hinterland.

⁵ Alonso, Francisco, "Management Support for GP&L Loss Reduction", Second Report, November 2010.

⁶ The reduction of technical losses requires substantial investments which could amount to US\$18 million in the next years, according to GP&L's projected capital expenditure. GP&L Development and Expansion Program 2010-2014, April 2009.

⁷ In the vicinity of Georgetown, UAEP contributed to the expansion of the distribution lines by 200-km to provide electricity service to 30,000 housing lots.

⁸ The villages *Capoey*, *Kurukubaru*, *Muritaro* and *Yarakita*. The objective of this demonstration phase was: (i) to install 125-Watts peak (Wp) solar PV systems in every home to for lighting and radio/ CD; and (ii) to install a 250-Wp PV system in the primary school and clinic for lighting and to power other equipment (computers, TV/DVD, and fridge/freezers to store medical supplies).

- 1.10 In 2010, a technical and socio-economic evaluation was carried out of the Hinterland Electrification Program (HEP) expanded with the UAEP. End-user experiences were generally positive, given that: (i) 90% of the families began performing activities after dark; (ii) family income measurably increased; and (iii) fuel costs for lighting were reduced to approximately US\$9.80 per month. However, important weaknesses were also identified, including aspects such as: (i) technical (improper system installation, inadequate system design and choice of components); (ii) training (lack of local skills to perform adequate maintenance; technicians migrating out of the villages); (iii) organizational (weak record keeping, lack of clarity of roles and mandates between villages councils, the MoAA and OPM); and (iv) business model-related (lack of funds for maintenance tasks).
- 1.11 The GOG has announced a new expansion of the HEP under the Low Carbon Development Strategy (LCDS), the most recent initiative from the GOG to help boost Guyana's economy, which sets out a path for achieving four strategic objectives: (i) developing infrastructure; (ii) diversifying potential low carbon productive sectors; (iii) expanding access to services and new economic opportunities for indigenous people; and (iv) enhancing services to people in Guyana through supporting private sector entrepreneurship, improving health and education services, and developing the workforce required for a modern economy. The challenge will be to devise and implement a sustainable solution to provide electricity for basic services and to operate, maintain and repair the systems over time.
- 1.12 **Renewable Energy Sources.** Guyana has an extensive hydropower potential to be developed.⁹ There is certainly scope for small-scale hydroelectric schemes¹⁰ for Hinterland communities and for grid interconnection, but such policy is not formally pursued due the lack of a legal framework to encourage financing. Feasibility studies and technical studies have been carried out for the Kato Small Hydroelectric Plant (Kato SHP) of approximately 330-kiloWatts (kW) on the *Chiung* River.¹¹ For the Sustainable Energy Program (Program), financial support is sought from the European Union (EU) Energy & Water initiative. However, the initiative will require additional resources to complete its construction, and for the design and implementation of adequate business models for its sustainable operation. Private project developers are in the process of rehabilitating abandoned hydro plants to serve isolated villages, possibly combined with an industrial end-user.¹² These small hydro energy developments must be supported by adequate regulation and financial incentives in order to materialize.

⁹ A study by Monenco Engineering (1976) is used as a reference by the GOG to explore future hydropower development. The Monenco Engineering study identifies Guyana's large and medium scale hydropower potential and provides a basis for future initiatives.

¹⁰ Both dam-based micro-hydro and run of the river.

¹¹ "Hydropower feasibility study on the *Chiung* River near Kato (*Potaro-Siparuni* Region, Guyana)", by *Ingeniería, Estudios y Proyectos NIP S.A.*, Madrid (Spain), for the GOG and UNDP-Caricom, under UAEP Contract N°. OPM-S-01-2009 (December 2009).

¹² Such as the *Tumatumara* Project (2-MW).

- 1.13 In terms of wind power, according to a study sponsored by the Dutch Government (2002-2003) and private companies, wind speeds along the coast are sufficient for commercial wind energy projects. The study explored the feasibility of a 10-MW wind farm to be located at Hope Beach or in the Georgetown foreshore. GP&L signed a Memorandum of Understanding, in March 2007, for the development of the project, but an agreement for the construction of the project has not yet been reached.¹³ Wind measurements in the Hinterlands were performed at *Orealla*, *Jawalla*, *Campbellton* and *Yupukari*¹⁴ between June 2008 and May 2009. The Department of Electrical Engineering of the University of Guyana analyzed the results of the data collected at *Orealla*, concluding that wind speeds were too low for large projects and could only allow for micro wind turbines for individual homes.
- 1.14 The solar energy potential in Guyana is abundant with irradiation levels ranging from 4.5-kWh/m²/day to 6.5-kWh/m²/day, depending on the location. Two grid-tied solar-PV systems were recently installed in the Hinterland villages of *Madhia* and Port *Kaituma* for a total 10-kiloWatt peak (kWp). GEA recently installed an 8.46-kWp grid-tied system on the roof of a container shed within GEA's compound in Georgetown.¹⁵ Solar home systems are also being installed under the HEP.
- 1.15 Guyana's biomass energy potential was analyzed in the study "Expanding Bioenergy Opportunities in Guyana" financed by the IDB,¹⁶ in which three areas were identified as possible locations for biodiesel production plants: (i) the *Canje* Basin; (ii) the Intermediate Savannah; and (iii) the *Wauna-Yarakita* sub-region. Bagasse from sugar cane and rice husk can be used for electricity and heat generation. A notable recent experience with cogeneration in Guyana was implemented by Guysuco with an available power capacity of 8-MW at Skeldon. Initial experiences show that assistance is needed to strengthen local technical capacities to design and operate such systems.
- 1.16 **The Problem.** The five key problems faced by the electricity sector in Guyana are: (i) insufficient staff and high turn-over which limits the ability of GP&L to execute and operate energy projects; (ii) electricity losses; (iii) willingness and ability to pay for electricity supply; (iv) historically strong oil dependence for electricity generation; and (v) low electricity coverage in the Hinterlands. As a result, among other impacts, Guyana's electricity sector exhibits a high carbon-intensity.

¹³ The study was sponsored by the companies Delta Caribbean, NEG-Micon and *Rheden* Steel. One year of wind measurements showed hourly average wind speeds between 6.5 and 8.5 meter/second. Based on this data two projects were envisioned. The Hope Beach site and the Foreshore site. However, both projects have not materialized.

¹⁴ In the Regions 6, 7, 8, and 9 respectively.

¹⁵ The GEA Solar Photovoltaic Demonstration Project implemented in association with the Caribbean Renewable Energy Development Program (CREDP-GIZ).

¹⁶ The study was executed by Numark Associates and completed in July 2011.

- 1.17 Specific barriers for the successful introduction of non-conventional Renewable Energy Technologies (RETs) for electrification of the Hinterlands and for the interconnection of RE to the grid consist of: (i) lack of reliable and updated information on wind, bioenergy, and hydro resources for RE generation; (ii) lack of an enabling regulatory framework for grid-connected RE power systems; (iii) a lack of business and operation models for rural electrification using solar and SHP; and (iv) a lack of successful showcases (both rural and on-grid) to reduce perceived risks and create awareness and knowledge about the potential of non-conventional RETs in Guyana.
- 1.18 Apart from individual PV systems, other RETs are still largely unknown in Guyana. By consequence, there is limited knowledge on system design, resource assessment, project risks and Operation and Maintenance (O&M) aspects. The benefits of non-conventional RE are not exploited to their full potential.¹⁷ The HEU, within OPM, presently plays an important role in extending solar-PV coverage with LCDS funds, in coordination with the MoAA, GP&L and the Office of the President. However, the HEU requires additional resources for operation and training to offer more complex energy solutions.
- 1.19 Despite SHP having the potential to provide electricity to improve basic services, quality of life and economic activities in the Hinterlands, such projects are too costly and complex to be initiated by local communities. Private companies presently show interest in rehabilitating existing, abandoned SHP, but are not willing or able to build and operate the required transmission lines. Currently, there is no Policy concerning the ownership and responsibility for the required assets.¹⁸ GP&L's mandate may include rural electrification in the future but GP&L presently does not have the technical, financial or managerial capacities to assume this task. Non-governmental and Multilateral Organizations such as United Nations Development Program (UNDP) are involved in rural development projects, in coordination with MoAA, but are focused on basic energy (wood stoves) rather than electrification. In the absence of a clear definition of roles and responsibilities, OPM is the designated authority to lead the process.
- 1.20 **Program Justification.** The Program aims at reducing the identified barriers for the deployment of non-conventional RETs in Guyana and demonstrating its viability to deliver electricity to isolated communities and to the grid systems in a sustainable and cost-effective manner. Non-conventional RETs are economically viable at the prevailing high energy price in Guyana and contribute to a more diverse energy mix, using domestic resources. The mitigation of Greenhouse Gas (GhG) emissions provides a rationale for the Global Environment Facility (GEF) involvement and is consistent with GOG's, IDB's and GEF's objectives. The increased access to reliable electricity supply in the rural areas, which will be

¹⁷ Knowledge issues are demonstrated by the Skeldon case (bagasse); as well as a lack of regulation concerning dispatch rules, grid access and costs of backup power.

¹⁸ Abandoned hydro plants are relicts from old mining projects. In the case of *Tumatumara*, the project developer has negotiated a lease agreement with the GOG to use the existing infrastructure (turbine housing, turbine, civil works), although ownership is not fully clear.

supported through this Program, will improve the social and economic development of the communities in the Hinterlands and improve quality of life, including access to basic services such as medical assistance and education.¹⁹

- 1.21 The expected results of the Program include: (i) strengthening of sector institutions and staff to initiate, implement and operate RETs; (ii) implementation of solar-PV, hybrids (RE-thermal) and small hydropower demonstration plants for electricity supply in the Hinterlands; (iii) implementation of RE pilot projects (e.g., wind energy and bioenergy in the coastal plains); and (iv) execution of a wind, solar and hydro resource assessment program. These results will contribute to improving access, sustainability and quality of the electricity service in Guyana.
- 1.22 **Country Strategy.** The Program is aligned with the current IDB Country Strategy (CS) for Guyana 2012-2016, focusing in the priority area of “Sustainable Energy”, supporting the strategic objective of “Implement a low-carbon energy framework to reduce the cost of electricity and increase coverage”. This Program is included in the 2013 Country Programming Document.
- 1.23 **Ninth General Capital Increase (GCI-9).** The Program is aligned with the IDB’s Framework of a New Institutional Strategy under its sector priorities and preferential support to less developed Latin American and Caribbean (LAC) countries. It will contribute to the goal of: (i) supporting development in small and vulnerable countries; (ii) assisting borrowers in dealing with climate change, sustainable energy, including RE, and environmental sustainability; and (iii) poverty reduction and equity enhancement.
- 1.24 **Coordination with Other Donors.** Multilateral development institutions present in Guyana were consulted and informed about the scope of the Program, which is consistent with projects currently being developed under the LCDS and the UNDP as well as with resources provided by the EU, United States Agency for International Development (USAID) and other donors.

B. Objective, Components and Cost

- 1.25 **Program’s Goal and Purpose.** The general objective of the Program is to improve institutional capacities of GP&L and OPM, through the training of said institutions’ staff and promotion of the use of RETs in the urban areas and the Hinterlands with the aim to: (i) implement sustainable business models for O&M of RE projects; (ii) increase quality energy access in Guyana; (iii) reduce the long-term operational costs of on-grid and off-grid electricity service; and (iv) contribute to sector sustainability and reduction of GhG emissions.
- 1.26 **Components.** In line with the objectives of LCDS, the main components of the Program are: (i) strengthening of the policy and institutional framework to implement RETs in Guyana; (ii) strengthening of GP&L’s capabilities to improve

¹⁹ However, it must be noted that there is a great variety among the Amerindian communities in terms of size, demographic characteristics, energy uses, and acceptance of external support programs. By consequence, not all communities will benefit to the same extent, or in the same timeframe.

- electricity supply and promote the use of RETs; (iii) contribute to sector sustainability with the implementation of cost-effective RETs for on-grid and off-grid electricity generation.
- 1.27 **Component I. Strengthening of the policy and institutional framework to implement RETs in Guyana.** The specific objective of Component I is to develop a National RE Strategy as an action plan, to promote the implementation of RETs under the LCDS, including the revision of existing regulatory framework. The strategy will promote the introduction of RETs to deliver electricity to the grid areas and the Hinterlands under public (via GP&L), private (via Independent Power Producers (IPP) and/or self-supply) and community-based business modalities. The strategy will draw on the lessons-learned from the HEP solar-PV demonstration project and private initiatives, including cogeneration and wind energy. The strategy will explore the design of sustainable business models and O&M modalities for the Hinterlands. It will further clarify the roles and responsibilities of involved stakeholders²⁰ to establish a sound basis for rural electrification schemes in the Hinterlands, and strengthen capacities and skills.
- 1.28 Revision of existing regulation will include aspects such as: (i) promotion of private investment in RE and Energy Efficiency (EE) technologies; (ii) drafting of dispatch rules, grid code and quality requirements for RE-based power generators; (iii) drafting of a tariff system for RE-based electricity delivered to the grid; (iv) proposals of incentives for the implementation of RETs; and (v) proposals of incentives to promote rural electrification. Policy development will be supported by a public awareness and information campaign to communicate the benefits of RETs and of the rational use of energy. The development of Component I will serve as an action plan, in order to improve the present regulatory framework and facilitate the development of Components II and III.
- 1.29 **Component II. Strengthening of the Power Utility capabilities to improve electricity supply and promote the use of RETs.** The specific objective of Component II is to develop the technical capacity and expertise of professionals from GP&L and representatives from Hinterland communities for the planning, design, installation and O&M of RE projects. Component II will be funded with the Program's resources, to create the necessary technical expertise in GP&L and contribute to its financial recovery and operational improvement, *vis-à-vis* the LCDS.
- 1.30 Energy sector professionals will be trained to develop the necessary skills in RE projects. Component II will enhance current training and promotional activities financed by the GOG and implemented by GEA, such as training on operational issues and the technical and financial management of RETs. With respect to the Hinterlands, this component will address the capacity barriers identified under the HEP. It will further complement and identify the necessary skills to operate and manage the *Kato* SHP over the *Chiung* River, which will be constructed during

²⁰ Specifically OPM's Hinterland Electrification Unit, MoAA, and the village councils.

Program execution, using parallel financing, and prepare the local staff for this task.

- 1.31 Component II will finance the procurement and installation of wind measuring equipment to collect high-quality, long-term data to assess the wind resource potential in Guyana. Component II will also support hydrological measurements for future hydro projects as well as performance data from solar-PV systems. Subsequently, the acquired data will be analyzed and made available to public and private stakeholders, including private project developers. The potential of biomass for energy generation will be assessed using parallel financing and explore both large-scale applications (e.g., cogeneration, biofuels) and community-based options for local energy production.
- 1.32 **Component III. Contribute to sector sustainability with the implementation of cost-effective RETs for on-grid and off-grid electricity generation.** The specific objective of Component III is to implement RE pilot projects and demonstrate the technical, social, economic, financial and environmental sustainability of selected on-grid and off-grid RETs, through the implementation of pilot investments, such as wind energy, solar-PV and small hydropower. In addition, these pilot investments will provide the evidence that would give the grounds to proposals for amendments to the institutional and regulatory framework. At the end of the program, pilot projects in the coastal zone can expectedly interconnect to the grid on a commercial basis and provide electricity at a competitive price. With respect to rural electrification, the Program will prepare and test sustainable business models for ownership, O&M and address the current technical, institutional and capacity barriers.
- 1.33 The direct social and economic benefits will be a reduction in operating costs for the local communities, as well as improved access to electricity services by the population in the Hinterlands, in terms of quality of service and number of households served.
- 1.34 The selection of pilot projects includes an assessment of current and available information in the country. Such assessment will review information related to: (i) detailed feasibility studies and technical designs for project construction; (ii) projects that have been considered and approved by the GOG for hinterland electrification; (iii) projects with criteria to judge socio-economic impact, cost-effectiveness, project risks, visibility and replication potential. The implementation modality for the on-grid demonstration pilot (envisaged wind energy and bioenergy) will be defined in the Program Operations Manual (POM).²¹
- 1.35 Based on the outcome of the assessment, Component III will provide financing to complement selected pilot projects that will be executed by OPM.²² Contributions from the execution of parallel projects, with financing provided by GOG, the EU

²¹ The installation of a 300-kW wind turbine by Guyana Water Inc. has been identified as a potential project.

²² Any future parallel financing leveraged with the Program would contribute to finance similar projects as those mentioned in this component and described in paragraph 1.12- Renewable energy resources.

Energy and Water Initiative, and the Guyana REDD+ Investment Fund (GRIF)²³ will be considered in the assessment to receive additional support from the Program.

- 1.36 The Program envisages facilitating the installation of approximately 1,112-kW of PV systems to villages in the Hinterlands. Once in place, the systems will be managed under a community-based business and operational model. Based on the strategy for rural electrification considered in the HEP and the assessment conducted under Component III, the OPM, in close dialogue with MoAA and the village councils, will continue the electrification of rural communities. SHP would be implemented under a mixed business model, providing support to the completion of current hydropower developments or new initiatives of the Government.²⁴ The technical development process will be monitored closely to confirm technological choices. Adaptation measures to the risks of climate change will be taken to safeguard the integrity of the power plants during their expected technical lifetime of 25-years.

C. Key Results Indicators

- 1.37 A comprehensive monitoring and evaluation system will continuously assess and refine the Program's performance. The proposed indicators and means of verification will enable to efficiently track the performance of the Program during its execution and its progress towards attaining the pursued outcomes and outputs as defined in the Results Matrix and included in the Monitoring and Evaluation Plan.
- 1.38 The expected outcomes of the Program are: (i) the technical, social and financial sustainability of RETs demonstrated for rural electrification; (ii) the technical, social and financial sustainability of on-grid RETs demonstrated; (iii) the supply of sustainable electricity service from installed RETs to an envisaged 20 communities in the Hinterlands; and (iv) the annual energy production of 12,222-MWh by installed rural RETs.
- 1.39 The key outputs of the Program include: (i) the implementation of a portfolio of solar-PV electrification projects in rural communities in the Hinterlands; (ii) completion of small hydropower systems for rural electrification; and (iii) the implementation of a grid-connected wind energy pilot in the coastal area.
- 1.40 The direct progress of the Program will be monitored by the installed capacity of RET (both rural and on-grid), as well as by the volume of investment capital mobilized. These indicators are chosen in line with the GEF-5 Strategy Document

²³ The GRIF is a multi-contributor trust fund for the financing of activities identified under the LCDS. The GRIF represents an effort to balance national sovereignty over investment priorities, ensuring the highest recognized standards for financial, environmental and social safeguards. The GRIF was established in October 2010, 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. Source: <http://www.guyanareddfund.org/>.

²⁴ The Kato SHP (330-kW) and the rehabilitation of the *Tumatumaru* SHP (approximately 2-MW) projects are Government and private sector projects respectively that are currently being developed and could be considered by the Government under the Program for further support.

for Climate Change Mitigation, Strategic Priority 3 (RE). Market development is measured by evaluating specific actions in the field of energy policy and by tracking private investments leveraged by the Program.²⁵

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing Instruments

- 2.1 The total cost of the Program is estimated to be up to US\$6.25 million, and will be financed through a non-reimbursable financing of up to US\$5 million from the IDB-GEF Fund and an in-kind local counterpart contribution of US\$1.25 million.²⁶
- 2.2 These resources will leverage and complement other Bank endeavors and projects for the energy sector in Guyana, and also other projects recognized by GEF as sources of parallel financing, including: GOG/HEP (US\$5,300,000), GOG/GRIF (US\$3,300,000), IDB/GY-L1038 (US\$9,000,000), IDB/GY-T1096 (US\$600,000), IDB/TCs ATN/JF-10916 and ATN/OC-10917 (US\$925,000), MIF/GY-M1022 (US\$1,500,000), and GOG/EU Energy & Water Initiative (US\$3,000,000). Table 1 shows the distribution of the cost of the Program over the three components.

Table 1. Total cost of the Program

Component	Total Financing (US\$)		
	IDB/GEF	Local Counterpart	TOTAL
Component I	210,000	150,000	360,000
Component II	140,000	500,000	640,000
Component III	4,430,000	100,000	4,530,000
Components Sub-total	4,780,000	750,000	5,530,000
Administration, monitoring, auditing	220,000	500,000	720,000
TOTAL	5,000,000	1,250,000	6,250,000

- 2.3 **Execution period and disbursement schedule.** The Unit of Disbursement Responsibility (UDR) will be the Country Office of Guyana (CCB/CGY). The execution period will be 66 months and the disbursement period will be 72 months from the date of signature of the non-reimbursable financing agreement between the IDB and the Beneficiary. Table 2 provides more details regarding the disbursements of IDB/GEF resources.

Table 2. Disbursement Schedule

Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Amount (US\$)	250,000	750,000	1,250,000	1,500,000	1,000,000	250,000
Percentage of Total Budget	5%	15%	25%	30%	20%	5%

²⁵ Leveraged capital resources are a key indicator under GEF Climate Change Focal Area to assess progress towards an established market for RETs.

²⁶ GEF policies request confirmation of GOG's additional contribution to the Program through a signed parallel financing letter. Parallel financing of complementary activities is recognized by GEF as parallel programs contributing to the general objective of GY-G1004.

B. Environmental and Social Safeguard Risks

- 2.4 The Program has been classified as category “C” and is not expected to generate negative socio-environmental impact. Positive socio-economic impacts are expected to benefit the population of Guyana, especially in the Hinterlands through the expanded provision of electric energy. The reduction of operational costs contributes to the financial performance of GP&L, and is supportive to the establishment of a sustainable energy sector. The investment in RET contributes to diversifying the national energy matrix offering potentially attractive investment opportunities. The increased use of low-carbon energy sources to offset fossil fuels contributes to mitigating global emissions of GHGs.

C. Fiduciary Risk

- 2.5 The IDB’s fiduciary obligation to ensure the appropriate, efficient use of the funds is fulfilled in the Program by means of compliance with IDB financial and procurement policies and procedures. The corresponding annex establishes the provisions applicable to the execution of all Program procurement, as well as financial management according to IDB’s procedures. In order to maintain control and consistency in the procurement activities, the vacancy of Procurement Specialist in the Program Implementation Unit (PIU) has to be filled.

D. Other Key Issues and Risks

- 2.6 **Institutional viability.** The entities participating in Program preparation and implementation are committed to the objectives of the Program. Primary responsibility for the Program will rest with OPM, which will host the PIU. The Project Manager (PM) will be designated by OPM through a competitive process overviewed by the IDB. In order to capitalize on existing institutional capacity, the Program strives at continuation of HEU to implement the envisaged rural electrification projects.
- 2.7 **Stakeholder engagement.** Key stakeholders within the scope of the Program include: (i) OPM, head of the energy sector; (ii) GEA, responsible for the preparation of the National Energy Efficiency Program; (iii) the Office of the President (OP), main coordinator of the LCDS; (iv) the MoAA; and (v) GP&L. The Guyana Protection Agency (EPA), as GEF operational focal point, has endorsed the Program to support the adequate development and sustainable use of Guyana’s natural resources.
- 2.8 Stakeholders have been involved throughout the preparation of the Program. The Amerindian community has been involved through periodic meetings with MoAA. Other stakeholders active in rural energy supply have been consulted, including UNDP and the CARICOM Secretariat.
- 2.9 **Economic viability.** A Cost-Benefit Analysis (CBA) was carried out for the main component of the Program. Benefits of the Program derived from the installation of RET will save current operational costs to the GOG which include savings related to: (i) the current operation costs of power plants in rural areas; and (ii) the current operating costs of the electric system in Guyana. The main costs of the Program are the investment and O&M costs of the RE equipment installed. The

overall Economic Rate of Return (ERR) of the rural electrification project is 20.5% for a scope of 25 years with a Net Present Value (NPV) (using a discount rate of 12%) of US\$12,089,067. Sensitivity analyses were carried out all of them yielding a positive ERR. See Economic Analysis electronic link.

- 2.10 **Other risks.** Public Management and Governance. The risk that political commitment to the adoption of non-conventional RETs and to the continued strengthening of government staff in the sector would be withdrawn, or that priorities would be changed, has been classified as medium. This risk will be controlled by monitoring and supporting the progress to implement initiatives under the LCDS. Local governance capabilities and technical capacity to implement the Program may prove insufficient. This risk is deemed medium since OPM has a well-established HEU that will be subject to permanent training. A detailed human resources plan will be prepared at Program inception to select human resources for the Program and make the most effective use thereof. The Program will specifically foster the creation of local public and private know-how to successfully design, implement and monitor RE projects. In addition, IDB office in Guyana will provide permanent training to the HEU as part of the fiduciary procedures related to the execution of the Program.
- 2.11 Environmental and Social Sustainability. The lack of acceptance of RE technologies by rural communities would adversely affect the performance of installed power plants in the Hinterlands. Support is included to develop business models with strong community participation. Additional measures include periodic self-assessments of the available technical and human capacity of government agencies and an independent mid-term evaluation to assess social issues, including gender aspects.
- 2.12 Information on RE resources. Lack of sufficient information and reliability of existing data for the development of RE has been identified as a medium risk. To mitigate the risk, the Program includes specific components for the development of local capacities in the monitoring, collection and analysis of energy data.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary Implementation Arrangements

- 3.1 **Beneficiary and Executing Structure.** The beneficiary of the Program will be the Co-operative Republic of Guyana, while the Executing Agency (EA) will be the OPM. Program implementation will entail two levels: (i) the strategic level; and (ii) the operational level.
- 3.2 **Strategic Level.** The GOG will establish a high-level Project Steering Committee (PSC) to: (i) provide guidance and orientation concerning the Program's priorities based on approved documentation; (ii) monitor progress of implementation according to the agreed time schedule and reports prepared by the EA; and (iii) recommend and give support on operational issues at high level. The PSC will be composed of OPM as Chairperson, representatives of the Ministry of Finance, the MoAA, the GEA, GP&L and the PM as its Secretary. The PSC will meet on a semester basis, convened by the PM, on behalf of OPM.

- 3.3 **Operational Level.** The OPM will be the EA, which will be responsible for the fulfillment of the technical, administrative and fiduciary tasks (including procurement and financial management) related to the execution of the Program, as well as the planning, monitoring, supervision and evaluation thereof.
- 3.4 The PIU will be the existing HEU at OPM. The PIU will be responsible for, *inter alia*: (i) the technical execution of Program's activities; (ii) selecting and contracting of consultancies, procurement and services; (iii) reviewing and approving consulting products; (iv) registering accounting information of Program funds; (v) managing consulting contracts and processing payments for consulting services and procurement of goods; (vi) reporting periodically to the EA and the IDB on the technical and administrative activities of the Program; and (vii) coordinate the monitoring of Program progress towards outcomes and goals.
- 3.5 **As a condition precedent to the first disbursement, the EA must provide evidence to the satisfaction of the IDB of the fulfillment of the following conditions: (i) the following experts of the PIU have been selected: Project Manager (PM), Procurement Specialist, Financial Specialist, Electrical Engineer, and Social-Environmental Specialist; (ii) the POM has been approved by the EA, in accordance with the terms agreed upon with the IDB; (iii) a high-level PSC has been established; and (iv) the use of an Accounting System with training activities commenced.**
- 3.6 **Project Manager (PM).** The PM will be responsible, among others, for the preparation of Terms of Reference, support for the selection process of contracted consultancies, services and procured goods, review of the products delivered by consultancy firms, budget administration, logistics, local support and coordination among the stakeholders. The PM will also prepare the Annual Operation Plan (AOP) to assist the EA in the execution and supervision of the Program. The PM will report to the PSC, the EA, the GEF and the IDB. The IDB will provide technical and fiduciary support through INE/ENE and CCB/CGY.
- 3.7 **Procurement.** The selection and hiring of consultant/consulting firms and the procurement of goods for the development of the activities comprised by the Program will be carried out in accordance with the Policies for the Procurement of Goods and Works Financed by the IDB (GN-2349-9) and the Policies for the Selection and Contracting of Consultants Financed by the IDB (GN-2350-9), and with the provisions established in the loan contract and the procurement plan.
- 3.8 **Audit.** In terms of internal control and audit, OPM will assume the responsibility for designing and implementing a sound system of internal controls for the program, as well as semi-annual financial reports and annual audited financial statements for each fiscal year during program execution (see Annex III for more details).
- B. Summary of Arrangements for Monitoring Results**
- 3.9 **Monitoring.** The result matrix will be the basic instrument for monitoring the Program's outcomes and outputs. Additionally, a Monitoring and Evaluation Plan (M&E) has been developed which will facilitate the process and provide guidance

to the HEU. The IDB will be monitoring the Program both from the INE/ENE and CCB/CGY, with visits to the HEU and the Program sites. The HEU will be responsible for the monitoring process and the preparation of quarterly and annual reports following the GEF and IDB requirements during the Program execution period. As indicated in Annex III, OPM through the HEU will also be responsible for the preparation of financial documentation needed for the annual financial audits of Program statements. In addition, the HEU will ensure the proper documentation of counterpart spending including in-kind contributions.

- 3.10 As previously mentioned, a PSC will be established to guarantee a strategic overview in the Program. Key stakeholders will be the members of the PSC, which will meet, at least, twice a year. The minutes from the meetings of the PSC will be included as part of the annual progress reports.
- 3.11 **Evaluation.** Independent consultants will prepare a mid-term and final evaluation of the Program to assess the implementation process and its progress towards attaining the envisaged objectives. The mid-term and final evaluation will be financed with resources of this Program. The mid-term evaluation will be held 3 years after first disbursement. The final independent evaluation will be carried out 3 months before the last disbursement is made. Both evaluations will use a before and after methodology using the indicators defined in the M&E annex.

SUSTAINABLE ENERGY PROGRAM FOR GUYANA

GY-G1004

CERTIFICATION

The Grants and Co-Financing Management Unit (GRP/GCM) certifies receipt of the GEF Council's Endorsement letter dated on March 20, 2013 for the Sustainable Energy Program for Guyana for US\$5,000,000 chargeable against the GEF Trust Fund (GEFTF).

Original Signed

04/03/2013

Sonia M. Rivera
Chief
Grants and Co-Financing Management Unit
GRP/GCM

Date

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	Aligned		
Lending Program	i) Lending to small and vulnerable countries, and ii) Lending to support climate change initiatives, sustainable energy (including renewable) and environmental sustainability.		
Regional Development Goals	i) Percent of households with electricity, ii) Stabilization of CO2 equivalent emissions (metric tons per habitant), and iii) Countries with planning capacity in mitigation and adaptation of climate change.		
Bank Output Contribution (as defined in Results Framework of IDB-9)	i) Percentage of power generation capacity from low-carbon sources over total generation capacity funded by IDB, and ii) Climate change pilot projects in agriculture, energy, health, water and sanitation, transport, and housing.		
2. Country Strategy Development Objectives	Aligned		
Country Strategy Results Matrix	GN-2690	Implement a low-carbon energy framework to reduce the cost of electricity and increase coverage.	
Country Program Results Matrix	GN-2696	The intervention is included in the 2013 Country Program Document.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	Highly Evaluable	Weight	Maximum Score
	8.7		10
3. Evidence-based Assessment & Solution	9.8	33.33%	10
4. Ex ante Economic Analysis	10.0	33.33%	10
5. Monitoring and Evaluation	6.4	33.33%	10
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	Medium		
Identified risks have been rated for magnitude and likelihood	Yes		
Mitigation measures have been identified for major risks	Yes		
Mitigation measures have indicators for tracking their implementation	Yes		
Environmental & social risk classification	C		
IV. IDB's Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)	Yes	Financial management: Accounting and reporting. Procurement: i) Shopping method, ii) Contracting individual consultant, and iii) Use of some national subsystem.	
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment	Yes	Promotion of renewable energy.	
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

The document presents a comprehensive description and analysis of the main challenges faced by the energy sector in Guyana. The energy matrix in Guyana is thermal based, using heavy-fuel oil or diesel, which is mostly imported. The cost of electricity in Guyana is among the highest in the region (US\$0.28-US\$0.32 per kiloWatt-hour). The main challenges that the sector faces are a weak institutional and regulatory framework and low electrification of the hinterland given that grid expansion to interior locations is not cost-effective.

As a result of the current energy matrix, Guyana's electricity sector presents a high carbon intensity. Nevertheless, Guyana has an extensive renewable energy potential (hydro, wind, solar, and biomass) that needs to be developed. Successful introduction of non-conventional renewable energy technologies faces significant barriers, among them: lack of information, weak regulatory framework, lack of business and operational models for rural electrification using renewables and a lack of successful showcases. It is argued that their introduction on a pilot basis would reduce perceived risks and create awareness and knowledge about the potential of nonconventional renewable energy technologies in Guyana.

The POD is thus clearly articulated and presents empirical evidence of these challenges. The proposed objectives of the components are linked to these challenges: i) implement sustainable business models for O&M of renewable energy projects; ii) increase quality energy access in Guyana; iii) reduce the long-term operational costs of on-grid and off-grid electricity service; and iv) contribute to sector sustainability and reduction of GhG emissions.

The Results Matrix presents clearly the logic of the intervention with expected impacts associated to increased access to electricity and mobilization of additional funding for renewable technologies.

The monitoring and evaluation plan includes an ex-post cost-benefit analysis.

RESULTS FRAMEWORK

Operation objective	The objective of the operation is to improve institutional capacities of GP&L and OPM, through the training of said institutions' staff and promotion of the use of RETs in the urban areas and the Hinterlands.
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MATRIX OF INDICATORS

Output Indicators	Baseline (2011)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Target (Year 6)	Means of Verification
Component 1 – Strengthening of the policy and institutional framework to implement RETs in Guyana.									
National RE strategy developed and approved	0	0	0	0	1	0	0	1	Official publications by GOG
Legal and technical revision of electricity regulatory framework developed.	0	0	0	0	0	1	0	1	Legal and technical revision documents.
Energy sector agencies are trained to implement RE systems and coordinate their roles.	0	0	1	0	1	0	1	3	Project document report
Public Awareness campaign developed	2	0	1	1	1	1	0	6	Official publications by GOG
Component 2 – Strengthening of the Power Utility capabilities to improve electricity supply and promote the use of RETs.									
Wind measuring stations installed	2	0	1	1	2	0	0	6	Project document report
RE potential assessment developed	1	0	0	1	0	1	0	3	Project document report
Pre-feasibility study of RE projects for rural electrification developed	0	0	0	1	1	1	0	3	Pre-feasibility document

Output Indicators	Baseline (2011)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Target (Year 6)	Means of Verification
The Power Utility has received support to improve its technical and managerial skills for implementing RETs under the LCDS and for infrastructure development (<i>A Corporate Development Plan implemented</i>).	0	0	0	0	0	0	1	1	Project document report
Sustainable business models for on-grid RETs implemented	0	0	0	0	0	0	1	1	Project document report
Sustainable business models for rural electrification RETs implemented	0	0	0	0	1	1	0	2	Project document report
Representatives from Hinterland communities have become trained on the operation and management of RET systems (<i>Number of training implemented</i>).	2	0	0	2	1	2	1	8	Project document report
The potential of bioenergy as part of a low-carbon development strategy has been assessed	0	0	1	0	0	0	0	1	Project document report
Installation of a demonstration plant for bioenergy production	0	0	0	1	0	0	0	1	Project document report
Component 3 – Contribute to sector sustainability with the implementation of cost-effective RETs for on-grid and off-grid electricity generation.									
Solar-PV projects installed for rural electrification (kW)	141	0	570	0	200	200	142	1,253	Progress reports; Project Final Reports.
Rural hydro power projects installed (kW)	0	0	0	330	0	0	2,000	2,330	Progress reports; Project Final Reports.
On-grid RET (wind power) installed (kW)	0	0	0	0	0	0	300	300	Project Final Report.
On-grid PV projects installed (kW)	18.46	0	0	40	60	60	20	198.46	Progress reports; Project Final Reports.

Outcome / Indicators	Baseline (2011)	Target (Year 6)	Means of Verification	Comments
Rural communities have access to RE supply. Indicator: Number of rural end-users supplied with sustainable electricity service from installed RETs.	6,900 persons	27,500 persons	Final evaluation report	Based on average 40-W installed RET capacity per end-user
Increase in rural energy supply from RE sources. Indicator: Amount of annual energy production by installed rural RETs.	198 MWh/yr	12,222 MWh/yr	Metering reports by operating entity ¹ ;	Based on installed capacity of 2,330-kW hydro and 1,253-kW solar PV.
Increase in energy supply from RE sources injected to the national grid. Indicator: Amount of annual energy production by installed on-grid wind turbine.	0	789 MWh/yr	Metering reports by operating entity ² ; sector statistics	Based on installed capacity of 300-kW on-grid wind turbine.
Technical, social and financial sustainability of on-grid RETs demonstrated . Indicator: Number of on-grid RE projects evaluated.	0	1	Projects final evaluation	At least one project constructed and connected to the grid assessed to evaluate technical, social and financial sustainability.
Technical, social and financial sustainability of rural RETs demonstrated. Indicator: Number of rural RE projects evaluated.	0	2	Business plans of operating entities; final evaluation	For individual PV systems and small hydro power.

¹ Based in the Sustainable Business Models implemented through Component II.

² *Ibid.*

<p>Increase of technical and managerial skills for implementing RETs by GP&L</p> <p>Indicator: level of investment to implement a Corporate Development Program.</p>	0	US\$20 million	Official document with investment approved	The implementation of a Comported Development Program to improve GP&L's capacities <i>vis-à-vis</i> the LCDS, has been analyzed by IDB and the GoG.
<p>Increase of local capacities to implement and operate RETs for rural electrification</p> <p>Indicator: number of training</p>	2	7	Projects final evaluation	Training in RETs will be carried out in Hinterland and in the coastal zone of Guyana

Impact Indicators	Base (2011)	Target (Year 6)	Verification Means	Comments
Percentage of the population with access to electricity increased.	85%	90%	Sector statistics	Based on Country Strategy 2012-2016
Investment in RETs mobilized.	0	US\$19,950,000	Progress reports of Operation; purchase of RETs using parallel-financing.	Parallel-financing resources committed to the GEF at project approval must be monitored during project implementation.
Implementation of a Corporate Development Program for GP&L	0	1	Final evaluation report	Linked to Guyana's Country Strategy 2012-2018 indicator of "Utilities capabilities improved <i>vis-a vis</i> the LCDS"

PROJECT FIDUCIARY AGREEMENTS AND REQUIREMENTS

COUNTRY: Guyana

PROJECT N° GY-G1004

NAME: SUSTAINABLE ENERGY PROGRAM FOR GUYANA

EXECUTING AGENCIES: OFFICE OF THE PRIME MINISTER

I. EXECUTIVE SUMMARY:

- 1.1. **Project objective description:** Project Objective/Description: The general objective is to improve institutional capacities of the Public Utility and OPM, through the training of said institutions' staff and promotion of the use of non-conventional Renewable Energy Technologies in the urban areas and the Hinterlands, with the aim to: (i) implement sustainable business models for operation and maintenance of RE projects; (ii) increase quality energy access in Guyana; (iii) reduce long-term operational costs of on-grid and off-grid electricity service; and (iv) contribute to sector sustainability and reduction of Greenhouse Gas Emissions.
- 1.2. Special conditions precedent to the first disbursement: the Office of the Prime Minister, as Executing Agency (EA) must provide evidence to the satisfaction of the IDB of the fulfillment of the following conditions: (i) the following experts of the PIU have been selected: Project Manager (PM), Procurement Specialist, Financial Specialist, Electrical Engineer, and Social-Environmental Specialist; (ii) the POM has been approved by the EA, in accordance with the terms agreed upon with the IDB; (iii) a high-level PSC has been established; and (iv) the use of an Accounting System with training activities commenced.
- 1.3. The EA has successfully executed the operation LO-1103/SF-GY, Unserved Areas Electrification Program.
- 1.4. The fiduciary evaluation has been gained from the annual risk analyses and evaluations conducted, over the years in the implementation of the closed operation LO-1103/SF-GY and the Technical Cooperation, ATN/SF-9582-GY. The results were deemed as medium to low risks, and as acceptable to the Bank. A further assessment of the fiduciary risks will be conducted, which leads to risk-mitigation and a supervision plan, to be later included in the Bank's tracking system of OPMAS.
- 1.5. **Fiduciary Context of the country.** The Public Financial Management (PFM) systems in Guyana were assessed in the late 2007 using the combined PEFA performance measurement framework and OECD-DAC procurement assessment. The assessment concluded that Guyana's overall budget planning, accounting and reporting systems work well; IFMAS (finance and accounting system used by the Government) operates consistently and reliably providing updated information

about all elements of budget execution and budget planning and reporting is being done in accordance with accrual accounting. A modern legislative and regulatory framework exists for procurement but the Public Procurement Commission (PPC), a key element of the system, is not yet in operation. In addition, the other main weaknesses identified related to the supervision of statutory bodies, public procurement and internal audit and control. A new Integrated Fiduciary Assessment (IFA) is planned for 2012 as a follow-up to the successful exercise conducted in 2007. The new assessment will allow Government to measure its performance over the new strategy period. Technical Cooperation resources will be used to support the GoG in mollifying these institutional and governance factors that amplify risk.

- 1.6. The PEFA highlighted that the Government had begun to strengthen the internal control environment and improve the quality of public financial management via the establishment of the posts of qualified Financial Controllers in most Ministries. An assessment of the capacity of the Auditor General's Office (AoG) was also carried out. The assessment concluded that in the initial phase, the AG will be eligible to audit all Bank financed TCs and loan projects that are in the pipeline or has been recently approved which are deemed of low or medium complexity and risk. The assessment also states that the operations where the AG will be the external auditor, will be determined on a case-by-case basis with the Bank's non-objection being a pre-requisite.
- 1.7. For this project, the Bank is recommending consistent with its mandate to strengthen and to use national systems, the use of Government of Guyana's accounting system for the financial administration of the project by the PEU, and the Auditor General of Guyana for external control (if available) and if unable or agreed otherwise, a firm of independent public accountants acceptable to the Bank.

II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

- 2.1. The Office of the Prime Minister, OPM, is the EA for this operation. It is housed in the Ministry of Public Works & Communication compound. This serves as the official office of the Prime Minister who is responsible for Energy, (as the Minister of Energy) and also the Minister of Parliamentary Affairs. The OPM is responsible for all Urban Electrification as well as Hinterland Projects. Renewable Energy falls within its mandate, and there is a strong focus on Renewable Energy Projects, such as Solar panel installations.
- 2.2. It is envisaged that in the initial stages technical and administrative support will be provided by the Project Execution Unit (PEU) that concluded the ATN/SF-9582-GY. Support would be provided in the overall execution of the operation, inclusive of the fiduciary policies and procedures.
- 2.3. The last assessment conducted by the Bank indicates that the OPM does have the full complement of staff with the adequate institutional capacity to carry out the execution of the Technical Cooperation (ATN/SF-9582-GY), as the staff

complement remained unchanged from the execution of the Loan LO-1103/SF-GY.

- 2.4. However, given the complexity of this operation, it can be considered necessary to have staff with a fair degree of technical expertise, largely in the area of renewable energy, so as to facilitate competent management of the program. From a fiduciary perspective the maintenance of the Financial Specialist is essential for the proper functioning of the project. A procurement specialist is also considered necessary based on the needs of the operation.
- 2.5. Based on our experienced that spans several years of assessing the internal controls systems of the EA, these were evaluated as strong and satisfactory to the Bank. Notwithstanding this strength, we believe the crafting and endorsing of a Program Operations Manual, will be useful as a guide as every operations vary and EA's evolve over time.
- 2.6. OPM is a budget agency that is audited by the Supreme Audit Institution of Guyana, the Audit Office of Guyana, the AOG. The AOG has regained eligibility status to audit loans, as of July 2011, (of medium risk) and as such the loan, LO-1103/SF-GY was audited by a firm of private auditors at that time. This operation will use independent auditors, approved by the Bank, to perform the external audit based on the policies of the Bank;
- 2.7. OPM uses the country's national accounting system, Integrated Financial Management Accounting System, (IFMAS), while the afore-mentioned operations funded by the Bank used the Peachtree accounting software package. This was found acceptable at that time, and still satisfies the Bank requirements as an approved software accounting package.
- 2.8. IFMAS has the benefit of centralized budgeting and expenditure management capabilities, as well as real time monitoring by control bodies such as the Ministry of Finance and the AOG. The use of IFMAS as the financial management system is aligned with the Bank's strategic goals of 'Strengthening & Increasing the Use of Country Systems'.

III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

- 3.1. The Project Team has developed a preliminary Risk Mitigation Matrix that will be discussed with the Executing Agency. This will outline the necessary mitigative actions to be taken with the OPM. The Bank and the OPM will undertake joint reviews of the Matrix on a yearly basis, and introduce necessary additional mitigative actions as a result of such reviews. However in the interim, the following actions are envisaged:
- 3.2. The following institutional strengthening actions are recommended taking into account the needs of the operation: (i) Provision of adequate office space to house the selected Procurement and Finance Specialist with the necessary office

- equipment; (ii) the crafting of an Program Operations Manual; (iii) Training activities conducted as necessary.
- 3.3. Such actions should allow for an effective and transparent execution of the resources of the operation while, of utmost importance, enhancing and streamlining the permanent administrative, fiduciary and control capabilities of the EAs.

IV. SPECIAL CONDITIONS OF CONTRACT TO BE ADHERED TO

- 4.1. **Conditions prior to first disbursement:** (i) the following experts of the PIU have been selected: Project Manager (PM), Procurement Specialist, Financial Specialist, Electrical Engineer, and Social-Environmental Specialist; (ii) the POM has been approved by the EA, in accordance with the terms agreed upon with the IDB; (iii) a high-level PSC has been established; and (iv) the use of an Accounting System with training activities commenced.
- 4.2. **Type of funds to be used by executing agencies:** the type of funds to be used are established in the following manner: (i) Reimbursement of actual expenses: the effective rate of exchange on the date of payment of each expenditure, as published by the Central Bank of Guyana; (ii) Reporting on accounts (Advance of Funds): the effective rate of exchange used in the conversion of the currency of the operation to the local currency; (iii) Disbursements in alternate currencies from the US Dollar or local currency; (iv) Disbursements in another currency different from the US dollar and the Guyana dollar. In cases of direct payment and reimbursement of a guarantee of letter of credit, the equivalent of the currency of the operation will be fixed in accordance with the amount effectively disbursed by the IDB.
- 4.3. **Registries, inspections and reports:** All records and files will be maintained by the Executing Agency, according to accepted best practices, and be kept for up to three (3) years beyond the end of the operation's execution period.
- 4.4. **Application of procurement policies for goods, works and non-consulting services:** For applicable procurement policies for goods, works and non-consulting services please refer to document "Policies for the procurement of Goods and Works and Non-consulting Services Financed by the Inter-American Development Bank, GN-2349-9".
- 4.5. **Application of policies for the selection of consulting services:** For applicable procurement policies relating to the selection of consultants, refer to document "Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank, GN-2350-9".
- 4.6. **Methods and threshold amounts to be applied to works, goods, non-consulting services and consulting services:** The IDB thresholds limits for Guyana will apply.

- 4.7. **Special agreements regarding procurement:** None.
- 4.8. **Use of electronic on-line systems for the publication and management of the procurement plans:** The on-line Electronic Procurement Execution System (known by its Spanish acronym as SEPA) introduced in Guyana in 2010 will be used for the publication and updates of the procurement plan. It is expected that the executing agency will use the SEPA program for management of its procurement activities. As part of the Modernization of National Procurement Regime, financed by the IDB, the Government of Guyana has developed an on-line procurement notice publication portal. Procurement processes falling below the national competitive bid thresholds may also be advertised on this site.
- 4.9. **Use of national or other documents than the Bank standard documents for competitive bidding:** None.
- 4.10. **Financial Statements and Reports, audited or unaudited:** (i) Semi-annual financial reports will be included in the semi-annual progress report which will be submitted by the OPM to the Bank; (ii) Annual audited financial statements of the project are to be submitted to the Bank within 120 days at the end of each fiscal year, beginning with the fiscal year in which the first project expenditures were incurred. The Auditor General of Guyana or a firm of independent public accountants acceptable to the bank will be responsible for the Audit Report, with underlying responsibility being the OPM.

V. FINANCIAL MANAGEMENT

- 5.1. **Programming and Budget:** The Borrower has committed to allocate, for each fiscal year of project execution, adequate fiscal space to guarantee the unfettered execution of the project; as determined by normal operative instruments such as the Annual Operating Plan and the Procurement Plan.
- 5.2. **Accounting and Information Systems:** The OPM will be providing to the Bank, additional information on national Accounting System and on/ or the accounting software package procured. It is expected that the accounting system will facilitate the recording and classification of all financial transactions, provide information related to: planned versus actual financial execution of the project; the financial execution plan for the next 6 months that will be attached to each request for Advance of Funds, annual Financial Statements, performance reports, and any other reports, financial or otherwise, audited or unaudited, that may be required from the Bank from time to time.
- 5.3. **Disbursements and Cash Flow: The Bank will supervise the creation of an Advance of Funds,** using the Advance of Funds methodology.
- 5.4. Whenever resources from the financing are requested through an Advance of Funds, they will be deposited into a Special Account, denominated in US Dollars, established exclusively for the Project at the Central Bank of Guyana.

- 5.5. As required, resources from this Special Account will be transferred to another bank account in a commercial bank, denominated in Guyana Dollars to be utilized for payment of expenditures in local currency.
- 5.6. The EA commits to maintaining strict control over the utilization of the Advance so as to ensure the easy verification and reconciliation of balances between the Executing Agency's records and IDB records (WLMS1).
- 5.7. Eligible expenditures, authorized by the PTL/Coordinator and incurred prior to the approval of this project will be reimbursed to the Borrower, in accordance with current Bank policy.
- 5.8. The project will provide adequate justification of the existing Advance of Funds balance, whenever 80% of said balance has been spent. Advances will normally cover a period not exceeding 180 days and no less than 90 days.
- 5.9. In order to request disbursements from the Bank, the Executing Agency will present the following forms and supporting documents:

Type of Disbursement	Mandatory Forms	Optional forms/ information that can be requested by the IDB
Advance	Disbursement Request/ Financial Plan	List of Commitments Physical/Financial Progress Reports
Reimbursements of Payments Made	Disbursement Request/ Project Execution Status/ Statement of Expenses	List of Commitments Physical/Financial Progress Reports
Direct Payment to Supplier	Disbursement Request/ Acceptable Supporting Documentation	List of Commitments Physical/Financial Progress Reports

- 5.10. Generally, supporting documentation for Justification of Advances and Reimbursement of Payments Made will be kept at the office of the Executing Agency. Support documentation for direct payments will be sent to the Bank for processing. Disbursements' supporting documents may be reviewed by the Bank on an ex-post basis. These reviews do not entail a blanket approval, based on the samples reviewed, of the whole universe of expenditures.
- 5.11. **Internal Control and Internal Audit:** The management of the project will assume the responsibility for designing and implementing a sound system of internal controls for the project.
- 5.12. **External Control and Reports:** For each fiscal year during project execution, OPM will be responsible to produce semi-annual financial reports for the project and annual Audited Financial Statements. The Financial Statements will be audited either by the Auditor General of Guyana or by a firm of independent public accountants acceptable to the Bank.
- 5.13. **Financial Supervision Plan:** Financial Supervision will be developed based on the initial and subsequent risk assessments carried out for the project. Financial, Accounting and Institutional Inspection visits will be performed based on our risk

assessed, covering the following: (a) Review of the Reconciliation and supporting documentation for Advances and Justifications; (b) Compliance with procedures; (c) Review of compliance with the lending criteria; (d) Conducting Ex Post Review of Disbursements.

- 5.14. **Execution Mechanism:** The OPM will be the Executing Agency and will manage the Advance of Fund;
- 5.15. **The OPM** will be responsible for: (i) preparation of required project reports; (ii) monitoring product, output and outcomes achievement using established indicators; (iii) preparation and submitting disbursement request to the Bank and justification of expenses; (iv) preparation of annual financial program expenses; (v) ensure compliance with all aspects of the Operating Manual; and (vi) maintain adequate documentation filing system.

VI. SPECIAL CONDITIONS OF CONTRACT TO BE ADHERED TO FOR PROCUREMENT

- 6.1. **Application of procurement policies for goods, works and non-consulting services:** For applicable procurement policies for goods, works and non-consulting services please refer to document “Policies for the procurement of Goods and Works and Non-consulting Services Financed by the Inter-American Development Bank, GN-2349-9.”
- 6.2. **Application of policies for the selection of consulting services:** For applicable procurement policies relating to the selection of consultants please refer to document “Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank, GN-2350-9.”
- 6.3. **Methods and threshold amounts to be applied to works, goods, non-consulting services and consulting services:** The IDB thresholds levels for Guyana will apply, see page 7 below.
- 6.4. **Special agreements regarding procurement:** See following paragraphs.
- 6.5. **Use of electronic on-line systems for the publication and management of the procurement plans:** The on-line Electronic Procurement Execution System (known by its Spanish acronym as SEPA) introduced in 2010 will be used for the updating and publication of the procurement plan. It is expected that the executing agency will use the SEPA program for management of its procurement activities. As part of the Modernization of National Procurement Regime, financed by the IDB, the Government of Guyana is also planning to develop an on-line procurement notice publication portal. Procurement processes falling below the national competitive bid thresholds may also be advertised on this site.

VII. REQUIREMENTS AND AGREEMENTS FOR EXECUTION OF PROCUREMENT

- 7.1. **Procurement Execution:** Procurements for the proposed project will be carried out in accordance with the Policies for the Procurement of Works and Goods Financed by the Inter-American Development Bank (GN-2349-9), of March 2011; and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2350-9), of March 2011, and with the provisions established in the loan contract and this procurement plan. In addition, for all projects, the Borrower is required to prepare and submit to the Bank a draft General Procurement Notice.
- 7.2. **Procurement of Goods, Works, and Non-Consulting Services:** The procurement plan for the Program, covering the duration of project execution is summarized in Annex III, and indicates the procedure to be used for the procurement of goods, the contracting of works or non-consulting services. The review of technical specifications in all cases, during the process of selection is the responsibility of the sector specialist of the operation.
- 7.3. **Procurement of IT systems:** None
- 7.4. **Procurement of Consulting Services:** The procurement plan for the operation, covering the duration of project execution is summarized in Annex III, and indicates the procedure to be used for the procurement of consultancy services, and the method of selecting consultants. The Borrower is responsible for preparing and implementing the project, and therefore for preparing the TORs, short lists, selecting the consultants, and awarding and subsequently administering the contract.
- 7.5. **Sole Source Selection and/or Direct Contracting:** to be used only in exceptional circumstances and is based on the Bank's no objection to the justification.
- 7.6. **Selection of Individual Consultants:** Individual consultants are employed on assignments for which: (a) teams of personnel are not required; (b) no additional outside (home office) professional support is required; and (c) the experience and qualifications of the individual are the paramount requirement. Individual consultants are selected on the basis of their qualifications for the assignment. Advertisement is not required and consultants do not need to submit proposals. Consultants shall be selected through comparison of qualifications of at least three candidates among those who have expressed interest in the assignment or have been approached directly by the Borrower. Individual consultants may be selected on a sole-source basis with due justification in exceptional cases. This is to be carried out in accordance with Section V (Selection of Individual Consultants) of GN-2350-9 paragraphs 5.1-5.4.

- 7.7. **Training:** The detailed procurement plan indicates to which consultancy services training and workshops are applicable. As per GN-2350-9 if the assignment includes an important component for training or transfer of knowledge to Borrower staff or national consultants, the TOR shall indicate the objectives, nature, scope, and goals of the training program, including details on trainers and trainees, skills to be transferred, time frame, and monitoring and evaluation arrangements. The cost for the training program shall be included in the consultant's contract and in the budget for the assignment.
- 7.8. **Recurring Expenses:** Include payment of utilities and other office operating expenses of the PEU, if any.
- 7.9. **Advance Contracting/Retroactive Financing:** Not Applicable
- 7.10. **Domestic Preference:** Determining whether it is appropriate and necessary to use domestic preference in the evaluation of bids should be guided by Appendix 2 of GN-2349-9 para. 1-6.
- 7.11. **Other Requirements:** Use of national or other documents than the Bank standard documents for competitive bidding: None
- 7.12. **Country Threshold:** Table (US\$ Thousands):
<http://www5.iadb.org/idbppi/asp/ppProcurement.aspx?planguage=ENGLISH>¹

Works			Goods			Consulting Services		Limit for Ex- Post Revisi on
Internati onal Competi tive Bidding	National Competi tive Bidding	Shopping /Price Comparis on	Internatio nal Competiti ve Bidding	National Competi tive Bidding	Shopping/ Price Compariso n	Internati onal Competit ive Bid	Short Lists Solely by Nationals/ NCB	
>1,000	100 – 1,000	<100	>100	25 - 100	<25	>100	<100	12 month

- 7.13. **Procurement Plan and supervision (PP):** The procurement plan for the operation covering the duration of project execution is summarized in Annex III. It indicates the procedures to be used for the procurement of goods, the contracting of works or services, and the method of selecting consultants, for each contract or group of contracts. It also indicates cases requiring prequalification; the estimated cost of each contract or group of contracts; the requirement for prior or post review by the Bank. The procurement plan will be updated annually or whenever necessary, or as required by the Bank (www.iadb.org/procurement); http://www.iniciativasepa.org/bid/sitio/guyana/index_ing.htm).

¹ Amounts for ex post and ex ante review are applicable based on the capacity of the executing agency and complexity of procurements. These amounts may be adjusted by the Bank, as capacity is improved, and/or procurement complexity varied.