**Document of the Inter-American Development Bank**

**GUYANA**

**Strengthening the Energy Sector**

**(GY-L1067)**

**Monitoring and Evaluation Arrangements**

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Abbreviations

|  |  |
| --- | --- |
| AOP | Annual Operating Plan |
| BOE | Barrels of Oil Equivalent  |
| CBA | Cost Benefit Analysis |
| CCB/CGY | Country Office in Guyana |
| CDP | Corporate Development Program |
| CRG | Cooperative Republic of Guyana |
| CO2 | Carbon Dioxide  |
| DE | Department of Energy |
| EA | Executing Agency  |
| EC | Energy Conservation |
| EE | Energy Efficiency |
| ERR | Economic Rate of Return |
| GEA | Guyana Energy Agency |
| GHG  | Greenhouse Gases |
| GPL | Guyana Power and Light Inc. |
| GoG | Government of Guyana |
| HECI | Hinterland Electrification Company Inc. |
| IDB | Inter-American Development Bank |
| INE/ENE | Energy Division  |
| kWh | Kilo-watt hour |
| MoF | Ministry of Finance |
| MoPI | Ministry of Public Infrastructure |
| M&E | Monitoring and Evaluation Plan |
| M&V | Measurement and Verification  |
| MW | Megawatt |
| O&G | Oil and Gas |
| PCU | Project Coordination Unit |
| PCR | Project Completion Report |
| PMR | Progress Monitoring Report |
| POM | Project Operational Manual |
| PV | Photovoltaic  |
| RE | Renewable Energy |
| ToR | Terms of Reference |

# Introduction

* 1. This document presents the Monitoring and Evaluation Plan for Strengthening the Energy Sector in Guyana (‘the Program’). The purpose of this document is to establish the framework, processes, and institutional arrangements that will be used to monitor and evaluate the Program.
	2. The general objective is to support the strengthening and sustainability of the energy sector in Guyana by contributing to the development of the Oil and Gas (O&G) sector and the development of cleaner energy sources for electricity generation. The specific objectives are to: (i) develop a management and planning framework for the O&G sector; and (ii) contribute towards the development of the policy framework to diversify the electricity generation matrix.
	3. The expected results are: (i) management and planning framework for the O&G sector improved; (ii) improvement in the policy framework to diversify the electricity framework; and (iii) improved planning framework for the diversification of the electricity generation matrix. The program has the impact of reduction in dependency on imports of fossil fuels for electricity generation.
	4. The total investment of the Program will be US$11.640 million, and it will consist of the following components: **Component I. Macroeconomic stability.** This component will focus on consistency within the macroeconomic environment, in line with the Program’s objectives, and will provide ongoing monitoring to ensure alignment with the policy matrix and the policy letter for the sector.
	5. **Component II. Establishment of a governance structure for the O&G sector.** This component seeks to improve the management and standard mechanisms to safeguard the adequate development and operationalization of the O&G sector. This includes the strengthening of O&G governance with the establishment and operation of the DE, within the Ministry of the Presidency, to be responsible for all matters relating to the governance and development of the O&G sector. The component supports the DE in designing actions to build the O&G institutional framework, the drafting of a model contract for future PSAs, the building of a PSA economic modelling toolkit, the development of contract administration procedures and protocols, and the preparation of a hydrocarbon resources depletion policy.
	6. **Component III. Policies for sustainable electricity generation.** This component will strengthen the electricity sector to achieve a more sustainable energy generation matrix in terms of economic, environmental, and technical aspects that will satisfy the growing demand. The Component will support the design and implementation of policies and studies that aim to foster and promote the development of new cleaner energy sources into the electricity generation matrix while Guyana optimizes the use of indigenous natural resources to develop alternative combinations of electricity generation technologies for new capacity additions and replacement of existing polluting turbines. The Component will also support the development and approval of a practical national grid code for a stronger and more reliable energy system.
	7. The borrower of this loan will be the Cooperative Republic of Guyana (CRG). To ensure compliance with the loan contract on administrative, fiduciary, monitoring and evaluation of the Program, the CRG will have as Executing Agency the Ministry of Finance (MoF). That ministry will conduct periodical analysis and monitoring meetings to coordinate with the MoPI and the DE in order to fulfill the policy commitments and consolidate the activities. The Executing Agency, in coordination with MoPI and the DE will be responsible for: (i) the fulfillment of policy conditions; (ii) providing evidence that the agreed-upon policy conditions have been met as per the means of verification matrix; and (iii) compiling and providing information that will enable the Guyanese government and the Bank to measure and evaluate the program’s results.
	8. This Monitoring and Evaluation (M&E) Plan is organized in two main sections: (i) the **Monitoring** section that presents the indicators used to monitor the deliverable of Program’s outputs, assigns the responsibility for collecting data, defines the instruments used to monitor the Program, and establishes the work plan and budget for monitoring the Program; and (ii) **Evaluation** sectionthatpresents the main questions the Evaluation Plan addresses, mentions the studies that the Evaluation Plan builds upon, identifies the outcome and impact indicators used to evaluate the Program, and describes the methodology and instruments used to evaluate the results of the Program.

# Monitoring

* 1. The purpose of the monitoring activities is to describe the advances in the implementation of the Program, which will be monitored by tracking a set of indicators that measure performance in terms of project deliverables. The monitoring plan defines these indicators and establishes the process and institutional arrangements to monitor these. In particular, the monitoring plan describes the instruments and processes used to track these output indicators, defines the tasks, assigns responsibilities, and defines the necessary activities for preparing these instruments.
	2. There are two instruments to monitor and evaluate the objectives and results of the Program, which are: (i) the Policy Matrix, which also includes the means and verification descriptions; and (ii) the Results Matrix, which includes the output, outcomes and impact indicators.

## Policy Matrix.

* 1. Table 1 presents the Policy matrix indicators for the first and second tranches their respective means of verification.

**Table 1: Policy Matrix by Component**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Topic**  | **Objective**  | **Policy Measures** **Tranche I (2018)**  | **Means of Verification****Tranche I**  | **Policy Measures** **Tranche II (2019)**  | **Means of Verification** **Tranche II**  |
| **Component I. Macroeconomic stability**  |
| Macroeconomic Policy | To maintain a macroeconomic context that is consistent with the objectives as defined in the Policy Matrix | The Government of Guyana maintains a stable macroeconomic context consistent with the program’s goals and the policy matrix | A valid Independent Assessment of Macroeconomic Conditions (IAMC) at GoG disbursement request | The Government of Guyana maintains a stable macroeconomic context consistent with the program’s goals and the policy matrix | A valid Independent Assessment of Macroeconomic Conditions (IAMC) at GoG disbursement request |
| **Component II. Establishment of a governance structure for the O&G sector** |
| Structure of the O&G sector | To develop a management and planning framework for the O&G sector | 1. Creation of the Department of Energy (DE) within the Ministry of the Presidency to take over responsibilities related to the governance and development of the O&G sector | 1. Official communication/Letter from the Executing Agency attaching the Official Gazette (Extraordinary) of Guyana #120/2018 dated August 2nd, 2018 that established the creation of DE | 1. DE functions manual establishing its organizational structure, budget and staff allocation, approved by the Ministry of the Presidency | 1. Official communication/Letter from the EA attaching the resolution of the Ministry of the Presidency approving the DE’s functions manual and the copy of the referred manual |
| 2. Approval by the DE of the draft roadmap to develop Guyana’s O&G institutional framework. The roadmap will contribute to the decision making process that supports the deployment of key government entities responsible for managing Guyana’s O&G sector | 2. Official Communication/Letter from the EA attaching the approval of the draft of the Roadmap by the DE and the copy of the referred roadmap |
| 3. Design of a model contract for future Production Sharing Agreements (PSA) by the DE and presented to the Ministry of the Presidency. The model contract shall include key financial aspects, commercial discovery clauses, development and production arrangements, concession period, mandatory work program, management committees, valuation methods, production sharing, cost recovery, taxation, and royalties | 3. Official Communication/Letter from the EA presenting the model contract for future PSA to the Ministry of the Presidency.  The model contract must be included as an attachment to the official communication.  | 2. PSA set of protocols and mechanisms for contract management including: (i) administrative procedures; (ii) accounting, control and verifications processes; and (iii) certification guidelines are approved by the DE.  | 2. Official communication/Letter from the EA attaching the resolution of approval of the DE and the PSA set of protocols and mechanisms for contract management.  |
| 4. Design of a PSA economic modelling digital toolkit by the DE which will provide an economic model of the Stabroek PSA with the ability to conduct scenario analyses | 4. Official Communication/Letter from the EA attaching the Stabroek PSA economic modelling digital toolkit with the ability to conduct scenario planning analysis | 3. O&G depletion policy is designed by the DE and presented for approval to the Ministry of the Presidency. This policy will provide the basics to identify optimal production profiles | 3. Official communication/Letter from the EA attaching the O&G depletion policy presented to the Ministry of the Presidency for approval |
| **Component III. Policies for sustainable electricity generation** |
| Sustainable electricity generation | To contribute towards the development of the policy framework to diversify the electricity generation matrix | 5. Preparation of the study on the generation system expansion 2019-2035, for an integral development and diversification of the electricity generation matrix of the Demerara-Berbice Interconnected System (DBIS) by the MoPI | 5. Official communication from the EA attaching the study: “Update of the study on the system expansion of the Generation System 2019-2035” | 4. Policy document for the Diversification of the Electricity Generation Matrix under the DBIS is approved by the MoPI | 4. Official communication/Letter from the EA attaching the policy document including principles for the diversification of the electricity matrix and the national objectives of the electricity sector |
| 6. Elaboration of the Draft Policy Guidelines for the Diversification of the Electricity Generation Matrix under the DBIS by the MoPI | 6. Official communication from the EA attaching the Draft Policy Guidelines for the Diversification of the Electricity Generation Matrix under the DBIS |
| 7. Elaboration and presentation of the draft of National Grid Code by Guyana Power & Light Inc. to the GPL’s board of directors. The Draft Code document shall incorporate complementary or new technical, administrative and/or procedural actions in the areas of: planning, interconnection, operations, minimum technical requirements and metering | 7. Official communication from the EA confirming the presentation of the draft National Grid Code to the GPL’s Board for approval | 5. National Grid code is adopted by Guyana Power & Light Inc.   | 5. Official communication from the EA submitting the written approval of the Board of Directors duly approving the  National Grid Code |

## Data collection and instruments to monitor the indicators

* 1. The Government of Guyana and the IDB have agreed to organize meetings to monitor the overall achievement of the program execution. These meetings will be scheduled in common agreement between the parties. Considering this type of operation, data collection will be carried-out before each disbursement with the objective of reporting the achievement of the commitments and indicators mentioned in the Policy Matrix. It is the responsibility of the MoF – in collaboration with MoPI and DE – to submit in a timely manner to the IDB the achievement of the policy measures for tranche 1 and 2. This submission will be prepared in accordance with the Means of Verification conditions. The IDB will subsequently review these submissions before processing the disbursements according to the Bank’s internal process and procedures.
	2. The MoF will carry out data collection activities and the elaboration of policy commitments compliance reports for subsequent submission to the IDB. The activities of data review to be carried-out by the IDB have a budget provision of US$10,000, including meetings to monitor and revise achievement of the policy developments, and workshops for presenting the progress achieved in accordance with the Means of Verification conditions. This amount will use transactional budget.

# 3. Evaluation

* 1. Evaluation refers to a review of the program including the implementation process, program cost effectiveness, and the attainment of its impact and outcome indicators. The Evaluation Plan first defines what questions the indicators address, and then it describes the indicators that will be used to evaluate the results of the Program. It also explains the before and after evaluation methodology and the instruments that will be used to evaluate the Program. Lastly, it describes the institutional arrangements and work plan to carry out the Evaluation Plan.

## Main evaluation questions

* 1. The purpose of the evaluation is to assess the outcomes of the Project. The main evaluation questions are as follows:
* Has the GoG improved its management and planning framework for the O&G sector?
* Has the GoG prepared a roadmap to develop Guyana’s O&G institutional framework, and has the DE developed a functional manual establishing its mandates, organizational structure, budget and staff allocation defining its mandate?
* Has the DE developed proper instruments and toolkits to manage the exploration and production activities of the O&G sector, developed contract models for future PSAs (Production Sharing Agreement), or a set of protocols and mechanisms for PSA contract management, a PSA economic modelling toolkit, and O&G depletion policy?
* Does the GoG have a policy framework for the sustainable electricity generation, with activities such as the preparation of the study of the Expansion of the Generation System in accordance with the vision of using indigenous resources, the preparation and approved a draft policy guideline for the diversification of the electricity generation matrix, and the adoption by GPL of a national grid code?

## Existing knowledge (previous evaluations, ex-ante economic analysis)

* 1. This project took into consideration information gathered from previous studies and IDB operations and technical cooperation studies in Guyana. The IDB has been actively supporting GoG efforts to transform the energy sector through financing for several activities such as rural electrification, institutional strengthening, distribution network rehabilitation, and policy reforms. IDB support has included rural electrification and institutional strengthening (1103/SF-GY); legal, regulatory and institutional framework strengthening and implementation of sector policies (1938/BL-GY); network rehabilitation and loss reduction (2567/BL-GY, 3238/OC-GY,3239/BL-GY) and the development of RE (GRT/FM-13897-GY).
	2. The IDB is also helping to transform the O&G sector through financing institutional strengthening and policy reforms: (i) technical study for the use of natural gas for power generation (ATN/OC 16533-GY); and (ii) governance, transparency and accountability of the O&G sector (ATN/OC 16532-GY)
	3. In addition to the previous studies and operations noted above, an ex-ante economic analysis was performed for the Program GY-L1067 according to the Public Utilities Policy (PUP) methodology. The cost-benefit analysis (CBA) focusing on Component 3 confirmed the positive economic impact of the policy developments to ensure a sustainable electricity generation in Guyana. The CBA analysis indicated these policy developments lead to a 17% internal rate of return (IRR) and a positive net present value (NPV) in the economic analysis. A sensitivity analysis was also performed with variations (+/- 20%) on key parameters and confirmed the robustness of the analysis and the expected benefits. The document with the economic analysis can be found in [Analysis of Compliance with the Public Utilities Policy (PUP)](http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=EZSHARE-577981847-30)

## Key impact, results, and output indicators

* 1. Table 2 presents the impact, result, and output indicators for tranche 1 and 2 of this Program. It also includes the baseline values and means of verification for each indicator.

**Table 2. Impact, result, and output indicators**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Impact** | **Indicator** | **Unit of Measure** | **Baseline (2017)** | **Target (2024)** | **Means of Verification / Comments** |
| Reduction in dependency on imports of fossil fuels for electricity generation in the DBIS | liquid fuels imported barrels  | Barrels  | 1.017.220 | 305.000 | GPL’s reports on imports and use of fossil fuels for electricity generation  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Results** | **Indicators** | **Unit of Measure** | **Baseline (2017)** | **Target (2020)** | **Means of Verification / Comments** |
| **Component II. Establishment of a governance structure for the O&G sector** |
| Management and planning framework for the O&G sector improved | Sectoral plan to develop the O&G sector approved by the DE | Plan | 0 | 1 | Sectoral plan presented by the DE and shared with the IDBG. Sectoral plan will be in line with the proposals found in the approved roadmap to develop O&G management framework, which will define key government entities responsible for managing the sector |
| PSA economic modelling toolkit tested by the DE | Report | 0 | 1 | DE annual report and shared with the IDBG |
| Cost accounting rules based on PSA contract management protocols implemented | Report | 0 | 1 | DE annual report and shared with the IDBG |
| **Component III. Policies for sustainable electricity generation** |
| Improvement in the policy framework to diversify the electricity framework | National vision for the diversification of the electricity sector defined | Report | 0 | 1 | MoPI report on national objectives with the vision and objectives in line with the Policy guidelines and policy for the diversification of the electricity generation matrix |
| Improved planning framework for the diversification of the electricity generation matrix | National Grid Code for the electricity sector implemented by Guyana Power & Light | Report | 0 | 1 | GPL report on the use or the National Grid code covering the DBIS system |
| Scenarios for the diversification of the electricity generation matrix defined | Scenario report  | 0 | 3 | Scenarios report prepared and presented to the IDB by MoPI - The generation system expansion plan will provide different scenarios for the diversification of the electricity generation matrix considering several electricity demand growth-projections |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Output Indicators** | **Unit** | **Baseline** | **Target****Year 1** | **Target****Year 2** | **Means of Verification / Comments** |
| **Component II. Establishment of a governance structure for the O&G sector**  |
| 1. DE within the Ministry of the Presidency created under the Ministry of the Presidency
 | Department | 0 | 1 | - | 1. Official communication/Letter from the Executing Agency attaching the Official Gazette (Extraordinary) of Guyana #120/2018 dated August 2nd, 2018 that established the creation of DE
 |
| 1. Draft roadmap to develop Guyana’s O&G prepared
 | Draft Roadmap | 0 | 1 | - | 1. Official Communication/Letter from the Executing Agency attaching the approval by the DE of the draft roadmap and the copy of the referred roadmap
 |
| 1. A model contract for future Production Sharing Agreements (PSA) designed. by the DE and presented to the Ministry of the Presidency
 | Model Contract | 0 | 1 | - | 1. Official Communication/Letter from the Executing Agency presenting the model contract for future PSA to the Ministry of the Presidency.  The model contract must be included as an attachment to the official communication
 |
| 1. PSA economic modelling digital toolkit designed
 | Toolkit | 0 | 1 | - | 1. Official Communication/Letter from the Executing Agency attaching the Stabroek PSA economic modelling digital toolkit with the ability to conduct scenario planning analysis.
 |
| 1. Functions manual establishing its mandates, organizational scheme, budget and staff allocation, developed
 | Manual | 0 | 0 | 1 | 1. Official communication/Letter from the Executing Agency  attaching the resolution of the Ministry of the Presidency approving the DE’s functions manual and the copy of the referred manual.
 |
| 1. PSA set of protocols and mechanisms for contract management including: (i) administration procedures; (ii) accounting, control and verifications processes; and (iii) certifications guidelines, approved
 | Set of protocols | 0 | 0 | 1 | 1. Official communication/Letter from the Executing Agency attaching the resolution of approval of the DE and the PSA set of protocols and mechanisms for contract management.
 |
| 1. O&G depletion policy designed by the DE and presented for approval to the Ministry of the Presidency
 | Policy document | 0 | 0 | 1 | 1. Official communication/Letter from the Executing Agency attaching the O&G depletion policy document presented to the Ministry of the Presidency for approval.
 |
| **Component III. Policies for sustainable electricity generation**  |
| 1. Preparation of the study on the generation system expansion 2019-2035, developed
 |   | 0 | 1 | - | 1. Official communication from the Executing Agency attaching the study: “Update of the study on the system expansion of the Generation System 2019-2035”
 |
| 1. Draft Policy Guidelines for the Diversification of the Electricity Generation Matrix under the DBIS developed
 | Policy framework | 0 | 1 | - | 1. Official communication from the Executing Agency attaching the Draft Policy Guidelines document for the Diversification of the Electricity Generation Matrix under the DBIS
 |
| 1. Draft of the National Grid Code for the electricity sector in Guyana is developed and presented by Guyana Power & Light Inc. to the GPL’s board of directors
 | Document | 0 | 1 | - | 1. Official communication from the Executing Agency confirming the presentation of the draft National Code Grid document for the electricity sector in Guyana to the GPL’s Board for approval
 |
| 1. Policy document for the Diversification of the Electricity Generation Matrix under the DBIS is approved by the MoPI
 | Policy document | 0 | 0 | 1 | 1. Official communication/Letter from the Executing Agency attaching the policy document and approval by MoPI
 |
| 1. National Grid code is adopted by Guyana Power & Light Inc
 | Code | 0 | 0 | 1 | 1. Official communication from the Executing Agency submitting the written approval of the Board of Directors duly approving the National Grid Code
 |

## Evaluation methodology

* 1. The IDB will follow a before- and after. Specifically, for a group of indicators, the IDB will compare baseline values against the values after the Program is completed. This is the same methodology that is used for monitoring of outputs of the Program and the specific results are presented in the Policy Matrix. Also, in addition to the evaluation described in this section, the IDB Oversight Evaluation Office (OVE) may also separately evaluate the Program.

## Reporting evaluation results and technical aspects of the methodology

* 1. The MoF will be responsible for reporting to the IDB on the compliance of the Program’s policy commitments based on information collected. The MoF will collect, store, and retain all information to assist the IDB in evaluating performance of the Program. The MoF will be responsible for providing administrative records, statements, and reports, and will participate in the IDB’s field inspections if required.

**Final evaluation leading to the PCR**

* 1. Once the project execution is completed, the Bank will prepare a Project Completion Report (PCR) (OP-1242-3). The PCR is a record of an operation’s performance at the end of its execution phase, undertaken as a self-evaluation by the IDB’s unit responsible for the project. The PCR will be developed six months after the disbursement of the second tranche.
	2. The PCR is the Bank’s Management main instrument for documenting concrete results to its shareholders and disseminating the lessons of a project’s experience. The PCR is also a tool for accountability and learning. The accountability objective addresses the need for the Bank to ensure that the proceeds of the project are used for the purposes for which the project was granted, with due attention to effectiveness and efficiency. The learning objective aims to replicate successes and avoid mistakes in the future by providing lessons to guide the execution of ongoing projects and the design of future ones.

## Evaluation coordination, work plan and budget

* 1. The IDB in in coordination with MoF, –MoPI, DE and GPL– will be responsible for coordinating and carrying out the PCR, including: (i) gathering the necessary data and prior reports; (ii) if needed, hiring an independent consultant to process and analyze the data and prepare the report; and, (iii) overseeing the consultant’s work. The consultant would rely upon information from the monitoring program and related reports and will also require active cooperation and input from the relevant entities and the IDB project team.
	2. The IDB, through the Project Team Leader, is responsible for coordinating and assuring that the final PCR complies with all technical and quality requirements and are completed on schedule. The IDB will achieve this through periodic meetings with the EA in order to review progress and, if required, request monitoring reports or additional presentations of the results. The IDB will incur the costs of the preparation of the PCR, estimated at US$15,000 to be funded by the Bank’s transactional budget.