

TAPPING THE PROMISED LAND: GUYANA'S FUTURE AS AN OIL PRODUCER

GY-T1147

CERTIFICATION

I hereby certify that this operation was approved for financing under the **Ordinary Capital Strategic Development Program for Countries (CTY)** through a communication dated November 6, 2017 and signed by Nadine Schiavi (ORP/GCM). Also, I certify that resources from said fund are available for up to **US\$400,000** in order to finance the activities described and budgeted in this document. This certification reserves resource for the referenced project until December 13, 2017. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, represent a risk that will not be absorbed by the Fund.

Original version signed

Sonia M. Rivera

Chief

Grants and Co-Financing Management Unit
ORP/GCM

Dec 04, 2017

Date

Approved:

Original version signed

Jose Agustin Aguerre

Sector Manager

Infrastructure and Energy Sector
INE/INE

Dec 04, 2017

Date

GY-T1147 TC Document
Tapping the Promised Land: Guyana's Future as an Oil Producer

I. Basic Information for TC

▪ Country/Region:	Guyana
▪ TC Name:	Tapping the Promised Land: Guyana's Future as an Oil Producer
▪ TC Number:	GY-T1147
▪ Team Leader/Members:	Jose Luis Irigoyen (INE/INE), team leader; Jaime Sologuren (INE/ENE) alternate team leader; Lenin H. Balza, Carlos Sucre, Ramon Espinasa (INE/INE), Emily Brearley (CCB/CCB), Augusto Bonzi, Leopoldo Montanez, Virginia Snyder, Stephanie Suber (INE/ENE), Luca Marini (VPS/ESG), Margie-Lys Jaime Ramirez, Liza Lutz (LEG/SGO), team members.
▪ Indicate if: Operational Support, Client Support, or Research & Dissemination	Client Support (CS)
▪ If Operational Support TC, give number and name of Operation Supported by the TC:	
▪ Date of TC Abstract authorization:	November 2017
▪ Beneficiary:	Co-operative Republic of Guyana
▪ Executing Agency and contact name:	Inter-American Development Bank, through its Infrastructure and Energy Department
▪ Donors providing funding:	OC Strategic Development Program for Countries CTY
▪ IDB Funding Requested:	US\$ 400,000
▪ Local counterpart funding, if any:	N/A
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	December 2017
▪ Types of consultants (firm or individual consultants):	Firm and Individual consultants
▪ Prepared by Unit:	INE/INE
▪ Unit of Disbursement Responsibility:	INE/INE
▪ TC Included in Country Strategy (y/n):	N
▪ TC included in CPD (y/n):	N
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	(i) institutional capacity and rule of law (ii) climate change and environmental sustainability

II. Objectives and Justification of the TC

- 2.1 The objective of the technical cooperation is to: (i) support on-going efforts in Guyana towards designing and building a robust regulatory framework for the production of oil and gas, against the background of the recent off-shore discoveries; (ii) explore opportunities for the country to make the best use of its gas production for power generation, and thus contribute to improving energy security and sustainability by diversifying the energy matrix¹; and (iii) provide relevant knowledge transfer and capacity building, and support workforce development. This technical cooperation is complemented by its companion GY-T1148 and they are both coordinated by the Guyana Oil & Gas Working group led by CCB.
- 2.2 Since 2015 a consortium of three major international oil companies – ExxonMobil, Hess, and the China National Offshore Oil Corporation, held licenses to explore for oil in Guyana's Stabroek block, located about 210 miles off the country's coast.² In 2017 it was announced the discovery of several economically viable oil deposits within the block. The consortium found viable oil reservoirs after drilling four exploratory wells in the Liza field of Stabroek block (Liza 1, 2, 3, and 4) and two exploratory wells in the Payara reservoir (Payara-1 and Payara-2). Further exploratory wells (Snoek-1 and Turbot-1), drilled during 2017, were also successful. ExxonMobil estimates that the recoverable resources from the Stabroek block stand at around 2.25 to 2.75 billion oil-equivalent barrels.³ This would place Guyana among the 40 largest reserve-holders in the world.⁴
- 2.3 Project managers estimate that oil production will commence by 2020, at a level of around 120,000 barrels of oil per day,⁵ thus yielding a value of about US\$3 billion per year, equivalent to about 85% of the Guyanese Gross Domestic Product (GDP).⁶ The oil discovery has clear critical implications for the country's economic development. If handled well, it can boost the overall standard of living for the country. However, there is considerable work to be done so that Guyana can enjoy the benefits of its recent (and potential) oil wealth. Too many resource-rich countries have become or remained poor as a result of the resource curse, and currently the list of new oil and gas exporters includes some of the world's most fragile states (e.g. Liberia, Mozambique, Timor-Leste), making the downside risks especially high.
- 2.4 Given this new reality, there is an immediate need in Guyana to: (i) plan for the emergent oil and gas sector of the country's economy; (ii) establish clear norms, practices, and regulations – the rules of the game – in terms of natural resource management, as well as the development of mechanisms to manage sovereign wealth; and (iii) incorporate local capacity and trained workforce in the oil and gas sector, ahead of the start of production, in order to expand and multiply the benefits of the oil discovery for Guyanese society. The establishment of a strong independent regulatory body for the hydrocarbon industry that considers the

¹ As of December 2015, the Demerara - Berbice Interconnected System (DBIS) power generation installed capacity was 181.8 MW (164.9 MW available) distributed in 123.8 MW (114.9 MW available) in Demerara and 58.0 MW (50.0 MW available) in Berbice.

² The Stabroek block currently comprises 26,800 square kilometers. Esso Exploration and Production Guyana Limited is the operator and holds a 45 percent interest in the Stabroek block. Hess Guyana Exploration Ltd. holds a 30 percent interest, and CNOOC Nexen Petroleum Guyana Limited holds a 25 percent interest.

³ [ExxonMobil Guyana Project Overview](#)

⁴ [Energy Information Administration - Oil Reserves Data](#)

⁵ <http://news.exxonmobil.com/press-release/exxonmobil-makes-final-investment-decision-proceed-liza-oil-development-guyana>

⁶ This estimation is a back-of-the-envelope figure stemming from ExxonMobil's production projection and the Energy Information Administration's price forecast for West Texas Intermediate, the benchmark price for western Hemisphere oil production, published in October 2017 in its Annual Energy Outlook available [here](#).

current institutional capacity of Guyana and its government is therefore a priority for the country to properly and efficiently manage its natural resources.

- 2.5 Alongside oil discovered in the Stabroek block, several of the fields in the block have shown significant quantities of gas in the oil reservoirs. Upon commencement of oil production, this would yield to important associated gas that could be brought onto the Guyanese shore via pipeline, and then used for power generation. The Government of Guyana and ExxonMobil are currently finalizing a survey of this maritime pipeline, but preliminary analysis indicate that a pipeline of approximately 200km in length would be required to transport up to 145 Million Cubic Feet per Day (MCFD) that would supply a gas-fired powerplant of 200 megawatts (MW) of installed capacity.
- 2.6 Guyana currently generates more than 95% of its electricity using imported heavy-fuel oil (HFO) and diesel. Generating power from a gas-fired power plant, supplied by domestically produced natural gas would increase the security of its supply, reducing the exposure to the volatile international oil markets. This would also generate electricity in a more environmentally friendly fashion; since CO₂ emissions from gas-fired plants could be reduced by 30 percent approximately (compared to existing oil-based power plants). Furthermore, there are significant economic benefits to be gained, as the supplied gas would be substantially cheaper than imported oil products. A transition to natural gas-based electricity could potentially have a positive impact on the business sector and population through lower electricity tariffs and more reliable service.
- 2.7 The grid is run by the State utility company Guyana Power and Light (GPL) whose operations include generation, transmission and distribution. GPL's generation system is a mix of relatively old, high-speed reciprocating engines fuelled by Light Fuel Oil, and relatively new medium-speed reciprocating engines fuelled by HFO. In recent years the proportion of relatively new HFO units increased significantly, and their share now constitute the majority of GPL's system capacity at the Demerara-Berbice Interconnected System (DBIS).⁷ In 2014 a study was conducted on the opportunities to substitute both HFO and LFO with Liquefied Natural Gas (LNG) imports.⁸ The conclusion showed that LNG would be viable for Guyana based on certain cost scenarios.⁹
- 2.8 The installed generating capacity of DBIS is 181MW of which 123.8MW is distributed in Demerara and 58MW is distributed in Berbice. In addition, there is a 30MW biomass installed capacity in the country that uses sugarcane bagasse.¹⁰ However, this capacity is mostly used internally by the state-owned and operated Guyana Sugar Corporation Inc. (GuySuCo)'s Skeldon plant. GuySuCo also owns 10MW HFO engines, supported by a PPA with GPL. The country's market also includes

⁷ The Vreed en Hoop power plants in West Bank Demerara have potential for expansion in the near future. Guyana's Power

Generation System Expansion Study Executive Summary, prepared by Brugman SAS, 2016.

⁸ The 'Natural Gas in the Caribbean / Feasibility Studies' document was published in 2014 and then updated in 2015.

⁹ Guyana's NG prices were estimated as a netback from Henry Hub prices, the main natural gas market located near US

Gulf Coast, establishing the maximum upstream price that other regional exporting countries located near Guyana could

charge, while still remaining competitive with exports of LNG from the US Gulf Coast.

¹⁰ GuySuCo also operates the country's first ethanol plant, which was commissioned in August 2013, and uses sugarcane

molasses as a feedstock and is capable of producing 365,000 liters of ethanol per year.

independent power producers (IPPs), which must sell their electricity to GPL. These IPPs account for 33% of GPL's available generation capacity.¹¹ Guyana also has extensive hydropower potential estimated at 7,600MW, which by far exceeds its annual consumption and installed capacity.

- 2.9 The availability of associated gas from the recent offshore discoveries presents an important opportunity for Guyana to use its indigenous natural resources for power generation. Recent technological advances in steam and gas turbines have expanded the use of natural gas as an efficient, cost-effective and cleaner supply option for electricity generation, with flexible dispatch mechanisms for different type of consumption such as baseload or peak demand. Guyana's strong demand growth could be met with natural gas plants as these can be commissioned in a relatively short period of time, and when in operation, they complement and integrate well with renewable energy generation of hydro, solar or wind. Therefore, the Gas-to-Power initiative will contribute to diversify Guyana's electricity generation matrix and support the sustainable economic development of the country.
- 2.10 The activities envisaged in this technical cooperation directly respond with those outlined in the new IDB Group's Country Strategy with the Cooperative Republic of Guyana for 2017-2021. The strategy focuses on four areas covering natural resource management, sustainable energy, private sector development and public-sector management. One focus across these areas will be the effective management of new oil revenue and how this can be integrated with the Government's overarching Green State Strategy. The Government of Guyana and the IDB Group agreed on the following key interventions: (i) the establishment of a modern national strategy and planning framework; (ii) delivery of critical infrastructure; (iii) strengthening fiscal policies and the corresponding framework for optimal management of natural resource revenues; and, (iv) the creation of a results-driven public sector. The activities planned for this TC will contribute to all four intervention areas.
- 2.11 This project aligns with the Development Challenges and Cross Cutting Themes of the IDB Updated Institutional Strategy (UIS 2010-2020; AB-3008). It directly supports Institutional Capacity and the Rule of Law, by supporting activities to strengthen institutions and foster improved social and environmental governance and sustainability. The issue of Climate Change and Environmental Sustainability are also a central theme of the project, which aims to reduce the carbon emissions inherent in the production of hydrocarbons and mitigate emissions from power generation. The issue of gender will be mainstreamed in project components.

III. Description of activities/components and budget

- 3.1 **Component I – Institutional Strengthening for Oil & Gas Governance:** This component will finance three activities geared towards building the capacity of the Guyanese state to manage the oil & gas sector: (i) the creation of a strategic vision not just for energy, including the infrastructure needed for the oil and gas sector; (ii) a proposal for the structure of the regulatory framework for the oil and gas sector; (iii) an assessment of the

¹¹ The transmission system in DBIS is constituted by 276 km of 69 kV lines interconnecting 15 substations, from Skeldon (Berbice region) to Edinburgh Canoes (Demerara region) in a radial structure along the coastal area. The frequency of the electrical system in Guyana is 60 Hz. The whole transmission infrastructure belongs to GPL. (Guyana's Power Generation System Expansion Study Executive Summary, prepared by Brugman SAS, 2016).

potential economic impact of the natural gas value-chain on Guyana's development. The expected outcome is to strengthened the institutional capacity of the Guyanese state and oil and gas stakeholders.

- 3.2 Component II – Gas-to-Power Feasibility Analysis:** This component will finance a feasibility study to evaluate Guyana's gas to power options. The feasibility study will analyze the onshore pipeline (from gas plant to power plant), as well as the construction of a new power plant and/or the conversion of existing ones. It will also review the base-load versus peak-load electrical distribution/transmission systems, GPL operational issues, and electricity demand analysis. This analysis will require a solid understanding of the power sector in Guyana, regional considerations, and how the country's offshore gas could play a part in the country's electricity generation mix (considering possible renewables in the long term). In addition, the study will review best practices and lessons learned from other countries that have developed gas to power; outlining the commercial mechanisms and contract terms for the downstream activities. The study will also analyze options for construction and operation. The study will follow IDB Guidelines on HGH emissions of liquid and gaseous fossil fuel power plants. The expected outcome is to provide the decision makers of Guyana with high quality information in order for them to make educated decisions for the installation of a power plant in the country.
- 3.3 Component III – Knowledge Management and Inter-Institutional Coordination:** This component will support the activities related to dissemination of knowledge and the results of this technical cooperation among key government and stakeholders. This component will also help in the preparation of workshops and presentations to maximize GoG inter-institutional coordination. The expected outcome is to improve the GoG institutional coordination for the development of the sector in Guyana.

Indicative Budget

Component	Activity	IDB / Fund Funding (US\$)
Component I: Institutional Strengthening for Oil & Gas Governance	(i) Strategic Vision for the Energy Sector and Oil & Gas Associated Infrastructure	30,000
	(ii) Assessment of the Development and Economic Impact of the Natural Gas Value-Chain on Guyana	25,000
	(iii) Proposal for the Regulatory Framework of the Guyanese Oil & Gas Sector	25,000
Component II: Gas-to-Power Feasibility Analysis	Technical Study	280,000
Component III: Knowledge Management and Inter-Institutional Coordination	Workshop with key country stakeholders. Editing, translation, and outreach efforts.	40,000
Total		400,000

IV. Executing agency and execution structure

- 4.1** The Bank will act as the executing agency due to its ability to leverage its extensive network of internal and external subject-matter experts and well-established relationships with involved stakeholders.

- 4.2 The IDB will lead implementation, programmatic oversight of the different activities and coordinate results reporting with other organizations operating in the field.
- 4.3 The Bank will contract individual consultants, consulting firms and non-consulting services in accordance with the Bank's current procurement policies and procedures for Bank-executed operations: Recruitment of individual consultants AM-650; Contracting of consulting firms for services of an intellectual nature GN-2765-1 and its operational guidelines OP-1155-4; and Procurement of logistics services and purchase of goods GN-2303-20.

V. Major issues

- 5.1 While the Government has set forth an ambitious program to improve the capacity of the state to deliver better public services and critical infrastructure; international experience suggests that such change management processes are difficult due to institutional inertia, vested interests, and insufficient human capital. Mitigating associated political and implementation risks will require extensive and widespread consultation with GoG stakeholders. Noteworthy efforts will be undertaken jointly by the Authorities and the IDB Group to work closely with all stakeholders providing high quality support and technical backing on the activities.
- 5.2 The IDB team will draw from well-established and recognized best practices and methodologies, which will help avoid risks and address potential issues with sector data.

VI. Exceptions to Bank policy

- 6.1 None apply.

VII. Environmental and Social Strategy

- 7.1 As per the IDB Social and Environmental Safeguards Screening Tool, the project Classification is "C"; the project implementation has no associated potential negative environmental and/or social impacts. See Environment and Safeguards Compliance Policy (OP-703), [Safeguard Policy Filter Report](#) and [Safeguard Screening Form](#).

Required Annexes:

- [Request from the client](#)
- [Results Matrix](#)
- [Terms of Reference I](#)
- [Terms of Reference II](#)
- [Procurement Plan](#)