

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

SURINAME

SUPPORT FOR THE IMPLEMENTATION OF THE EBS INVESTMENT PLAN

(SU-L1039)

PROJECT PROFILE

The project team consisting of prepared this document: Carlos Echeverria (ENE/CGY) Team Leader; Malaika Masson; (INE/ENE) Alternate Team Leader; Roger Sallent (INE/ENE); Wilkferg Vanegas (INE/ENE); Haydemar Cova (INE/ENE); Paula Louis-Grant (FMP/CGY); Shirley Gayle (FMP/CTT); Steven Hofwijks (CCB/CSU); Maria Elisa Arango (LEG/SGO); Amarilis Netwall (VPS/ESG).

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SURINAME
Project Profile (PP)

I. BASIC PROJECT DATA

Project Name: Support for the Implementation of the EBS Investment Plan.
Project Number: SU-L1039.
Project Team: Carlos Echeverria (ENE/CGY) Team Leader; Malaika Masson (INE/ENE) Alternate Team Leader; Roger Sallent (INE/ENE); Wilkferg Vanegas (INE/ENE); Haydemar Cova (INE/ENE); Paula Louis-Grant (FMP/CGY); Shirley Gayle (FMP/CTT); Steven Hofwijks (CCB/CSU); Maria Elisa Arango (LEG/SGO); Amarilis Netwall (VPS/ESG); under the supervision of Alejandro Melandri, Energy Division Chief (a.i.) (INE/ENE) and Marco Nicola, Representative in Suriname (CCB/CSU).
Borrower: Republic of Suriname.
Executing Agency: *N.V. EnergieBedrijven Suriname* (EBS).
Amount and Source:

IDB:	US\$	40,000,000
Total:	US\$	40,000,000

Disbursement period: 72 months
Exceptions to Bank Policies and procedures: None
Environmental and Social Review: Classification “B”
Safeguards Policies Identified: OP-102, OP-703 (B.1, B.2, B.3, B.5, B.6, B.7, B.10)

II. GENERAL JUSTIFICATION AND OBJECTIVES

- 2.1 **Background.** Suriname is a small middle-income country of 163,820 square kilometers, with an estimated population of 541,683 concentrated in the coastal areas, and a sparsely populated interior that extends to the Amazon Rainforest (the Hinterlands). Indigenous and Maroon people are predominant in the Hinterlands, where over 200 villages can only be reached by boat or plane. The electrification level is estimated at 85 percent (%) with high coverage along the coast.
- 2.2 Suriname’s economy is driven by the mineral and energy sectors (gold, alumina and oil), which account for approximately 30% of the Gross Domestic Product (GDP) and is one of the few Caribbean countries to post positive growth during the last ten years. GDP growth, based mainly by continued buoyant commodity export prices, elevated Government spending and large capital investments in the mineral and energy sectors has averaged 4.4% since 2008.
- 2.3 The responsibility for energy policy and supervision of the energy sector lies with the Ministry of Natural Resources (MNH), which also supervises *N.V. EnergieBedrijven Suriname* (EBS), the state-owned utility company. EBS operates under a 50-year countrywide concession since 1973, covering transmission, distribution and commercialization of electricity.
- 2.4 The National Power System (NPS) consists of seven isolated power networks served by EBS. *Energievoorziening Paramaribo* (EPAR) is the largest network which serves around 126,000 customers in the Paramaribo area and surroundings, with peak demand of around 230-Megawatts (MW). EPAR has mainly depended

on power supply from the 189-MW *Afobaka* hydropower plant¹ but with increased electricity demand in recent decades, EBS has had to enter into purchase agreements with *Staatsolie*, the state oil company², and has also needed to generate electricity from Heavy Fuel Oil (HFO) and diesel in several power plants totaling 146.5-MW of installed capacity. The remaining six power networks served by EBS, with an approximate installed capacity of 38.5-MW of HFO-fired power plants, supply roughly 15,000 customers in the coastal zone.

- 2.5 In addition, in isolated and remote communities in the Hinterlands, where the NPS does not economically reach customers, about 130 villages are being intermittently served with small diesel generators by *Dienst Electrificatie Voorziening* (DEV, Department of Rural Energy of MNH) - the agency responsible for the rural electrification in the sparsely inhabited interior. The electricity service provision is designed for an average time of 6 hours per day, from 5:00 pm to 11:00 pm. Rural households are not charged for this service, as all the costs are absorbed by the Government of Suriname (GOS).
- 2.6 The electricity demand growth rate in Suriname is approximately 6% annually, and is a direct effect of economic development. Between 1970 and 2013 peak demand in the EPAR network rose from 22-MW to 230-MW and is expected to reach 500-MW by 2020. At the same time, the power sector has been characterized by power deficits, with a demand-supply gap for consumers in certain years, either because of inadequate power supply, distribution network constraints or because of the lack of investments resulting mostly from insufficient planning and funding.
- 2.7 Given these challenges, the GOS is assessing options to strengthen the institutional and regulatory framework and improve the financial situation of the power sector, in order to guarantee its sustainable long-term development. MNH initiated the process of preparing draft legislation to implement a new energy sector model, which considers: (i) creation of an energy authority responsible for providing technical support to MNH on long-term expansion planning, policy making, regulation and supervision of the power sector; (ii) introduction of a single-buyer model to procure the supply of electricity to meet demand under competitive bidding procedures; (iii) authorization of Independent Power Producers (IPP) to participate in competitive bids to develop new generation projects; (iv) unbundling of EBS into business units with separate accounts (generation, transmission and distribution); and (v) gradual adjustment of electricity tariffs to focalize subsidies on low income consumers, reducing transfers from the national treasury and providing sufficient revenue to EBS to cover efficient supply costs.

¹ Constructed in the 1960's by *Suralco* under the *Brokopondo Agreement* (1957) with the GOS, as a source of energy that made viable the development of a smelting facility and an alumina refinery near its bauxite sources. The agreement established that *Suralco* should supply 16-MW to GOS. When the smelter operation closed in 1999, a new agreement was signed to establish the conditions to increase supply up to 135-MW.

² *Staatsolie* recently increased its installed capacity to approximately 64-MW of Heavy Fuel Oil power plants in *Tuit Lui Faut* refinery, to support its crude oil processing operations and to sell electricity through Power Purchase Agreements (PPA) with the GOS.

- 2.8 **Sector Knowledge.** IDB is supporting Suriname's power sector through the Sustainable Energy Framework for Suriname (SEFS) which includes a Policy-Based Programmatic (PBP) Program consisting of three loan operations (SU-L1022, SU-L1035 and SU-L1036) which support reforms in the energy sector and the implementation of an institutional and regulatory framework. The first two PBL loans were approved and disbursed in 2012 and 2013 respectively, while the final operation is expected to be approved and disbursed in late 2014.
- 2.9 The Investment Grant SU-G1001, approved in 2013, contributes to the SEFS by promoting the use of non-conventional Renewable Energy (RE) and Energy Efficiency (EE) and promoting access to sustainable energy in the Hinterlands.
- 2.10 In November 2013, the IDB approved the Investment Loan SU-L1009 which contributes to the SEFS by: (i) helping to improve EBS' operation; (ii) improving the reliability and cost-effectiveness of energy supply in rural areas by expanding the network and incorporating non-conventional RE; and (iii) rehabilitating critical infrastructure required for the effective operation of the electricity system. The loan currently shows 16% disbursement and is expected to reach about 25% disbursement at the end of its first year of execution. IDB is also supporting the GOS with the Technical Cooperation (TC) SU-T1055, approved in 2013.
- 2.11 **Problem.** Although EBS' overall operational efficiency can be considered adequate at the Caribbean regional level - with total electricity losses of about 9% and high collection rates - the utility faces challenges to keep a reliable and sustainable electricity service considering the significant growth in energy demand over the coming years which, in turn, will impact EBS' operations and ability to deliver optimal service for its clients. Added to this is the pressure of maintaining an aged and weak transmission and distribution infrastructure in the NPS, which results in poor and unstable service to the end consumer and limits EBS' capacity to supply additional customers. With the expected increase in demand over the next few years, the design ratings of critical infrastructure will exceed its operative limits, posing a significant risk for the safe operation of NPS' power networks, while a reduction in quality of service will also hinder efforts to readjust tariffs.
- 2.12 On the operational side, the inadequacy of its existing systems limits EBS' ability to collect and provide relevant and accurate information that supports effective decision-making processes and compliance with its obligations. Concurrently, the proposed changes in the regulatory framework will impact EBS operations, requiring added efforts to successfully implement the internal unbundling process.
- 2.13 Furthermore, the current GOS rural electrification scheme limits the quality and consistency of the electricity service, leaving a large number of people with unreliable electricity supply in the Hinterlands. This subsidized service places substantial pressure on the Government's budget.
- 2.14 **Solution.** EBS requires support to implement its 2011-2020 Strategic Business Plan (SBP) in an integrated manner so that the utility is able to improve its corporate capabilities and delivers on its commitments to upgrade vital power infrastructure.

- 2.15 The proposed Investment Loan, (the Project), will support the implementation of EBS' SBP and will follow a consistent structure and scope as designed for the operation SU-L1009, currently in execution. The Project is aligned with SBP's strategic goals and will support the GOS by: (i) strengthening EBS' operational performance and supporting its transition to a new corporate structure; (ii) incorporating RE technologies in remote communities in the Hinterlands; and (iii) improving the reliability of EBS' electricity supply in the NPS.
- 2.16 The Project will also support the implementation of modern and integrated data collection and management systems to allow EBS to keep up with the functional requirements for business process automation, thereby improving EBS' capabilities in logistics, administration and customer-related services. Financing will be provided for critical transmission and distribution infrastructure to enable EBS to meet rapidly growing demand and facilitate the connection of future customers. The investments in rural electrification in particular, will provide some relief to the GOS budget which faces increasing costs to provide reliable electricity service in remote areas.
- 2.17 **IDB's Country Strategy for Suriname (CS).** The Project is consistent with the IDB Country Strategy for Suriname 2011-2015 (GN-2637-3), the overall objective of which is to support Suriname's reform agenda. The CS identified energy as one of its seven priority areas and the project is aligned with the following expected outcomes: (i) increased electricity coverage; (ii) increased financial sustainability of power supply for interior locations; and (iii) improved financial sustainability of EBS. The Project is included in the updated Operational Program Report for 2014 and is also aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth Strategy (GN-2710-5).
- 2.18 **Ninth General Capital Increase (GCI-9, AB-2764).** The Project is aligned with IDB's lending targets of: (i) supporting small and vulnerable countries; and (ii) lending to support climate change initiatives, renewable energy and environmental sustainability. The Project will contribute to the regional goal of increasing the percentage of households with electricity and to the output "km of electricity transmission and distribution lines installed or upgraded". The Program is in compliance with the IDB's Public Utility Policy (GN-2716-6).

III. PROJECT'S OBJECTIVE AND DESCRIPTION

- 3.1 **Project's goal and purpose.** The Project's objective is to contribute to the sustainability of the power sector by: (i) strengthening EBS' operational procedures and corporate performance; (ii) expanding reliable electricity coverage in the Hinterlands; and (iii) upgrading critical infrastructure in the NPS. The Project consists of the following components:
- 3.2 **Component I. Improvement of EBS' Operations.** Component I will support EBS' institutional and operational strengthening by: (i) implementing a Distribution/Outage Management System (DMS/OMS); (ii) financing the implementation of an Enterprise Resource Planning (ERP) platform; (iii) assisting EBS during the transition to the new unbundled corporate model in accordance

- with the new company vision; and (iv) implementing an energy education program to promote RE and EE targeted to secondary schools.
- 3.3 **Component II. Sustainable Rural Electrification.** Component II will promote the provision of reliable and continuous electricity service to selected rural communities in the Hinterlands by financing a hybrid RE/diesel system, which includes: (i) the installation of a solar photovoltaic plant; (ii) retrofitting of the existing power station; and (iii) upgrade of the current distribution grid.
- 3.4 **Component III. Critical Infrastructure.** Component III will contribute to the upgrade and retrofitting of NPS' critical infrastructure aiming to improve the reliability of the EPAR and Nickerie networks. Activities include: (i) upgrade of existing substations in the EPAR network; (ii) construction of new substations in the EPAR network; and (iii) upgrade of a power station in the Nickerie network.
- 3.5 The Project's activities will be supplemented by a loan in preparation by the *Agence Française de Développement* (AFD), expected to be approved in the first quarter of 2015.

IV. EXPECTED RESULTS

- 4.1 The expected results are: (i) improved performance and management efficiency of EBS and a well-designed corporate transition process; (ii) increased electricity coverage with new connections by EBS to households in rural areas; and (iii) a more reliable electricity system with reduced operation and maintenance costs.
- 4.2 The evaluation methodology to be designed will consider, at least, the following indicators: (i) percentage of the population with access to reliable electricity; and (ii) reduction in variable cost for electricity supplied at interior locations.

V. SAFEGUARDS AND FIDUCIARY SCREENING

- 5.1 **Environmental and Social Risks:** Based on available documentation, the Project has been classified as Category "B". Minor to moderate risks for potential environmental, social, health, safety and labor impacts are foreseen, which can be mitigated through the implementation of an Environmental and Social Management Plan (ESMP). An Environmental Social and Management Report (ESMR) will also be prepared. Further information, including a description of potential environmental and social risks and impacts, is provided in the Environmental and Social Strategy (ESS) in Annex III.
- 5.2 **Implementation Risks:** The main identified risks are: (i) lack of acceptance of electricity meters by rural customers; (ii) limited experience with the installation of RE projects; and (iii) lack of experience in the IDB's procurement procedures.

VI. RESOURCES AND TIMETABLE

- 6.1 The expected date for submission of the Project to the Board is November 26 2014. The required consultancy studies will be financed by SU-T1077. Annex V details the Project's schedule and estimated resources.

CONFIDENTIAL

¹ The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.

SAFEGUARD POLICY FILTER REPORT

PROJECT DETAILS	
IDB Sector	ENERGY-ENERGY SECTOR REHABILITATION AND EFFICIENCY
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Investment Checklist	Generic Checklist
Team Leader	Echeverria, Carlos Bladimir (carlosec@IADB.ORG)
Project Title	Support for the Implementation of the EBS Investment Plan
Project Number	SU-L1039
Safeguard Screening Assessor(s)	Netwall, Amarilis B. (amarilism@IADB.ORG)
Assessment Date	2014-07-15

SAFEGUARD POLICY FILTER RESULTS		
Type of Operation	Loan Operation	
Safeguard Policy Items Identified (Yes)	Potential disruption to people's livelihoods living in the project's area of influence (not limited to involuntary displacement, also see Resettlement Policy.)	(B.01) Resettlement Policy– OP-710
	Type of operation for which disaster risk is most likely to be low .	(B.01) Disaster Risk Management Policy– OP-704
	The Bank will make available to the public the relevant Project documents.	(B.01) Access to Information Policy– OP-102
	The operation is in compliance with environmental, specific women's rights, gender, and indigenous laws and regulations of the country where the operation is being implemented (including national obligations established under ratified Multilateral Environmental Agreements).	(B.02)
	The operation (including associated facilities) is screened and classified according to their potential environmental impacts.	(B.03)
	The Borrower/Executing Agency exhibits weak institutional capacity for managing environmental and social issues.	(B.04)
	An Environmental Assessment is required.	(B.05)
	Consultations with affected parties will be performed equitably and inclusively with the views of all stakeholders taken into account, including in particular: (a) equal participation of women and men,	(B.06)

	(b) socio-culturally appropriate participation of indigenous peoples and (c) mechanisms for equitable participation by vulnerable groups.	
	The Bank will monitor the executing agency/borrower's compliance with all safeguard requirements stipulated in the loan agreement and project operating or credit regulations.	(B.07)
	The operation has the potential to impact the environment and human health and safety from the production, procurement, use, and disposal of hazardous material, including organic and inorganic toxic substances, pesticides and Persistent Organic Pollutants (POPs).	(B.10)
	Suitable safeguard provisions for procurement of goods and services in Bank financed projects may be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.	(B.17)
Potential Safeguard Policy Items(?)	Potential to negatively affect Indigenous People (also see Indigenous Peoples Policy.).	(B.01) Indigenous People Policy– OP-765
	Does this project offer opportunities for indigenous peoples through its project components?	(B.01) Indigenous People Policy– OP-765
Recommended Action:	Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR.	
Additional Comments:		

ASSESSOR DETAILS

Name of person who completed screening:	Netwall, Amarilis B. (amarilism@IADB.ORG)
Title:	
Date:	2014-07-15

COMMENTS

No Comments



SAFEGUARD SCREENING FORM

PROJECT DETAILS	
IDB Sector	ENERGY-ENERGY SECTOR REHABILITATION AND EFFICIENCY
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Country	SURINAME
Project Status	
Investment Checklist	Generic Checklist
Team Leader	Echeverria, Carlos Bladimir (carlosec@IADB.ORG)
Project Title	Support for the Implementation of the EBS Investment Plan
Project Number	SU-L1039
Safeguard Screening Assessor(s)	Netwall, Amarilis B. (amarilisen@IADB.ORG)
Assessment Date	2014-07-15

PROJECT CLASSIFICATION SUMMARY		
Project Category: B	Override Rating:	Override Justification:
		Comments:
Conditions/ Recommendations	<ul style="list-style-type: none"> Category "B" operations require an environmental analysis (see Environment Policy Guideline: Directive B.5 for Environmental Analysis requirements). The Project Team must send to ESR the PP (or equivalent) containing the Environmental and Social Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) as well as the Safeguard Policy Filter and Safeguard Screening Form Reports. These operations will normally require an environmental and/or social impact analysis, according to, and focusing on, the specific issues identified in the screening process, and an environmental and social management plan (ESMP). However, these operations should also establish safeguard, or monitoring requirements to address environmental and other risks (social, disaster, cultural, health and safety etc.) where necessary. 	

SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS	
Identified Impacts/Risks	Potential Solutions
The negative impacts from production, procurement and disposal of hazardous materials (excluding POPs unacceptable under the Stockholm Convention or toxic	Monitor hazardous materials use: The borrower should document risks relating to use of hazardous materials and prepare a hazardous material management plan that indicates how



pesticides) are minor and will comply with relevant national legislation, IDB requirements on hazardous material and all applicable International Standards.	hazardous materials will be managed (and community risks mitigated). This plan could be part of the ESMP.
Transport of hazardous materials (e.g. fuel) with minor to moderate potential to cause impacts on community health and safety.	Hazardous Materials Management: The borrower should be required develop a hazardous materials management plan; details of grievances and any independent health and safety audits undertaken during the year should also be provided. Compliance with the plan should be monitored and reported. Depending on the financial product, this information should be referenced in appropriate legal documentation (covenants, conditions of disbursement etc). Consider requirements for independent audits if there are concerns about commitment of borrower or potential outstanding community concerns.
Project construction activities are likely to lead to localized and temporary impacts (such as dust, noise, traffic etc) that will affect local communities and workers but these are minor to moderate in nature.	Construction: The borrower should demonstrate how the construction impacts will be mitigated. Appropriate management plans and procedures should be incorporated into the ESMP. Review of implementation as well as reporting on the plan should be part of the legal documentation (covenants, conditions of disbursement, etc).

DISASTER RISK SUMMARY

Disaster Risk Category: Low

Disaster/ Recommendations

- No specific disaster risk management measures are required.

ASSESSOR DETAILS

Name of person who completed screening: Netwall, Amarilis B. (amarilism@IADB.ORG)

Title:

Date: 2014-07-15

COMMENTS

No Comments

ENVIRONMENTAL AND SOCIAL STRATEGY

I. PROJECT DESCRIPTION

- 1.1 The project encompasses the electrification of several rural villages in the District of Sipaliwini (see Figure 1). Proposed works include: construction and commissioning of a 500 kW photovoltaic (PV) generation plant; upgrade of the existing power station via installation of a low voltage switchgear, transformer, and associated civil works; and upgrading of the current distribution grid according to NV EBS standards. The estimated area needed to develop the project consists of 20,000 m². Proposals for the exact location for the Solar Plant will be thoroughly evaluated during the Environmental and Social Due Diligence (ESDD).
- 1.2 The project also includes the upgrade and retrofitting of existing substations and the construction of new ones in the EPAR network, and the upgrade of an existing power station in the Nickerie network. The upgrades consist mainly of the installation of transformers, switchgears, and other equipment, the replacement and installation of power cables, and associated civil works. The proposed upgrades are specified in Table 1 and their locations identified in Figures 2 and 3 below.

Figure 1. Proposed Project Location for Solar PV



Figure 2. General Location of EPAR and Nickerie Upgrades

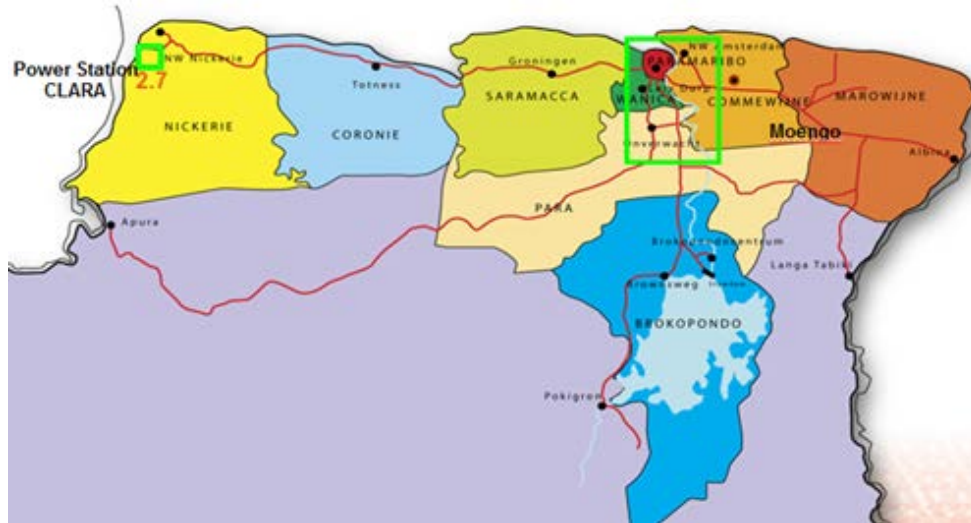
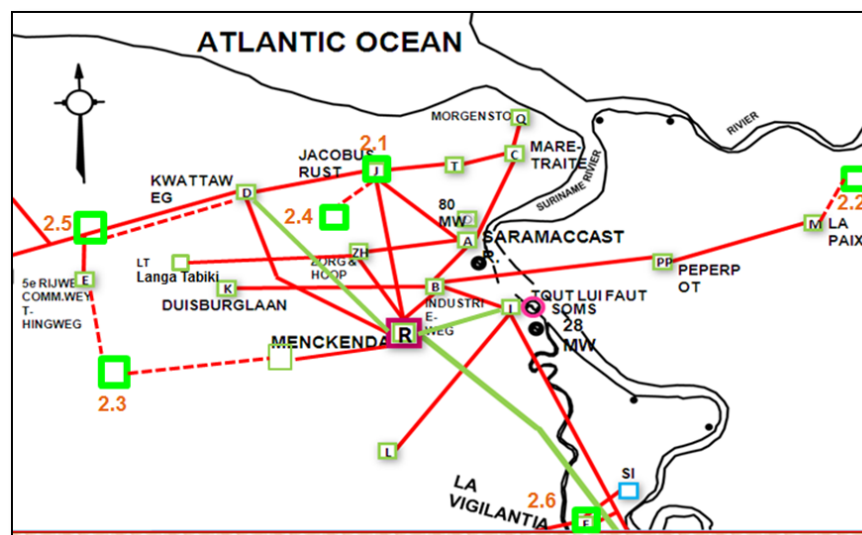


Figure 3. Distribution of Substations in the EPAR network



II. INSTITUTIONAL AND REGULATORY CONTEXT

- 2.1 The legal framework for Environmental Impact Assessments (EIA) in Suriname is currently under development.¹ Environmental management and protection are the responsibility of the National Council for the Environment (NCE), the Ministry of Labour Technological Development and Environment (ATM) and the National Institute for Environment and Development in Suriname (NIMOS). NIMOS provides advice and guidance with respect to the scope of Environmental Assessments and reviews their implementation. The Ministry of Natural Resources

¹ Netherlands Commission for Environmental Assessment <http://www.eia.nl/en/countries/sa/suriname/>

- (MNH) has the responsibility for the management of natural resource exploitation and for energy policy and supervision of the energy sector. MNH also supervises EBS, the state-owned utility company. Isolated and remote communities in the Hinterlands are being intermittently served by DEV, the Department of Rural Energy of MNH, which is the agency responsible for the rural electrification in the sparsely inhabited interior.
- 2.2 An Environmental and Social Assessment (ESA) has not been prepared, but will be required, for this project. Therefore, this ESS is based on limited preliminary project information submitted by EBS. Compliance with national regulations and the status of environmental licenses for the project will be verified during the ESDD.
- 2.3 The Project triggers the following directives of IDB's OP-703 Environmental and Safeguards Policy: B.1, Bank Policies; B.2, Country Laws and Regulations; B.3, Screening and Classification; B.5, Environmental Assessment; B.6., Consultation; B.7, Supervision and Compliance; and B.10, Hazardous Materials. The OP-102, Disclosure of Information Policy also applies for this Project. Based on available documentation, it is not expected that OP-710 on Involuntary Resettlement will be triggered for this Project. However, the applicability of OP-710 will be thoroughly evaluated during the ESDD by: (i) examining any land lease / land use agreements or negotiations with the land owner(s) for the sites selected to develop the proposed works; (ii) the ability and willingness of new clients in rural communities to pay for new electricity services; and (iii) if there is a possibility of resettlement or economic displacement caused by the Project. Additionally, the applicability of OP-765 on Indigenous Peoples will also be evaluated during the ESDD to confirm that the project will not have adverse impacts on communities in the Hinterlands. Based on available information, the Project has been classified by the Bank as a Category B operation.

III. ENVIRONMENTAL AND SOCIAL SETTING

- 3.1 The Sipaliwini District comprises several villages located upstream of the Suriname River, accessible only by water, with a total area of 130,600 km², covering about 80% of the national territory, and an estimated population of 25,800 inhabitants.² The majority of the population consists of indigenous peoples (mainly Trio, Wajana and Ankoerio) and maroons. Their livelihoods consist of farming, mining, hunting, fishing, and logging.³ Electricity service is provided to the vil-

² Source: <http://www.visitsurinameonline.com/en/about/54>

³ *Ibid*

lages via a thermal power station, powered by diesel fuel, and electricity is distributed through a low voltage grid. High operational costs and a limited diesel supply result in limited hours of electricity service, approximately 6 hours per day.

- 3.2 The project will include upgrades to existing substations and the construction of 2 new ones. These works will take place in the greater area of Paramaribo and along several villages along the Districts of Commewijne, Marowijne, Nickerie, Wanica, and Para in areas of low to moderate population densities. According to the information reviewed, the majority of the sites selected are not located near vulnerable ecosystems or areas of significant archaeological value, with the exception of the Stolkerijver Substation located near the Commewijne River, in eastern Suriname. Table 1 contains information regarding each proposed upgrade and the corresponding environmental setting. Due to the limited information available, specific environmental and social conditions for each project site could not be evaluated. However, relevant information presented in the ESA will be carefully reviewed during the ESDD.

Table 1. Description⁴ of Proposed Upgrade Works and Environmental Setting

Proposed Project	Scope of Work	Environmental Setting
(2.1) Substation J, Central Paramaribo	<ul style="list-style-type: none"> ▪ Renovation of existing building ▪ Replacement of the existing 33kV and 6kV switchgear ▪ Replacement of oil-insulated cable, DC-charger and batteries and protection for all feeders and transformers ▪ Installation of new 25MVA power transformer to facilitate the dispatch of DDP2 ▪ Incorporate substation into the existing SCADA system 	Existing substation within Paramaribo located near a school, governmental building and a cemetery. There are no vulnerable ecosystems present in the area and or archeological artifacts to consider.
(2.6) Substation F, Para District	<ul style="list-style-type: none"> ▪ Installation of 25 MVA 33/12.6 kV transformer ▪ Installation of 33 kV GIS and 12.6 kV AIS switchgears ▪ Substation building, transformer foundation and fence 	Located in a rural area with a low population density. Already operated as an open air substation and owned by NV EBS.
(2.7) Power Station Clara, Nickerie District	<ul style="list-style-type: none"> ▪ Renovation of existing building ▪ Installation of new 12 kV and 33 kV switchgears ▪ 1 Transformer 25 MVA 33/12 kV ONAN with OLTC, to be used as step-up ▪ 1 GIS Switchgear 33 kV with 2 line bays and 1 transformer bay ▪ 1 Switchgear 12 kV with 1 outgoing feeders, 1 incoming feeder and 2 generator feeders and 1 auxiliary transformer feeder ▪ Civil works 	Not available.

⁴ Source: EBS Transmission Capital Project List for Second IDB Financing: Short description of the EBS transmission capital projects, April 2, 2014. Revision 01.

(2.4) Substation AZ, near AZ Hospital	<ul style="list-style-type: none"> ▪ New substation AZ ▪ Installation of 33 kV GIS single busbar Switchgear, installation of 6 kV AIS single busbar Switchgear, ▪ Installation of 160 kVA Auxiliary Transformer, installation of 25 MVA 33/6kV Transformer ▪ Integration into existing SCADA system and distribution infrastructure ▪ Construction of transmission cable connection from substation AZ to substation J and D 	<p>The substation will be situated in an urban area surrounded by houses, a school and a hospital. The area is now owned by NV EBS and a small electricity substation with a concrete fence has already been built. SS AZ is not located in environmental vulnerable ecosystems.</p>
(2.2) Substation Stolkersijver, Perika Village in Marowijne District	<ul style="list-style-type: none"> ▪ New substation at Stolkersijver ▪ Construction of transmission line including fiber optic cable between substation M and substation Stolkersijver ▪ Fiber Optic cable between substation PP, substation REU and substation M ▪ Upgrade distribution network at Perika and surroundings ▪ Construction of distribution line between substation Stolkersijver and Perika 	<p>The proposed station will be built along the East–West Connection Road. Stolkersijver is a rural area with a very low population density. In the past, the areas along Stolkersijver were agriculture plantations. There are no nature parks or protected areas within these areas. Archeological artifacts and cemeteries could be found within the Stolkersijver area.</p>
(2.3) Substation Boma, Wanica District	<ul style="list-style-type: none"> ▪ Survey on underground infrastructure between substation HL and the new substation BM, and between substation E and the new substation BM ▪ Cable laying (approx. 11 Km) of 3 x 1 x 33 kV 800 mm² XLPE between substation HL and new substation BM ▪ Cable laying (approx. 15 Km) of 3 x 1 x 33 kV 800 mm² XLPE between substation E and new substation BM ▪ Installation of 33 kV GIS single Switchgear (4 bays), installation of 12.6 kV AIS single Switchgear (8 bays), installation of 160 kVA Auxiliary Transformer, installation of 25 MVA 33/12.6kV Transformer ▪ Installation of Capacitor Bank ▪ Upgrade substation E (new 33kV building, switchgear (8-bays), protection and control) ▪ Civil works 	<p>To be erected in an area located at Peprepinweg, which is a rural area and well-populated along the Santa Boma road. There are already 12 kV distribution lines in the Boma area. This area is not located in environmental vulnerable ecosystems such as nature parks, nature reserves or groundwater resources.</p>
(2.5) Substation 5 de Rijweg	<ul style="list-style-type: none"> ▪ Installation GIS Switchgear, 33 kV ▪ High Voltage cable & accessories ▪ Relocation of 33kV overheadline between substation D and substation E (estimated length is 15 km) including connection to substation 5de Rijweg ▪ Civil works 	<p>There are already high voltage lines in that area. The existing 33kV transmission line (SS/D – SS/E) is going through parcels of land difficult to reach for maintenance and troubleshooting purposes. In some cases this line is going through the backyards of houses. The existing line will be replaced and installed along the along the public road known as the ‘ Noord Polder Dam’. It will be erected in an area located at ‘5e Rijweg’, which is a rural area and low population density. This area is not located in environmental vulnerable ecosystems such as nature parks, nature reserves or groundwater resources.</p>

IV. KEY POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

- 4.1 During the construction phase, potential environmental impacts and risks associated with solar power and rehabilitation / retrofitting projects are associated with the replacement of high voltage cables and equipment and general building activities. Main construction impacts and risks are: (i) vegetation loss; (ii) habitat disturbance; (iii) dust generation; (iv) increased heavy traffic; (v) noise; (vi) soil erosion; and (vii) occupational health and safety hazards for the workforce. Potential impacts of significance may include the risk of encountering archeological artifacts during excavation activities and the risk of temporarily affecting the livelihoods of communities.
- 4.2 Once in operation, main impacts and risk associated with the Project include: (i) wildlife collisions or contact with PV panels; (ii) land disturbance and conflict with existing land uses; (iii) community health and safety hazards; (vi) visual and aesthetic impacts; and (vii) risk of contamination from hazardous materials, for example polychlorinated biphenyls (PCBs), during equipment maintenance and decommissioning phase.
- 4.3 Particular attention will be given to the analysis of land rights in the areas selected for projects in Component II and Component III, in order to identify appropriate mitigating measures.
- 4.4 The ESDD will determine with more certainty the extent of anticipated project impacts. Based on available documentation, the significance of impacts should be minor to moderate. It is expected that the Borrower will apply mitigation measures that corresponds to best industry practices for the sector.

V. ENVIRONMENTAL AND SOCIAL DUE DILIGENCE STRATEGY

- 5.1 Based on the requirements outlined in IDB's OP-703 Environmental and Safeguards Compliance Policy, the Team proposes that Project be classified as a Category B.
- 5.2 The Bank will perform an ESDD in order to confirm that all of the Project's relevant impacts and risks have been, or will be, properly and adequately evaluated, and mitigated.
- 5.3 The ESDD will specifically address the following aspects:
- a. Review of the final site for the solar plant and relevant land acquisition needs to determine potential impacts on communities present in the area;

- b. Review of the ESA and determine if additional studies are required;
 - c. Evaluate any potential adverse impacts on terrestrial and semi-aquatic ecosystems and their respective habitats as a result of construction activities (e.g. land clearing, cable laying and removal);
 - d. Review of the Environmental and Social Management Plan (ESMP) to avoid, minimize, and mitigate potential impacts from hazardous materials during the rehabilitation, reuse, and decommissioning of equipment. The ESMP should contain a waste management plan in alignment with national regulations and international standards;
 - e. Assess potential adverse socio-economic impacts such as temporary loss of access or use of lands, the ability of new clients to pay for new electricity provision services, and any project-related impact on indigenous populations and evaluate the adequacy of proposed mitigation measures;
 - f. Assess on the adequacy and timely consultation and information dissemination process with affected parties of the current project;
 - g. Evaluate the implementation of a chance-find procedure;
 - h. An evaluation of project execution monitoring and supervision procedures to ensure proper implementation of environmental, social, health, safety and labor actions and requirements;
 - i. Assessment of the Project's compliance with all relevant laws and regulations of Suriname, and safeguards directives of the IDB's Environment and Safeguards Compliance Policy, and development of an Action Plan for the timely resolution of non-compliances. Issuance of the environmental license will be sought.
- 5.4 An Environmental and Social Management Report (ESMR) will be prepared by the Project Team as part of the environmental and social ESDD to analyze the management of the environmental and social aspects of the project.

SURINAME

SUPPORT FOR THE IMPLEMENTATION OF THE EBS INVESTMENT PLAN

SU-L1039

INDEX FOR PROPOSED SECTOR WORK

ISSUES	Description of works	Expected dates	References & hyper
			links to Technical files
Technical aspects	Component I - Project identification form (OMS -DMS)	Q2 2014	IDBDOCS # 38917385
	Component I - Project identification form (ERP)	Q2 2014	IDBDOCS # 38917390
	Component II - Project identification form (Installation of RE generation and upgrade of distribution grid for villages upstream of the Suriname river in the Sipaliwini district).	Q2 2014	IDBDOCS # 38917416
	Component III - Prioritized Eligible Projects	Q2 2014	IDBDOCS # 38917513
	Rapid Assessment and Gap Analysis Energy Sector Suriname	Q2 2014	IDBDOCS # 38752362
	ex ante Cost Benefit Analysis (CBA)	Q3 2014	
	Environmental and Social strategy (ESS)	Q3 2014	
	Updated Institutional Capacity Assessment System (ICAS)	Q3 2014	
Missions	Identification mission (Aide Memoire)	Q1 2014	IDBDOCS # 38871194
	Preparation mission	Q3 2014	
	Preparation mission	Q3 2014	
	Preparation mission	Q4 2015	

CONFIDENTIAL

¹ The information contained in this Annex is confidential and will not be disclosed. This is in accordance with the "Deliberative Information" exception referred to in paragraph 4.1 (g) of the Access to Information Policy (GN-1831-28) at the Inter-American Development Bank.