**Technical Cooperation Abstract**

# Basic project data

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| * Country/Region: | Caribbean Continental Countries (Guyana, French Guiana and Surinam) and Brazil. |
| * TC Name: | Pre-Feasibility Study for the Northern Arch Interconnection Project. |
| * TC Number: | RG-T2257 |
| * Team Leader/Members: | Sylvia Larrea (INE/ENE), Team Leader; Jesus Tejeda (INE/ENE); Alejandro Melandri (INE/ENE); Christiaan Gischler (INE/ENE); Malaika Culverwell (INE/ENE); Marco Aurelio Castro (INE/ENE); Olga Morales (INE/ENE); Laura Rojas (INE/ENE); Chris Sewell (INE/ENE); Yolanda Valle (INE/ENE); Matthew Shearer (INT/INT), Javier Jiménez (LEG/SGO); under the supervision of Leandro Alves, Chief (INE/ENE). |
| * Indicate if: Operational Support, Client Support, or Research & Dissemination. | Client Support |
| * If Operational Support TC, give number and name of Operation Supported by the TC: | n/a |
| * Reference to Request[[1]](#footnote-1): (IDB docs #) | n/a |
| * Date of TC Abstract: | November, 2012 |
| * Beneficiary (countries or entities which are the recipient of the technical assistance): | Caribbean Continental Countries and the Northern Brazil Region. |
| * Executing Agency and contact name | Inter-American Development Bank (IDB) through its Energy Division (INE/ENE) |
| * IDB Funding Requested: | US$1,900,000 |
| * Local counterpart funding, if any: | US$1,100,000 |
| * Disbursement period: | 36 months |
| * Required start date: | January, 2013 |
| * Types of consultants: | Firm and/or Individual Consultants |
| * Prepared by Unit: | INE/ENE |
| * Unit of Disbursement Responsibility: | INE |
| * Included in Country Strategy (y/n); * TC included in CPD (y/n): | No  No |
| * GCI-9 Sector Priority: | (i) Social policy for equity and productivity (priority area 1); (ii) Infrastructure for competitiveness and social welfare (priority area 2); (iii) Competitive regional and global international integration (priority area 4); and (iv) Protecting the environment, responding to climate change, renewable energy, and enhancing food security respectively (priority area 5). |

# Objective and Justification

The **general objective** of the Project “Pre-Feasibility Study for the Northern Arch Interconnection Project” (the Project or the Northern Arch Project) is to determine the feasibility, alternatives, risks and mitigation measures of hydroelectric energy generation and electricity transmission interconnection arch interconnecting the Caribbean Continental countries of Guyana, Surinam, and French Guiana and the Brazilian cities of *Boa Vista* (State of *Roraima*) and *Macapá* (State of *Amapa*) (the Northern Arch Countries).

The Project will assess the hydroelectric potential of Guyana and Suriname and finance the technical, regulatory, economic and environmental pre-feasibility studies for the Northern Arch electricity interconnection , seeking to increase the reliability of electricity supply to the region, to support economic growth, and to reduce dependence on thermal generation from fossil-fuels all while reducing CO2 emissions.

The **specific objectives** of the Project are: (i) to identify and evaluate hydroelectric potential of Guyana and Suriname (focusing on run-of-the-river technologies), and sustainable alternatives of the electrical interconnection of the Northern Arch Countries and Northern Brazil, the Northern Arch Project, taking into account possible environmental and social impacts and constraints; (ii) to suggest and identify various electricity generation and transmission line options and justify one of them to be developed towards the pre-feasibility study; and (iii) to present the scope of the pre-feasibility study for the suggested alternative.

**Justification**

The electricity supply systems in the Northern Arch Countries are isolated from each other and have several challenges in providing clean generation and reliable service. For instance, Guyana relies on imported fossil-fuels for electricity generation with old and costly thermal-based plants, and although the majority of Suriname’s electricity is delivered by *Afobaka* Hydroelectric Power plant, Suriname still relies on thermal-based plants during dry seasons. However, there is a significant potential for hydroelectric development in the Northern Arch Countries, which if interconnected, could improve the reliability of the systems, the economic development of the region, and reduce their dependence to fossil-fuels for electricity generation.

The Project is aligned with the IDB’s institutional priorities as outlined in the Ninth General Capital Increase in Resources for the IDB Report (GCI-9) which considers regional integration as a priority sector and consequently assigns a target funding for 2015 of 15%. The Project contributes to 4 of the 5 strategic priorities areas: (i) social policy for equity and productivity is enhanced by assessing the potential expansion of basic services and social safety nets to all members of the communities; (ii) infrastructure for competitiveness and social welfare, as the Project seeks to assess the benefits and necessary energy infrastructure of the Northern Arch Countries; (iii) competitive regional and global international integration is enhanced by the potential development of the Northern Arch Project; and (iv) protecting the environment, responding to climate change, renewable energy, and enhancing food security by promoting development of the electricity sector through renewable energy.

In addition, the Project supports the individual country strategies: In Guyana, by promoting strategic infrastructure investments and enhancing competitiveness (Pillars 1 and 2; GN-2503-1; Country Strategy 2008-2012); in Suriname, by enabling an energy sector which may be able to operate sustainably and use cost-effective technologies for supporting economic growth (Priority Area 2; GN-2637-3; Country Strategy 2011-2015); and in Brazil, improving the condition of the country’s infrastructure by contributing, expanding, recovering, improving and conserving electric power generating capacity and transmission system by using renewable and alternative energy sources (Strategic Objective 2, Priority Sector 3, Objective 1 and 2; GN-2662-1; Country Strategy 2012-2014).

# Description of activities

**Component I: Planning Study:** Component I will finance the following activities: (i) identifying the hydroelectric and other energy potential of each country; (ii) reviewing of the existing energy generation and transmission expansion plans including the potential energy transfers between the countries; (iii) reviewing existing planning, technical, economic, environmental, social studies and others about the Northern Arch; and (iv) analyzing the possible project development Projects for various alternatives on a 15 years horizon starting on 2013; the analysis will be taking into account risk analysis, regulatory, economic, political, environmental, social and technical constraints (i.e., security, reliability, voltage levels, etc.), or externalities that may rise in each case. A report with the studied alternatives and the preliminary recommendations for the continuation of the Northern Arch Project will be Component I’s deliverable, along with a presentation and discussed at the consultation workshops with the participation of all stakeholders.

**Component II: Pre-Feasibility Study:** Component II will finance the following activities: (i) identifying the best technologies for hydroelectric and other energy generation development; (ii) identifying and evaluating the best possible sustainable alternative for electric interconnection; (iii) estimating the investment, operation and maintenance costs; (iv) conducting a socio-environmental impact and risk analysis (including gender-gap analysis) of the issues associated with the implementation of identified solution; and (v) proposing the preliminary route of the transmission lines and substations sites, the preliminary lay-outs and the implementation schedule, that incorporates the socio-environmental constraints identified in item (iv). For component II a preliminary and a final report detailing the previous mentioned activities of the Project will be presented to all the stakeholders and discussed at the consultation workshops. The final product shall be drafted in a thorough, comprehensive and concise manner. It shall be used as a knowledge-based product and be in a publishable format in accordance with IDB standards. The final product will be published at the IDB and governmental websites after the consultation process is complete.

**Component III: Stakeholder Consultation at Pre-Feasibility Stage:** Component III will finance at least 3 consultation meetings/workshops that seek to communicate information to relevant stakeholders, at an early-stage in the decision making process to be able to incorporate their feedback in the planning and pre-feasibility study of the Northern Arch Project. The main consultation meetings are, but should not be limited to: (i) Consultation meeting for the discussion of the Planning Study (Component I); (ii) Consultation meeting for the discussion of the Pre-Feasibility Study (Component II); (iii) A final coordination meeting for the presentation of the final product, which should incorporate the recommendations agreed in meetings (i) and (ii).

The Project includes the hiring of a Project Manager who, together with the Energy Division of the IDB, will be in charge of disseminating all reports/products to all stakeholders for their review prior to each meeting.

# Budget in (US$)

**Table 1. Indicative Budget**

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| --- | --- | --- | --- | --- |
| **Activity/Component** | **Description** | **IDB/Fund Funding** | **Counterpart Funding** | **Total Funding** |
| **Comp I. Planning Study** | Production of work plan schedule and baseline reports | $750,000 | $ 450,000 | $ 1,200,000 |
| **Comp II. Scope of Pre-Feasibility Study** | (i) identify the best technologies for the hydroelectric and other energy generation project development (ii) identify and evaluate the possible sustainable alternatives for electric interconnection (iii) estimate the investment, operation and maintenance costs  (iv) propose the preliminary route, the preliminary lay-outs and the implementation schedule of the Northern Arch Project | $750,000 | $ 150,000 | $ 900,000 |
| **Component III. Stakeholder Consultation** | Outputs delivery, training and explanation among the parties | $60,000 | $ 225,000 | $ 285,000 |
| **Document expenses for manuals, reports, and publications** | Preparation of information, consultation and publication(s) | $160,000 | $90,000 | $ 285,000 |
| **Support to Project implementation, including Supervision and peer review** | Consultant(s) in charge of the supervision and peer review of the reports in Component I to III | $55,000 | $ 120,000 | $175,000 |
| **Monitoring and Evaluation** |  | $70,000 | $ 45,000 | $ 115,0000 |
| **Contingency** |  | $55,000 | $ 20,000 | $ 75,000 |
| **TOTAL** |  | **$1,900,000** | **$1,100,000** | **$3,000,000** |

# Executing agency and execution structure

Given the strategic objectives of the Project and its regional nature, the Project will be executed by the IDB through its Energy Division (INE/ENE). Additionally, considering the specificity of the subject and the need to ensure the dissemination of information to all stakeholders in the different countries, it is important for the the Project to count on the regional coordination of the IDB. The Energy Division Team of the IDB will be responsible for all aspects related to the results, monitoring and evaluation.

# Project Risks and issues

There are not major risks in the implementation of the Project. However, being a study involving several countries, the need for coordination and cooperation are stressed. To facilitate mitigate the coordination risk; Component III will establish a stakeholder consultation process to convey comments from all stakeholders. The Project Manager, together with the Energy Division of the IDB, will be in charge of channeling all comments and input from different entities and stakeholders.

# Environmental and Social Classification

There are no envisioned environmental or social risks associated with this operation. We expect a C classification.

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1. A copy of the Letter of Request, Projectming/Portfolio Review Mission Aide Memoire or Report requesting the TC should be submitted with the Abstract. [↑](#footnote-ref-1)