

TC Document

I. Basic Information for TC

▪ Country/Region:	HAITI
▪ TC Name:	Support to the sustainable operation of the Peligre Electric power system
▪ TC Number:	HA-T1300
▪ Team Leader/Members:	Vanegas Rico, Wilkferg (INE/ENE) Team Leader; Baron, Marie Edwige (CID/CHA); Centeno Lappas, Monica Clara Angelica (LEG/SGO); Gonzalez Vidales, Ana (VPC/FMP); Lafontant, Eugenie Regine (CID/CHA); Machado Lemus, Ziza (INE/ENE); Marquez Barroeta, Fidel (INE/ENE); Pascaline Sladden (INE/ENE); Sanabria, Angel (VPC/FMP) Edwige (CID/CHA); Centeno Lappas, Monica Clara Angelica (LEG/SGO); Gonzalez Vidales, Ana (VPC/FMP); Lafontant, Eugenie Regine (CID/CHA); Machado Lemus, Ziza (INE/ENE); Marquez Barroeta, Fidel (INE/ENE); Pascaline Sladden (INE/ENE); Sanabria, Angel (VPC/FMP) Edwige (CID/CHA); Centeno Lappas, Monica Clara Angelica (LEG/SGO); Gonzalez Vidales, Ana (VPC/FMP); Lafontant, Eugenie Regine (CID/CHA); Machado Lemus, Ziza (INE/ENE); Marquez Barroeta, Fidel (INE/ENE); Pascaline Sladden (INE/ENE); Sanabria, Angel (VPC/FMP)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	Does not apply
▪ Date of TC Abstract authorization:	10 Nov 2021
▪ Beneficiary:	Republic of Haiti
▪ Executing Agency and contact name:	Ministere De L'Economie Et Des Finances
▪ Donors providing funding:	OC Strategic Development Program for Countries(CTY)
▪ IDB Funding Requested:	US\$1,317,764.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement and Execution period:	24 months (execution); 24 months (disbursements)
▪ Required start date:	January 2022
▪ Types of consultants:	Individuals and Firms
▪ Prepared by Unit:	INE/ENE-Energy
▪ Unit of Disbursement Responsibility:	CID/CHA-Country Office Haiti
▪ TC aligned with Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Environmental sustainability; Institutional capacity and rule of law; Social inclusion and equality

II. Objectives and Justification

- 2.1 The general objective of this operation is to support the Government of Haiti in the sustainable operation of the Peligre power system by providing technical expertise in the operation of the power plant and assessing the status of its generation units.
- 2.2 Haiti is a Caribbean country located on the eastern part of the island of Hispaniola, a territory it shares with the Dominican Republic, with a population of approximately 11.3 million people (2019). Its Gross Domestic Product (GDP) per capita has decreased in 2019 from US\$870 to US\$782.8. Although social and economic indicators have improved over the last decade, Haiti's Human Development Index (HDI), at 0.51, is below the average for Latin America and the Caribbean (LAC) (0.76).

Food insecurity affects 39% of population (4.4 million people) and informal urban settlements are precariously built; lacking security and access to basic services, including electricity, sanitation, and healthcare (2020)¹. The recent increase of insecurity and the constant political instability will not help the country improve its population's living conditions and basic access.

- 2.3 Haiti's energy landscape is characterized by: (i) low level of electricity access and consumption; and (ii) heavy dependence on fossil fuels and biomass. Electricity coverage in the country is around 40%.² High capital costs and among the highest electricity tariff in the LAC region (US\$0.33/kWh for residential customers)³ partly explain the low electrification rate.⁴
- 2.4 Electricity generation, transmission and distribution in Haiti has historically been the realm of Électricité d'Haïti (EDH), a vertically integrated utility founded in 1971. EDH responds to the Ministry of Public Works, Transport and Communication (MTPTC), which is the responsible authority for planning and supervision of the energy sector. EDH owns and operates sector assets and is responsible for electricity delivery and sales throughout the country. A decree issued in February 2016 ended EDH's monopoly and created the Autorité Nationale de Régulation du Secteur de l'Energie (ANARSE). ANARSE was established in 2017 as Haiti's energy sector regulatory agency. The Decree also allows parties other than EDH to operate in generation, transmission, and distribution. EDH's electricity service primarily covers the Port-au-Prince (PAP) metropolitan area, ten small regional grids plus about 30 village-level grids. EDH owns approximately 1,700 km of transmission and distribution lines across the entire country. EDH has a formal customer base of only 250,000 connections, although informal connections are presumably twice as high. Along with political instability, economic setbacks, and natural disasters (i.e., hurricanes, earthquakes) striking the country, investment in infrastructure expansion has been inadequate to match the latent demand.
- 2.5 To address Haiti's transmission sector problem caused by outdated performance and lack of reliable power, IDB approved in 2014 a program for the rehabilitation of the 115kV Peligre transmission line (HA-L1100 and HA-G1030). The 115-kV transmission is the only link connecting the Renewable Energy (RE) from hydropower plant to PAP. A separate program "Rehabilitation of the Peligre Hydro Power Plant" (HA-L1032 and HA-L1038) was approved by the Bank to refurbish the Peligre Hydro Power plant's three 18-MW units⁵. These programs were part of a broader effort by the Bank to improve the electricity infrastructure service of Port-au-Prince including operations such as the Technical Cooperation HA-T1040 "Support for Port-au-Prince Electrical Distribution Rehabilitation Program" and operation HA-L1014 and HA-L1035 "Rehabilitation of the Electricity Distribution System in Port-au-Prince" (approved in 2006 and 2010 respectively).⁶ It is expected that the rehabilitation of this infrastructure

¹ Source: World Food Programme.

² [Energy Hub](#); [World Bank](#).

³ [National Renewable Energy Laboratory \(NREL\) of the Energy Department of the United States](#).

⁴ Average tariff in Haiti resulting from private mini-grid ranges between US\$80c and US\$2. The CEAC cooperative currently offers a tariff at US\$25c).

⁵ Operation 1296/OP-HA (Peligre Hydroelectric Plant Rehabilitation Program) and HA-L1038 (Supplementary Financing for the Peligre Hydroelectric Plant) were approved in 2008 and 2011.

⁶ The Executing Agency is the MTPTC with the technical assistance of EDH. A dedicated *Unité de Coordination de Projet* (UCP) that reports to the MTPTC was responsible for the fiduciary and financial aspects.

will allow EDH to generate and distribute over 200 GWh/year with annual revenues of about US\$30,000,000.

- 2.6 The Rehabilitation of the transmission line (T/L) was completed in October 2019. The program included the rehabilitation of a 42-km T/L above ground and 9.6-km underground⁷. Specifically, the Peligre Transmission Line program consists in the rehabilitation of two circuits (above ground and underground) with a transfer capacity of 160MVA for both circuits operating together, thereby allowing up to 80MW of generation capacity to be transmitted in the event that one of the circuits breaks down or is not operational (n-1 reliability requirement as requested by EDH). Although 54MW capacity of the Peligre Hydro Power Plant (PHP) represents 67.5% of total capacity (80MW), GOH has the expectation to add further renewable energy to feed into the Peligre T/L, eventually reaching 80MW. Project activities also included the implementation of compensation and resettlement plan for people affected by the program. Due to COVID-19 and periods of social unrest in the country between 2019 and 2021, the implementation of this plan has experienced some delays and its implementation status needs to be reassessed.⁸
- 2.7 The PHP program consists of the rehabilitation of electromechanical and energy transformation elements of the power plant in three production units to reach their initial total generation capacity of 54MW. The program costs are approximately US\$100 million financed by the KfW Development Bank and IDB resources in the form of grants and by two OFID loans⁹. The contract with the construction firm is executed 99%. The remaining activities of the contract include the finalization of the line charging works, strategic paint touch-ups, the completion of the works and installation of the settling pond (water/oil), the resolution of the crack opening of the water intake valves. The three generation groups came gradually into operation between 2016 and 2018, however, two major anomalies occurred: one on the stator shaft seal of Group 3 (G3) in January 2019, and one on electrical issue inside the wheel-alternator assembly of Group 1 (G1) in April 2020. The repairs were not carried out immediately by the constructor since it demobilized in April 2019, claiming disagreement on payments. During the first quarter of 2020, EDH and the constructor reached an agreement for its return to the country. Due to unrest period in Haiti and COVID-19 global crisis, the firm returned to Haiti in August 2020. As of today, G3 is repaired and fully operational, while for G1, the cause and level of the anomaly need to be evaluated. During the evaluation of G1, it is expected at the same time to put in operation G1 as well as to identify the level of long-term repairs.

⁷ The underground section was selected to reduce environmental and social risks by minimizing the need for resettlement of people.

⁸ Operation HA-L1100's last disbursement expiration date was December 31, 2019, while the Final Compensation and Resettlement Plan was delivered mid-2018. This situation plus the increases in project costs due to price revision made not possible to complete the implementation of the Compensation Plan under operation HA-L1100. In addition, the executing agency was following local regulation for the payment of compensation that establishes a retention on each payment. To resolve this situation, IDB asked the MEF to instruct the executing agency to pay 100% of the amount of the compensations according to IDB safeguards policies.

⁹ OFID's operation 1681/OP-HA expired on December 31st, 2019, with a Balance of US\$3.2 million. OFID rejected MEF's request to extend the operation until July 2022, to have the resources to cover the last activities under the contract with the constructor of the PHP, the compensation plan for Peligre T/L and the shadow management contract. Due to this situation, the GOH requested IDB for additional resources to cover these needs. IDB and MEF agreed on May 2020 to allocate resources from the operation HA-G1022; however, this operation expired on March 4th, 2021.

- 2.8 Other additional needs for EDH and the PHP include: (i) short and medium-term technical expertise support to accompany and strengthen EDH in the operation and maintenance of the PHP¹⁰; (ii) provision of tools for the proper operation and maintenance of the PHP; (iii) acquisition of spare parts for the PHP to avoid groups to be stopped for a longer period; (iv) definition of the priority measures to control sedimentation and preparation of an implementation plan¹¹; (v) assessment of the penstocks and leaking bottom outlet valves; and (vi) support EDH to assess and identify different alternatives to improve its performance and power plant sustainability.¹²
- 2.9 It is in this context, the Government of Haiti requested technical assistance from the Bank to support EDH in the operation and maintenance of the PHP, assess the status of the PHP's generation group 1, and accompany the implementation of the compensation plan of the Transmission line of Peligre.
- 2.10 **IDB experience and knowledge of Haiti's energy sector.** The IDB has been a key partner for the GoH to finance the repair of damaged infrastructure after the 2010 earthquake and hurricane Matthews and has supported the reform and transformation of the sector through several investment: (i) GRT/HR-14830, 3413/GR-HA "Rehabilitation of Peligre Transmission Line" and GRT/HR-12410-HA "¹³Financial Support for the Reinforcement of Transmission Lines and Road Infrastructure Rehabilitation. Proposed third amendment to Resolution DE 175/10" (US\$29.2 million), (ii) 2073/GR-HA "Péligre Hydroelectric Plant Rehabilitation Program", 2684/GR-HA "Supplementary Financing for the Peligre Hydroelectric Plant" (US\$32.5 million)¹⁴, 2394/GR-HA and 2349/GR-HA "Rehabilitation of the Electricity Distribution System in Port-au-Prince" (US\$29.5 million), GEF-funded operation GRT/FM-12093-HA " GEF Emergency Program for Solar Power Generation and Lighting" (US\$0.5 million) and the GRT/MC-12067-HA Sustainable Energy and Climate Change Initiative project " SECCI: Emergency Program for Solar Generation" (US\$1 million) and budgetary operations: GRT/HR-13877-HA and 2953/GR-HA "Institutional Transformation and Modernization of the Energy Sector III" (2013, US\$25 million), 2735/GR-HA "Institutional Transformation and Modernization Program of the Energy Sector II" (2010, US\$12- million), 2548/GR-HA " Institutional Transformation and Modernization Program of the Energy Sector I" (2011, US\$35million) and ATN/SF-12271-HA (2010, US\$0.1 million) "Towards a Sustainable Energy Sector Haiti White Paper". More recently the Bank approved operations 4900/GR-HA (US\$ 31.5 million) and GRT/CF-17708-HA (US\$ 6.5 million from USAID) "Improving Electricity Access in Haiti".

¹⁰ EDH has an ongoing contract with Andritz to provide support in the O&M of PHP with an expiration date in June 2022.

¹¹ Studies with recommendation on sedimentation have been prepared considering a wide range of alternatives to address it such as (i) reduction of pluvial erosion; (ii) construction of containing structures; (iii) sediment routing and hydraulic flushing; and (iv) dredging, raising the dam, etc.

¹² On Feb 2021, the GOH requested IDB's support in the identification of alternatives and strategies to improve EDH's performance. The areas of support requested by EDH includes: (i) EDH's restructure with emphasis in the commercial department; (ii) alternatives for the implementation of a prepaid meters program through a private operator; (iii) improvement of billing and collection rates using new technologies; (iv) alternatives for outsourcing the O&M of critical assets such the Peligre Hydro Power Plant; (v) review of EDH's organic law, manuals, procedures and regulations; and (vi) review EDH organizational structure.

¹³ The program has additional resources from KFW (BMZ 2009 67 232 - 28 million EUR) and OFID (1296/OP-HA - US\$15 million and 1681/OP-HA – US\$ 20.4 million).

- 2.11 **Strategic Alignment.** This operation is aligned with the Bank's Updated Institutional Strategy 2020-2023 (AB-3190-2), with regards to development challenges of: (i) Social Inclusion and Equality, through the provision of a better basic service (electricity), which is essential to achieve inclusive development and close inequality gaps; and (ii) Institutional capacity and rule of law by strengthening EDH's capacities for the Operation and Maintenance of critical assets such as the Peligre Hydro Power Plant. The operation is also aligned with the cross-cutting area of climate change and environmental sustainability by reducing Green House Gas emissions from the electricity generation in Haiti's energy matrix. The operation is aligned with the Corporate Results Framework (CRF) 2020-2023 (GN 2727-12) through greenhouse gas emission avoided and with the Strategy for Sustainable Infrastructure for Competitiveness and Inclusive Growth (GN-2710-5). It is also in line with IDB Integrated Strategy for Mitigation and Adaptation to Climate Change and Sustainable Energy by supporting modern and sustainable decentralized solutions, and with the objective of the IDB's Ordinary Capital Strategic Development Program for Countries by strengthening the technical and managerial capacities of EDH to operate the PHP. The Program is aligned with the Energy Sector Framework (GN-2830-8) as it focuses on the deployment of RE solutions. The operation is consistent with the IDBG Country Strategy (CS) with Haiti 2017-2021 (GN-2904) which includes energy as an area of dialogue. The operation will also contribute to the overarching strategic objectives of the CS, to foster inclusive and sustainable growth by supporting GoH's goals of expanding and sustaining private and public investment and enhancing access to basic public services.

III. Description of activities/components and budget

- 3.1 **Component I: Support to the completion of the rehabilitation and sustainable operation of the Peligre System (US\$1,182,764).** This component will finance: (i) services to assess the damage of G1, perform an emergency repair of G1 and identify alternatives for its long-term repair¹⁴; (ii) technical expertise to EDH through the continuation of the shadow management contract to support and strengthen EDH in the operation and maintenance of the PHP¹⁵. This support will be provided through a continuation of the existing contract between EDH and Andritz to support EDH in the O&M of the PHP; (iii) assessment of the status of the compensation and resettlement plan of the Peligre T/L and support to its implementation.
- 3.2 **Project management (US\$135,000).** Project management costs include hiring a project coordinator during the execution of the TC and the preparation of financial audits and final evaluation.
- 3.3 The total cost of this project is US\$1,317,764 and will be financed by the OC Strategic Development Program for Countries (CTY).

¹⁴ This activity could be performed by the General Electric (GE) through a Single Source Selection (SSS) process or an international competitive process. This process will follow an IDB's ex-ante review process.

¹⁵ Andritz was selected through an international competitive process carried out in 2019 following IDB's procurement policies. This TC covers the remaining duration of the existing contract.

Indicative Budget (US\$)¹⁶

Component	Description	IDB/CTY	Local counterpart	Total
Component I. Support to the completion of the rehabilitation and sustainable operation of the Peligre System	Assessment of the damage of generation group 1 and alternatives for its repair	300,000	0	300,000
	Shadow management contract to support and strengthen EDH in the operation and maintenance of the PHP	872,764	0	872,764
	Assessment of the status of the compensation and resettlement plan of the Peligre T/L	10,000	0	10,000
Project management	Final evaluation, financial audit and EA costs	135,000	0	135,000
TOTAL		1,317,764	0	1,317,764

IV. Executing agency and execution structure

- 4.1 The Executing Agency (EA) will be the Ministry of Economy and Finance (MEF), through its Unite Technique d'Exécution (UTE). MEF/UTE was selected as the executing agency of this TC due to its experience in managing IDB's energy operation 4900/GR-HA and GRT/CF-17708-HA "Improving Electricity Access in Haiti". MEF/UTE will be responsible for the fiduciary arrangements of this TC and will coordinate all technical aspects with EDH. In addition, technical responsibilities of EDH include: (i) provide the MEF/UTE with corresponding technical inputs for the preparation of the bidding documents; (ii) undertake technical supervision of consulting services financed by the Program; and (iii) support the monitoring of Program's main indicators and provide the necessary information to MEF/UTE for the preparation of the progress reports.
- 4.2 An Analysis of Institutional Capacities (PACI) assessment of UTE was developed as part of the preparation of operation 4900/GR-HA and GRT/CF-17708-HA in 2019. The analysis determined a medium average risk for the financial and procurement management of that program. Some of the identified risks were: (i) bottlenecks due to administrative flows and delegation of authorities; (ii) delays due to increased workload for EA's personnel (including fiduciary); and (iii) lack of experience in the preparation and evaluation of tender documents for concessions that increases the risk of failure. To mitigate these risks, the following mitigation measures were proposed, some of which are already completed and others in execution: (i) the project follows a Procurement Plan (PP) that covers the entire project life, allowing for a better planning considering possible bottlenecks; (ii) preparation of the initial steps of procurement before the operation was approved by IDB; (iii) a procurement specialist and a financial specialist were hired; (iv) early reinforcement of the EA with international consultants knowledgeable in the preparation of similar concessions; (v) workshops with ANARSE, MTPTC and MEF/UTE, at the early stages of the program preparation, related to

¹⁶ Other administration and project management costs will be financed as part of the energy program 4900/GR-HA and GRT/CF-17708-HA "Improving Electricity Access in Haiti" executed by MEF/UTE.

planning methodologies, preparation of management tools and the early preparation of bidding documents of projects proposed in the financing; and (vi) technical support from ANARSE and MTPTC to MEF in the preparation and evaluation of tender documents. These measures helped MEF/UTE have contracts under negotiation as of December 2021, for over 80% of the resources of the program despite the complex socioeconomic situation in Haiti.

- 4.3 **Procurement policies.** MEF/UTE will follow IDB's Procurement Policies for the Procurement of Goods and Works financed by the IDB (GN 2349-15) and Policies for the Selection and Contracting of Consultants financed by the IDB (GN 2350-15), as applicable. The EA will follow procurement processes of the program as described in the Procurement Plan (PP) and to be approved by the Bank, which will cover the entire duration of the project starting on the date the Agreement for this Program to enter into effect. The PP will be updated semiannually with the semester report, or whenever necessary or as required by the Bank. The PP at operation approval considers one Single Source Selection (SSS) process with General Electric (GE) for an estimated amount of US\$300,000. According to paragraph 3.11 of IDB's Policies for the Selection and Contracting of Consultants Financed by the IDB (GN 2350-15), this SSS process with the company selected for the rehabilitation of the PHP¹⁷ will ensure continuity in the technical approach, experience acquired, and continued professional liability. After IDB's approval of this process, the EA will request the company to prepare technical and price proposals on the basis of terms of reference furnished by the government, which shall then be negotiated.
- 4.4 **Financial management and disbursement.** Disbursements will be based on cash flow plans that will be sized according to the program's execution liquidity needs and with a rolling of 6 months planning horizon. Disbursements for investment costs will be covered with advance of funds equivalent to up to six months of investment and operational costs/expenses anticipated and will be subject to ex-post supervision. Exchange rate valid at the day of transaction will be used to record all expenses made in local currency. The Central Bank exchange rate will be used at the reference rate.
- 4.5 **Audit.** MEF/UTE will submit to the Bank annual audited financial statements of component 1 within 120 days following the close of the respective fiscal year. The audit will be conducted by an independent firm of auditors acceptable to the Bank, to be selected in accordance with the Bank's policies and procedures. Other related aspects will be governed in accordance with the Financial Management Policy for IDB financed Projects (document OP-273-12) and the Guide for the Preparation of Financial Statements and External Audits.
- 4.6 **Monitoring.** The project will be monitored using the Bank's supervision instruments. The EA will be responsible for integrating and presenting the following: (i) the multi-year execution plan; (ii) the annual work plans; (iii) the procurement plan and results matrix; (iv) financial plans; (v) audited financial statements; (vi) environmental audits; and (vii) semiannual reports and final report. The semiannual reports will be submitted 30 days after the end of each calendar semester and will include: (1) a

¹⁷ The contract for the rehabilitation of the PHP was awarded to the consortium Alstom-Comelex (Alstom was acquired of GE in 2014). The scope of this contract was the refurbishment of the three 18-MW units, the electro-mechanical components, common electrical works for the PHP, including the rehabilitation of the external 13.8-kV/115-kV substation, protective equipment, 13.8 kV electrical equipment, auxiliary services, remote control and command, signaling, and alarms. The bidding process began on December 9, 2009. Due to the earthquake in 2010, negotiations began in May 2011 and the Contract was signed on February 10, 2012.

description of the activities executed; (2) progress towards fulfillment of the indicators in the results matrix; (3) a summary of the project's financial situation; (4) a cash flow estimate for the following six-month period; (5) in the year-end annual reports, the updated annual work plan and the procurement plan; (6) an analysis of any problems encountered and the corrective measures adopted; and (7) problems that might pose a risk to timely execution of the project. The final report presenting the final evaluation of the TC will be completed by the EA no later than 90 days after the final disbursement date. The final evaluation includes: (1) the degree of fulfillment of the targets specified in the Results Matrix; (2) an assessment of the performance of the EA; (3) factors affecting implementation; and (4) lessons learned and recommendations for the design and execution of future technical cooperation's. It will be based upon the reports and data gathered through the entire project, from preparation to closure, in particular the semi-annual progress reports.

V. Major issues

- 5.1 The delay in execution resulting from the impact of the COVID-19 pandemic and continued social unrest in Haiti is considered a high. This risk will be mitigated as follows: (i) anticipating additional time for the contracts' execution in the project execution tools; (ii) maintaining a constant dialogue with the GoH and its institutions to update project activities according to the needs of the country; and (iii) help facilitate the dialogue between the parties (the firms and the GoH) to avoid misunderstanding and demobilization.

VI. Exceptions to Bank policy

- 6.1 No exceptions to the Bank's policies are requested.

VII. Considerations to ESG policy

- 7.1 This TC will not finance feasibility or pre-feasibility studies for investment projects nor environmental and social studies. Therefore, it does not meet the necessary requirements that apply under the IDB's Environmental and Social Policy Framework.

Required Annexes:

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