

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

HAITI

REHABILITATION OF THE ELECTRICITY DISTRIBUTION SYSTEM IN PORT-AU-PRINCE

(HA-L1014)

LOAN PROPOSAL

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Electronic Links and References	
Basic socioeconomic data	http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata
Annex II – Procurement plan	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=845734
Status of loans in execution and loans approved	http://ops/approvals/pdfs/HAen.pdf
Tentative lending program	http://opsgsl/ABSPRJ/tentativelending.ASP?S=HA&L=EN
Information available in the program technical files	http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=843545

ABBREVIATIONS

AFD	Agence française de développement [French Development Agency]
AWP	Annual work plan
CIDA	Canadian International Development Agency
CMEP	Conseil de Modernisation des Entreprises Publiques [Public Enterprise Modernization Board]
CMS	Commercial Management System
EDH	Electricité d’Haïti [Electric Power Company of Haiti]
EU	European Union
ICF	Interim Cooperation Framework
IMF	International Monetary Fund
IRR	Internal rate of return
MEF	Ministry of Economic Affairs and Finance
MIF	Multilateral Investment Fund
MINUSTAH	United Nations Stabilization Mission in Haiti
MPCE	Ministry of Planning and External Cooperation
MTPTC	Ministry of Public Works, Transport, and Communications
NPV	Net present value
PCU	Project Coordination Unit
PPA	Power purchase agreement
PREPSEL	Projet pour la Réduction des Pertes dans le Secteur Electrique [Electricity Loss Reduction Project]
PTU	Project Technical Unit
RMS	Resource Management System
TSMS	Technical Service Management System
UN	United Nations
WMP	Toxic and Nontoxic Waste Management Plan

PROJECT SUMMARY

HAITI REHABILITATION OF THE ELECTRICITY DISTRIBUTION SYSTEM IN PORT-AU-PRINCE (HA-L1014)

Financial Terms and Conditions				
Borrower: Republic of Haiti			Amortization period:	40 years
Executing agency: Ministry of Public Works, Transport, and Communications (MTPTC) with support from Electricité d'Haïti (EDH)			Grace period:	10 years
			Disbursement period:	5 years
Source	Amount	%	Interest rate:	1% during grace period; 2% thereafter
IDB (FSO)	US\$18,090,000	99.12%	Inspection and supervision fee:	1% of the loan amount
Local	US\$ 160,000	0.88%	Credit fee:	0.5% per year on undisbursed balances
Total	US\$18,250,000	100.00%	Currency:	U.S. dollars
Project at a glance				
<p>Project objective:</p> <p>To help sustain the continuity and quality of electricity services to the population of metropolitan Port-au-Prince, and lay the foundation for EDH's technical, administrative, and financial recovery in the medium and long terms.</p> <p>Special contractual conditions:</p> <p><u>Conditions precedent to the first disbursement:</u></p> <ul style="list-style-type: none"> (i) Terms of reference and appointment of EDH staff who work within the Project Technical Unit (paragraph 3.4). (ii) Selection and hiring of the staff mentioned in paragraph 3.3 who will complement the Project Coordination Unit. (iii) Approval and entry into force of the program's Operating Manual, pursuant to paragraph 3.5. <p><u>Special execution conditions:</u></p> <ul style="list-style-type: none"> (iv) Before making use of resources for the first subcomponent of component 1, the final report from the accounting studies and the financial audit financed by the EU/CIDA must be delivered to the Bank, to provide inputs for the resource management system (paragraph 3.7). (v) Before making use of resources for the waste management plan and environmental improvement plan, environmental unit staff must be appointed, pursuant to paragraphs 3.7, 4.13, and 4.14. (vi) Before disbursement of resources for the low-voltage rehabilitation and retailing works, installation of substation works must be completed (paragraph 2.7), and the waste management plan must be fully operational (paragraphs 3.8 and 4.14). <p>Exceptions to Bank policies:</p> <p>None.</p> <p>Special disbursement before fulfillment of conditions precedent to the first disbursement:</p> <p>Notwithstanding the special contractual clauses that have to be fulfilled precedent to the first disbursement, once the borrower has fulfilled the General Conditions related to presenting the legal report, appointing representatives, and preparing the chart of accounts, the Bank may disburse up to US\$250,000 to cover expenses related to fulfilling the special conditions precedent to the first disbursement and preparation of the initial project report (paragraph 3.10).</p>				
<p>Project consistent with country strategy: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Project qualifies as: SEQ <input checked="" type="checkbox"/> PTI <input checked="" type="checkbox"/> Sector <input type="checkbox"/> Geographic <input type="checkbox"/> Headcount <input type="checkbox"/></p> <p>Procurement: Procurements will be undertaken in accordance with the Bank's policies and procedures (documents GN-2349-7 and GN-2350-7), complemented by provisions contained in the ad hoc annex that will form an integral part of the loan contract. See paragraphs 3.11 and 3.12.</p> <p>Verified by CESI on: 20 October 2006.</p> <p>Environmental and social review: See paragraphs 4.13 and 4.14</p>				

I. FRAME OF REFERENCE

A. Political and socioeconomic environment

- 1.1 Haiti has been immersed in a protracted institutional crisis since 1997. This culminated in the loss of international assistance and financing, and a low level of investment that led to further deterioration of the social and economic infrastructure, postponed important structural reforms, and failed to generate the growth needed to reduce the high level of poverty. Inflation rose in the wake of supply shortages following port closures and warehouse looting.
- 1.2 The socioeconomic situation in Haiti is alarming. Two thirds of its 8 million inhabitants live below the poverty line; life expectancy is 53 years; infant mortality is 8%; HIV/AIDS affects 5.6% of the population; and the illiteracy rate is almost 50%. As a result, Haiti is ranked 146th in the Human Development Index. What's more, Haiti has suffered from natural disasters in recent years such as the devastating floods of May 2004 and September 2004 caused by Hurricane Jeanne, which buffeted the northeastern part of the country and worsened already difficult social conditions.
- 1.3 A transition strategy was formulated in 2004, in consultation with the International Monetary Fund (IMF) and other international agencies. The main objective is to restabilize the economy and pave the way for implementation of disciplined macroeconomic policies. Nonessential expenditures were cut, and an emergency plan was put together to rebuild State structures and provide certain basic public services. As a result, international aid has increased over the last few years, and contributions made by the international community have resulted in a diagnostic assessment of the situation and the presentation of proposals and a plan of action to revive the country. This effort, set out in the Interim Cooperation Framework (ICF) document,¹ culminated in a July 2004 meeting of the donor community, which pledged US\$1.09 billion to finance the various programs being proposed. This includes US\$260 million from the Bank in addition to its pre-existing operations.
- 1.4 The ICF is intended mainly to increase political and social stability and promote economic growth, through actions mainly founded on four pillars: (i) strengthening of political governance and promotion of national dialogue; (ii) strengthening of economic and institutional governance; (iii) promotion of economic recovery; and (iv) promotion of basic service delivery. In the latter category, one of the main priorities was to reestablish reliable electric power services. The project described in this document fall under the third and fourth pillars, which include reconstruction and quality improvement of the country's scant infrastructure of basic services, such as potable water, transportation, and electricity.

¹ The ICF was created as a framework for preparing and developing a comprehensive proposal to address the country's social and institutional crisis, revive the economy, and provide conditions for growth. Led by the Haitian government, the ICF elicited active participation from 26 bilateral, multilateral, and United Nations agencies, to assess the situation and formulate a detailed action plan in each field, which is currently being applied in full.

- 1.5 The international community's response backstopped the installation of an interim government and subsequent democratic elections for a new government in early 2006. These efforts, supported by better monetary and fiscal management by the Haitian government, led to stabilization of the economy as inflation fell from 32.5% in 2003 to 28.3% in 2004 and 15% in 2005, and the local currency has strengthened in the last two years. The fiscal deficit is currently small, with tax revenues above initial expectations. Economic activity levels are starting to recover in some sectors. Reconstruction of basic infrastructure, and the provision of basic services in sufficient quantities and with adequate quality, are factors that could promote a climate of growth.

B. The electric power sector in Haiti

- 1.6 Haiti's electric power sector is mainly served by the State-owned Electricité d'Haïti (EDH), which covers all stages of generation, transmission, distribution, and retailing. EDH was created in 1971 as autonomous government agency, with a mission to plan, operate, and supply the public electricity service throughout the country. The Ministry of Public Works, Transport, and Telecommunications (MTPTC) oversees EDH. In fulfilling this function, it sets policies and regulates the sector.
- 1.7 Haiti's electric power sector has not escaped the serious economic and social problems the country has experienced in recent years. Service coverage is one of the lowest in the world: less than one million of the country's 8.5 million inhabitants have access to limited electricity services. This sparse level of coverage (just 10%), which is confirmed by most available statistics, is the lowest in Latin America and the Caribbean.² Furthermore, supply is not continuous; in the metropolitan area, the service is provided for an average of five to eight hours per day; and very exceptionally in certain provinces it has been maintained for 24 hours a day.
- 1.8 During its last 20 years of existence, EDH has experienced in magnified form all the problems that public enterprises in Latin America and the Caribbean had prior to the energy market reforms. It is technically bankrupt, earning income from less than 40% of the energy it produces or purchases from external energy producers. It requires direct transfers from the Ministry of Economic Affairs and Finance (MEF) to supplement its revenue to be able to maintain even the current deficient level of operations; as a result, it is also contributing to the government's current-account deficit. Government transfers to the electric power sector amounted to roughly US\$47 million in the 2004/2005 budget alone, representing 7% of the national budget. The following table shows the sector's impact on the national budget in recent years.

² A recent EDH statistic claims coverage of 24.9%; but even this would be the lowest level of electrification in any Latin American or Caribbean country.

Table I-1 Transfers to the Electric Power Sector (US\$ millions)

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Transfers to the sector	10.85	14.00	20.74	25.57	46.89	38.26
Total govt. expenditure	308.41	422.43	507.88	381.10	650.28	509.42
% of budget	4%	3%	4%	7%	7%	8%

Source: IMF, 2005/2006 forecast.

- 1.9 Although the foregoing problems were aggravated in part by the surge in fuel prices, energy losses are the main cause of the situation. EDH purchases energy for the provinces from a generating company (SOGENER); and buys both energy and fuel from ALSTOM,³ the private producer that supplies most of the Port-au-Prince area. Unaudited EDH income and expenditure statements for 2004/2005 show total income of US\$37 million, of which US\$29 million were used to purchase energy and fuel, US\$3.2 million to pay wages, just US\$2 million approximately for investment, and the rest for other operating expenses. In 2005, backed by the commitments made in the Protocol of Agreement signed between the Republic of Haiti and the donor community (paragraph 1.16), rates were raised by 40% for the provinces and by 20% for the Port-au-Prince zone. For fiscal year 2004/2005, average rates in the various user categories were as follows: (i) residential US¢17.53/kWh; (ii) commercial US¢18.71/kWh; (iii) industrial US¢21.19/kWh; and (iv) street lighting US¢18.14/kWh.
- 1.10 EDH also has major problems in providing customer service and in the various energy retailing processes. It lacks technical capacity and its employees are poorly motivated, which has created a vicious circle that further erodes service quality with corresponding repercussions for nonpayment, to the recurrent detriment of its finances and resulting in further loss of quality in the services provided. EDH has major business management and technical capacity problems at the various levels. On the technical side, they include: unreliable service with frequent and lengthy interruptions; the low quality of the electricity service involving voltage and frequency variations; inadequate or nonexistent maintenance of equipment; theft of material from the grid, and long delays in repairing damage. On the management front, problems include: inadequate and deficient operating and maintenance practices; weak business and financial management; lengthy and cumbersome administrative procedures; inadequate information systems and poor long-term planning, lack of human resource experts and absence of information systems.
- 1.11 Haiti's electricity service is in crisis. In its current state, EDH is neither technically nor economically viable; it is unable to maintain its generating capacity, or to reduce electricity losses to reasonable levels. As a consequence, while EDH charges

³ The contract with ALSTOM is not a traditional power purchase agreement (long-term contract guaranteed by the government with payments for energy and capacity), but an energy lease (for energy production), in which the government is responsible for purchasing the fuel and ALSTOM transforms it into power. In October 2006, the payment for fuel purchase plus the lease for energy production amounted to US¢17/kWh. ALSTOM units operate low velocity turbines, which are generally used for emergency supplies.

high average rates (close to US¢20/kWh), it does not generate the income needed to satisfy current demand under reasonable conditions and expand service. In 2005, it collected payment on just 38% of the energy it delivered to the grid, as a result of a 57% loss rate; it only invoices 43% of the energy it provides, and it only collects payment on 88% of what it actually invoices. Energy losses in the sector have been rising steadily since the 1980s, when they were between 30% and 35%, reaching levels around 50% at the start of this decade and 57% by 2005. Estimates suggest these losses are 35% nontechnical and 22% technical, both figures being above normal practice in the electricity industry. Nontechnical losses are caused by an investment standstill in the sector resulting from EDH's critical financial situation, compounded by the poor state of its business systems and hence its invoicing cycles. For example, EDH currently has a total of 112,656 active users registered in the Port-au-Prince zone, of which 58,969 are classified as "0 kW" users for whom no electricity consumption is recorded. Analyses suggest that a high proportion of these customers would be willing to pay for their electricity supply provided investments were made to improve the service, metering devices were installed, and invoices were presented on a timely basis for payment. EDH's financial problems are therefore closely related to the company's losses and general problems arising from inadequate management, aggravated by the obvious impacts of high fuel prices in recent years.

- 1.12 At the present time, Port-au-Prince is supplied by the Varreux (I, II and III) power plants, with a nominal capacity of 73 MW, the Carrefour (I and II) plants with 80 MW, of which 50 MW are acquired through an energy transformation contract with ALSTOM Power Rentals Inc; and the Peligre hydroelectric plant with installed capacity of 50 MW. This total installed capacity of 203 MW in practice results in effective capacity varying between 5 MW and 60 MW, depending on the conditions of the units in question and the availability of water. This stands in stark contrast to peak demand in metropolitan Port-au-Prince, estimated at roughly 200 MW in 2006. The situation reflects the deficient state of electricity power services, resulting in poor service in the capital area.
- 1.13 EDH has similar management and financial problems in the other isolated systems in the communities of Cap-Haïtien, les Cayes, Gonaïves, Saint-Marc, Petit Goâve. The city of Jacmel, however, is an exception where the level of invoice collection has been raised to 98% and service continuity improved to 24 hours per day, as a result of a project based on enhancing service quality and management and improving relations between the company and users. There is widespread evidence that users' willingness to pay for electricity is directly correlated with the quality of supply and the customer service received from the supplier. The problem of turning irregular users into satisfied and commercially attractive customers is not necessarily directly related to payment capacity among the various low-income segments of the population.⁴

⁴ Final report of the Workshop on Meeting the Needs of the Urban Poor: The Case of Electrification, Salvador de Bahia, Brazil, September 2005. ESMAP, AID, IDB, EdF, & Coelba.

C. The country's strategy in the sector

- 1.14 One of the ICF's main priorities is to restore reliable basic services of adequate quality under the third and fourth pillars of action (paragraph 1.4). For this purpose, specific short- and medium-term plans were developed in over 20 sectors of the economy, including basic infrastructure such as communications, water supply, and electricity. Thematic groups have been created in each sector, better known as sector roundtables, which bring together the government and the international community to design the specific strategy for each sector. The strategy for the electricity sector was designed in 2004, during the previous government; its main objectives were: (i) to maintain the, albeit meager, level of services in the short term; (ii) to undertake medium-term investments, both physical and in terms of management capacity, to make it possible to move the electric power company to a new management model; and (iii) in the long term, to implement the new management model in the electricity company, making it possible to extend electricity coverage to at least 40% of the population. Short-term needs are estimated at US\$27.7 million, with medium-term needs between US\$200 million and US\$300 million, to make the company viable in the long run under an alternative management model, as set forth in government plans.⁵
- 1.15 At the International Conference for Haiti, held in Montréal in June 2005, where ICF participants stressed the need to consolidate efforts in the energy sector, the Bank participated in the energy sector roundtable on short-term actions. Later, in the framework of the International Conference for the Social and Economic Development of Haiti, held in Port-au-Prince on 25 July 2006, the government ratified as a priority the need to restore reliable basic electricity services to the population. The donor community, including the Canadian International Development Agency (CIDA), the World Bank (WB) and the IDB, confirmed their intention to support this priority sector.
- 1.16 The short-term strategy agreed upon between the government and the donor community in the electricity sector roundtable was set out in the "Protocol Agreement to Overcome the Electricity Sector Crisis",⁶ signed in Brussels on 21 October 2005. This included the following groups of government commitments: (i) actions to improve decision-making transparency in the electricity sector; (ii) institution-strengthening and governance in the electricity sector; (iii) regularization of contractual commitments with energy producers; (iv) specific commitments for updating electricity rates; and (v) commitments on security for all community interventions in the sector. The donor community and the government also defined a minimum investment program in the sector, which will make it

⁵ Republic of Haiti, Working paper *Conférence Internationale pour le Développement Économique et Social d'Haiti* [International Conference for the Social and Economic Development of Haiti], July 2006.

⁶ *Proposition de Protocole d'Accord pour une Sortie de la Crise du Secteur de l'Electricité* [Protocol Agreement to Overcome the Electricity Sector Crisis], International Conference on Haiti, hosted by the European Union Commission, Brussels, Belgium, 20-21 October 2005.

possible firstly to maintain the current meager service, and secondly to improve the sector's financial ratios. The investment program would specifically finance: (i) maintenance of EDH generating facilities that have been out of service, both in the provinces and in Port-au-Prince; (ii) rehabilitation of distribution grids, and technical assistance to reduce electricity losses and boost revenue collection; (iii) improvements to EDH information systems, survey of assets, reconstruction of accounting systems and the production of financial statements; and (iv) other technical assistance to support EDH.

- 1.17 Following the signing of the Protocol Agreement, the government obtained expressions of interest from the donor community to finance investments covering US\$14.6 million of the estimated US\$27.7 million to complete the necessary short-term actions. The Bank registered its interest in participating in the identified actions, for which it approved technical-cooperation operation ATN/SF-9788-HA and began preparation of this program.
- 1.18 Work done by the ICF, and hence the sector roundtables, was extended and forms the basis of work on the new government's priorities. In the electricity sector, the new Minister of Public Works, Transport, and Communications produced general policy guidelines for the sector, listing the following main objectives: (i) institutional strengthening of the sector; (ii) transparency in the sector and reduction in costs for the government; (iii) supply of services to the most deprived zones of the capital; (iv) "sell more energy and sell better" (in relation to low service quality and low rates of invoicing and collection); (v) reforms to the framework under which private participation is allowed in management contract schemes; and (vi) regularization of current PPA contracts and a gradual increase in energy supply. The general policy guidelines highlight the need to sustain current services by reducing losses and providing better service to users, a vicious circle in which the sector is entangled in management difficulties and a lack of technical and institutional capacity. The guidelines also display convergence with the strategy planned in the energy sector roundtable in making it viable to implement a management contract scheme for the electric power company EDH.

D. The Bank's strategy in the sector

- 1.19 The Bank's decision to resume work in the electric power sector, in which it had not participated actively since the mid-1990s, forms part of the ICF agreements and the Bank's strategy with the country—documents GN-2212-2 and its update GN-2212-7. The strategy stresses as one of the pillars of the Bank's action, improvement of conditions for the provision of public services and basic infrastructure, including the transportation and electric power sectors. In the transportation sector, the Bank has the lead role and is serving as focus point of the transportation sector roundtable. With the program of projects approved in the transportation sector in full swing, the Bank began the process of reentering the electric power sector. This entailed participation in the energy sector roundtable, continuous monitoring of its activities, and lastly the agreements under the Protocol

Agreement (paragraph 1.16), adopted by the Bank through technical-cooperation operation ATN/SF-9788-HA, which will help execution of this project.

E. Coordination with other donors

- 1.20 The Bank has not recently made investment loans in the electric power sector. Its most recent interventions in Haiti's electricity sector, approved in the mid-1990s, were technical-cooperation operations to help prepare structural reforms. These operations included ATN/SF-6731-HA, for an economic and financial diagnostic of EDH, and the MIF operation ATN/MT-5334-HA for legal and regulatory reform of the Haitian electric power sector. The former has provided information that is fundamental for understanding the grave financial situation facing EDH, and has also been a key input for work to reconstruct EDH accounting and financial statements, currently being executed with cooperation from the European Union (EU). The second was not very successful: its aim was to implement sweeping market reforms in the Haitian electric power sector, but they did not prosper because of the political and social conditions prevailing in the country.
- 1.21 In recent years, the international community has been tangentially supporting the electric power sector in Haiti. Positive experiences include the CIDA-sponsored project now known as the "Jacmel model", through which a program of minor repairs was implemented in the city of Jacmel, together with a new approach to customer service in which EDH opened a commercial branch in the city. This project, based on improving service quality with a view to turning irregular customers into customers who are commercially attractive to the company, started in March 2000; within a few months it had raised invoicing rates from 30% to 75%, and invoice collection from 30% to 92%, thereby increasing operating revenue and enabling EDH in that city to provide electric energy continuously until early 2004. The situation today remains favorable with average supply of 16-18 hours per day; and, as part of the Protocol Agreement, the government is studying the possibility of implementing an automatic formula for rate adjustments and increases in fuel costs, to make it possible to return to 24-hour service. In addition, CIDA is also analyzing a new operation for US\$16.4 million, to extend the project to other cities in a number of provinces, specifically Cayes, Jeremie, Petit-Goâve, Cap Haïtien and St. Marc-Gonaïves, which, in conjunction with this program, would cover the urgent needs of the short-term strategy identified by the sector roundtable for the electricity sector as a whole.
- 1.22 Participation by the international community under the energy sector roundtable and the Protocol Agreement includes: (i) rehabilitation of power plants in Cayes, Petit-Goâve, Saint-Marc and Gonaïves, Cap-Haïtien and Varreux I and II, in a US\$10 million collaboration project between CIDA, the United States Agency for International Development (USAID), the French Development Agency (AFD) and the EU; (ii) technical cooperation on accounting and the production of financial statements for EDH, provided by the EU in the amount of US\$400,000; (iii) MINUSTAH cooperation to cover security expenses for staff working on repairs to the aforementioned power plants, for US\$500,000; and (iv) the

US\$6 million World Bank project associated with this operation, for loss reduction in the Port-au-Prince zone. These operations represent short-term collaboration to sustain the little electricity service that exists, and are designed so that future larger operations have chances of success.

F. Lessons learned

- 1.23 Lessons learned from these experiences, obtained through permanent dialogue with participants, include the following: (i) the need to focus on realistic and not overly ambitious objectives, with simple operations; (ii) minimize implementation costs through close coordination between donors and executing units; (iii) build reasonable expectations and objectives to achieve credibility in local institutions and sustainability of operations; and (iv) the need for adequate and effective support for the operation from the government. These aspects are being taken into account in this operation, which is a small intervention aimed at complementing and expanding a loss reduction effort. It has modest objectives that make it possible to achieve gradual results, with adequate absorption and growth of institutional capacity. The operation will pave the way for EDH's financial and administrative recovery and make it feasible to intervene in larger-scale operations to implement an alternative management model for the electric power sector in the medium term.

G. Program strategy

- 1.24 In the short-term strategy set out in the Protocol, this program to revitalize distribution grids in Port-au-Prince stands out. Its aim is to reduce electricity losses by taking steps to improve EDH's business management, service quality, and customer service. These measures will be accompanied by an optimized distribution grid rehabilitation plan and appropriate technological solutions for metering.
- 1.25 Specifically, in the framework of the multidonor strategy, this first Bank intervention complements and expands the World Bank's Electricity Loss Reduction Project (PREPSEL),⁷ which contains a single program prepared in coordination with this operation. The two work teams conducted joint missions and were closely involved in the consulting work during preparation. The aim is to pool resources for application in a program to increase customer-oriented management capacity, which will firstly make it possible to improve loss recovery rates, and, secondly, pave the way for a demonstration project that will give EDH and sector authorities an opportunity to deploy new management models to alleviate the sector's extreme situation. The foregoing is intended to produce results that will attract additional donor resources into this deficit sector, and at the same time lay foundations to move forward on medium- and long-term goals.
- 1.26 Both operations aim to reduce losses in the Port-au-Prince area, through actions including physical rehabilitation of distribution grids and the supply of equipment

⁷ World Bank, Electricity Loss Reduction Project (PREPSEL); grant amount US\$6 million, June 2006. Project Appraisal Document.

for management of the company and its customers; but above all by establishing customer-oriented management approaches that will make it possible to increase the quantity and enhance the quality of the electricity service supplied at the present time, so that irregular customers become satisfied and commercially attractive for the company. This approach has proven its effectiveness in the city of Jacmel in Haiti, and also in other places that have social and economic characteristics that are similar to those of Haiti.⁸ As an immediate result of the above, it is intended to improve financial conditions in the EDH distribution and retailing segment, and thus help the country's public finances. The World Bank operation aims to provide EDH with key management systems and undertake work in two distribution circuits serving metropolitan Port-au-Prince; while the IDB operation will focus on complementing EDH management systems and work with the other circuits, striking an appropriate balance between management solutions and rehabilitation works, making it possible to cover most of the 17 circuits that serve the metropolitan area.

- 1.27 Although the situation of the main substations (69 kV/12.5 kV) that serve the capital is not entirely satisfactory, it does not justify large-scale investments for the purpose of this program in the short-term, but only small investments in sectioning and metering equipment. Medium-voltage circuits (12.5 kV) have a large number of transformers out of operation and pylons in poor condition, which has led to an outbreak of illegal connections and increases in technical losses caused by overloading the equipment that is still functioning. Low-voltage grids have deficiencies in connections and service lines, as well as wide-ranging shortcomings in metering equipment, where in some circuits over 60% of residential users do not have a meter that works. The situation is worse in the case of large-scale users, where metering is critically important given the amount of income they represent to the company.
- 1.28 In both operations the strategy is firstly demonstrative and secondly aims to replicate and improve those initial strategies, both technological and in terms of customer relations, that have demonstrated results and exceed a certain level of learning and absorption of the new customer-oriented business management approach. A fundamental part of this strategy involved assigning EDH technical responsibility for the project (see paragraph 3.2), and a results monitoring scheme that makes it possible to maintain institutional support for the project at the highest level.
- 1.29 The proposed operation is therefore consistent with the Bank's Public Utilities policy (OP-708), which recommends that the level of Bank involvement be keyed to how much progress has been made in reforming the sector and in achieving the basic conditions. The scope of this operation is modest, as stipulated in the policy, and focuses on supporting the efforts of the government and the donor community

⁸ Final report of the Workshop on Meeting the Needs of the Urban Poor: The Case of Electrification, Salvador de Bahia, Brazil, September 2005. ESMAP, AID, IDB, EdF & Coelba.

within the ICF to halt the deterioration of services and begin EDH's financial recovery, which make it feasible to act through larger operations in the medium term and to launch an alternative management model for the electric power sector. As was mentioned earlier, in sector roundtable meetings, the government obtained serious commitments that can be grouped as follows: (i) actions to enhance transparency in decision-making in the electric power sector; (ii) institution-strengthening and governance in the electric power sector; (iii) regularization of contractual commitments with power producers; (iv) specific commitments in terms of updating rates; and (v) security for all the community's interventions in the sector.

- 1.30 The operation enjoys government support. Its main objectives include sustaining electricity services and reducing the financial burden imposed by the sector, with a strategy of increasing the quality of services (sell more and sell better).⁹ The company's management has signaled its support for the operation, as have its labor unions, with whom dialogue has been maintained during the missions and to whom the project's objectives were presented. The unions indicated their total willingness to collaborate with the donor community in improving the current situation.

⁹ Republic of Haiti, Ministry of Public Works, Transport, and Communications, *Les Enjeux et Défis de la Lutte contre la Pauvreté : Le Secteur de l'Électricité* [Issues and challenges in the fight against poverty: the electricity sector], July 2006.

II. THE PROGRAM

A. Objectives

- 2.1 The goal of the project is to help sustain the continuity and quality of electricity services supplied to the population of metropolitan Port-au-Prince and lay the foundation for EDH's technical, administrative, and financial recovery in the medium and long terms. The project will provide resources for rehabilitation works in distribution grids and institutional strengthening of EDH in the management of new customer-oriented business management procedures, making it possible to improve the management and quality of the electricity services with the aim of reducing energy losses and laying foundations for the company's recovery in the medium and long terms.

B. Description

- 2.2 The project has two components: (i) implementation of business management systems and institution-strengthening; and (ii) rehabilitation of medium- and low-voltage distribution works.
- 2.3 **Implementation of business management systems and institution-strengthening** (US\$2.2 million). This component is divided into three subcomponents: (i) supply of hardware and software to implement business management systems, including training (US\$1.4 million); (ii) institution-strengthening and creating a business culture (US\$515,000); and (iii) support for creating an environmental unit as part of the adjustment to manage the environmental aspects of the program (US\$300,000).
- 2.4 The first subcomponent (US\$1.4 million) will finance the system and associated software for EDH's accounting and resource management. This Resource Management System (RMS) is key to restoring appropriate management of the company's resources. It is one of three information system items that a company retailing electricity should have in place. The hardware and software supplier will also be responsible for launching the system and training staff in the EDH finance and management offices to operate the system. The other two systems are: (i) the Client Management System (CMS), for customer monitoring throughout the cycle from invoicing to collection; and (ii) the Technical Service Management System (TSMS), which handles technical data on grid status, production, and consumption. Together these are the basic tools for improving customer service and recovering losses, which mainly arise from fraud and shortcomings in the invoicing cycle. These two systems will be funded by the World Bank's PREPSEL project. They are basic equipment for achieving the project's goals, and will also be one of the tools to provide data to verify fulfillment of the expected outcomes.
- 2.5 Resources from the second subcomponent (US\$515,000) will be used to finance institution-strengthening and business culture creation activities in the electricity distribution and retailing segments, to complement the new management systems

- with adequate technical and public information capacities. This subcomponent will also finance various training programs for EDH employees. One will be held for senior management on aspects relating to strategic planning, managing electric companies, and setting rates, and the other will be for middle and senior ranking technical staff on aspects of technical planning, operation, and management of the retailing and distribution segment (US\$190,000). Funds are also included to procure the software needed to prepare medium- and long-term investment plans (US\$250,000) in all segments of EDH and for consulting services to advise EDH on determining marginal long-term costs for rate purposes. This component will finance public information campaigns aimed at bringing the company closer to its customers and improving internal consensus; and it will also undertake customer satisfaction surveys, drawing on of the PREPSEL project scheme, to provide indicators for measuring project performance.
- 2.6 In accordance with the environmental adaptation plan, the third subcomponent (US\$300,000) will finance the adaptation of repair facilities for managing and storing EDH transformation materials, as part of the program's environmental strategy (see paragraph 4.12-4.14). Funding will also be provided to implement the toxic and nontoxic waste management plan, to be implemented by the environmental unit, supported by consulting services.
- 2.7 **Rehabilitation of medium- and low-voltage works** (US\$13.3 million). Investments will be made to rehabilitate medium-voltage works, low-voltage circuits, and retailing works. The first subcomponent (US\$2.6 million), **rehabilitation of medium-voltage works**, includes small-scale investment works to make the system operational through sectioning and metering equipment, and grounding substations¹⁰ (69/12.5 kV) which feed the 15 main distribution circuits. This also includes provision of transformers, pylons, cross-beams, metal fittings and other auxiliary equipment needed to rehabilitate low-voltage circuits¹¹ (12.5/7.2 kV) from distribution substations.
- 2.8 Funds from the second subcomponent, **rehabilitation of low-voltage works**, will finance the works and equipment needed for distribution grids (US\$2.2 million), including mainly insulators, both line and neutral conductors, and other metal fittings. These works are needed to take supply from medium-voltage works up to the connection or service line of individual users.
- 2.9 Resources from the third subcomponent, **rehabilitation of retailing**, (US\$5.9 million) will finance the rehabilitation of user connections in the project area, and the purchase and installation of metering devices where these are irreparable. Estimates suggest that 70% to 90% of residential meters are out of

¹⁰ Canapé Vert, Ancien Delmas, Martissant, Rivière Froide, Croix-des-Missions, and Croix-des-Bouquets.

¹¹ The circuit names are as follows: CPC 4-1, CPV 2-1, CPV 1-2, CPV 3-1, ADM 1-1, ADM 8-1, ADM 4-1/7-1, ADM 9-1, MAR 1-1, MAR 2-1, MAR 3-1, RIF 1-1, RIF 2-1, CXM 2-1 and CXB 2-1/3-1.

service. Funding from the PREPSEL project will be used in the case of large-scale users where remote metering will be introduced.

C. Cost and financing

- 2.10 Table II-1 shows estimates of the total cost of the project and the proposed funding. The project financed by the Bank will have a total cost of US\$18.25 million, of which the Bank will finance US\$18.09 million through a loan drawn on the Fund for Special Operations (FSO), with counterpart funding of US\$160,000 to pay the commitment fee. The total program for the Port-au-Prince area amounts to US\$24.25 million, including US\$6 million in funding already approved for the parallel World Bank operation.

Table II-1
Cost and Financing (US\$ thousands)

	Project HA-L1014			WB	Total
Item	IDB	LOCAL	TOTAL	Project	Port-au-Prince
1. ENGINEERING AND ADMINISTRATION	734		734	660	1,394
1.1. Support for the PCU	294	0	294	0	0
1.2. Support for the PTU	230	0	230	0	0
1.3. Evaluation and audits	110	0	110	0	0
1.4. Support for the environmental unit	100	0	100	0	0
2. DIRECT COST	15,612	0	15,612	0	15,612
2.1. Systems and strengthening of business management capacity	2,215	0	2,215	2,119	4,334
2.1.1. Resource management system	1,400	0	1,400	0	0
Purchase and supply of the system	1,100	0	1,100	0	0
Specification, purchase, supervision, and training	120	0	120	0	0
Support and extension of systems to commercial branches	180	0	180	0	0
2.1.2. Strengthening and business culture	515	0	515	0	0
Planning and management of distribution and retailing	440	0	440	0	0
Public information and surveys	75	0	75	0	0
2.1.3. Environmental waste management system	300	0	300	0	0
Retrofitting facilities and implementation	300	0	300	0	0
2.2. Rehabilitation of distribution and retailing	13,397	0	13,397	3,150	16,547
Medium-voltage: substations, transformers, conductors	2,632	0	2,632	0	0
Low-voltage: transformers, conductors, metal fittings	2,272	0	2,272	0	0
Retailing: service lines and metering	5,858	0	5,858	0	0
Installation and assembly	2,635	0	2,635	0	0
3. CONTINGENCIES	1,180	0	1,180	71	1,251
4. FINANCIAL EXPENSES	564	160	724	0	724
4.1. Interest	384	0	384	0	0
4.2. Commitment fee	0	160	160	0	0
4.3. Inspection and supervision	180	0	180	0	0
Total	18,090	160	18,250	6,000	24,250
Percentages	99.12%	0.88%	100%		

III. PROGRAM EXECUTION

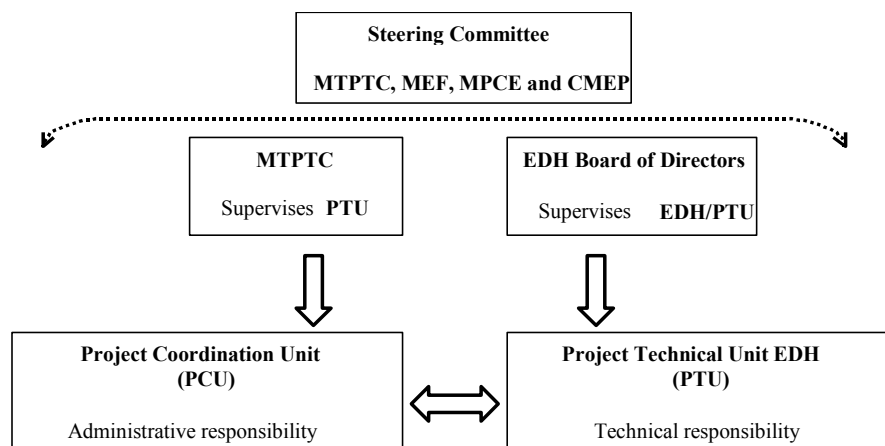
A. Borrower and executing agency

- 3.1 The borrower will be the Republic of Haiti and the executing agency will be the MTPTC, with EDH participation. As a condition precedent to the first disbursement, the borrower, EDH, MTPTC, and MEF will sign an agreement defining EDH's responsibilities as participant in execution (paragraphs 3.2-3.4), together with mechanisms for fulfilling those responsibilities.

B. Project execution and management

- 3.2 With a view to achieving close coordination between donors, responding to the government's request to achieve the greatest possible cohesion among donor operations in the energy sector roundtable and achieve gradual growth and appropriate maturation of institutional capacities, and full coordination between parallel projects that pursue the same objectives with shared investments and strategies, it has been agreed to use a single execution arrangement in conjunction with the World Bank project (see Chart III-1). At the same time, the aim is to minimize transaction costs as much as possible in all procurement processes for works, services, and monitoring and interaction with different donors. The execution mechanism includes a top level Steering Committee, consisting of representatives from the MTPTC, MEF, EDH, the Ministry of Planning and External Cooperation (MPCE), and the Public Enterprise Modernization Board (CMEP). The committee will be responsible for ensuring the fulfillment of project objectives and maintaining political support at the highest level within the context of sector roundtable actions. The Project Coordination Unit (PCU), which reports to the MTPTC and is physically located in EDH, will be responsible for administrative and financial aspects of the program; and the Project Technical Unit (PTU), created in EDH, will be responsible for technical aspects. Both units will submit program progress reports to the Steering Committee.

Chart III-1. Execution Arrangements



- 3.3 The PCU currently has the following staff: (i) a unit coordinator; (ii) a procurement specialist; and (iii) an administrative-financial specialist. Given the nature of this project, with more rehabilitation works in distribution grids and retailing, the unit will need to be complemented with the following staff hired using Bank resources, as a condition precedent to the first disbursement: (i) an environmental specialist for eight months, to help set up the environmental unit and the waste management program; and (ii) an administrative and financial specialist, using project funds, to handle all financial and accounting aspects relating to management of the Bank loan. Up to US\$30,000 will also be available to finance computer hardware, accessories, and office supplies, for the five years of project operation (paragraph 2.10, item 1.1). The unit's main functions are: (i) to procure works, goods, and services, and consulting services for the operation, in compliance with Bank policies; (ii) to facilitate the activities of consultants and suppliers of goods and services in relation to EDH, through the PTU and other institutions in the sector; (iii) to prepare financial and accounting project reports for the Bank; (iv) to undertake project accounting and financial management; and (v) to produce, maintain, and store all project accounting and financial information, including record keeping, backup and supporting documentation for all project transactions.
- 3.4 The PTU, established in EDH, will be responsible for technical aspects of project execution. The PTU currently has the following staff: (i) a project leader; (ii) an administrator for the commercial branch for the PREPSEL; (iii) a head of services to large-scale users; and (iv) other technicians supporting the project leader. During execution, the PTU will be supplemented with administrators for the commercial branches required for this project's circuits. As a condition precedent to the first disbursement, terms of reference will be prepared for these posts, together with an EDH document appointing staff to them. In exceptional cases when the executing agency or EDH decides to fill PTU positions with qualified government or EDH employees, the executing agency must adhere to the pertinent national regulations and secure the prior no objection of the Bank. For this purpose, the budget (paragraph 2.10, item. 1.2) includes funds for covering the additional expense with respect to their counterparts in the PCU. In addition, expenses incurred on office equipment and supplies will also be financed for up to US\$35,000. The unit's main functions will include the following: (i) to provide the PCU with technical inputs for the preparation of bidding documents and terms of reference for works, goods and consulting services procurement; (ii) to undertake technical supervision of consulting services, works execution and the supply of goods and operating services and their installation; (iii) to provide access and coordination within the different EDH units for undertaking the various works, installation of goods and provision of consulting and nonconsulting services; (iv) to coordinate installation of the goods to be supplied; (v) to coordinate all public information activities and approximation to customers; (vi) to monitor the main project indicators; (vii) prepare semiannual reports on its activities and outcomes for approval by the

Director General of EDH; and (viii) in general, to oversee satisfactory technical performance of the operation's works.

- 3.5 The program will be executed as indicated in the loan contract and program operating manual, which among other things will include provisions on inter-relationships between the PCU and the PTU and Steering Committee, as well as execution modality for the components and subcomponents. The PCU and PTU will also prepare a joint annual work plan (AWP) containing: (i) an up-to-date procurement plan; (ii) an installation and supervision schedule; (iii) a schedule for execution of the various works; (iv) a maintenance plan for program works; and (v) a schedule for the preparation of semiannual reports and the programming of monitoring and evaluation meetings. The AWP will be submitted to the Bank no later than the final quarter of the previous year. The first AWP must be presented as part of the initial report referred to in Article 4.01(d) of the General Conditions. The PTU will be supported by a consultant with expertise in electricity distribution and retailing processes, financed by ATN/SF-9788-HA. The consultant will help the PTU and EDH implement the action plan to fulfill the conditions precedent to the first disbursement, including terms of reference for PTU staff and the operating manual, which will be based on the existing manual for the PREPSEL program and that must be approved and implemented by the MTPTC and EDH.

C. Execution and disbursement schedule

- 3.6 Program disbursement will be spread over five years counted from the date on which the loan contract enters into force. Table III-1 shows the estimated disbursement schedule.

Table III-1 Disbursement schedule (US\$ millions)

	Total	Year 1	Year 2	Year 3	Year 4	Year 5
IDB	18.09	2.75	6.54	4.00	3.80	1.00
Local contribution	0.160	0.060	0.060	0.020	0.010	0.010
Percentages	100%	15.40%	36.16%	22.03%	20.88%	5.53%

- 3.7 In the first four semesters, the business management systems (CMS, TSMS, RMS) will be implemented, with support from consulting services hired using program funds for specification of the RMS, and also to supervise its implementation and coordinate training activities. These consulting services will be responsible for ensuring compatibility for linking the aforementioned systems and will seek to avoid having EDH become locked into any single technology. The consultant will specify the hardware and communications network needs for extending the CMS to the commercial branches in the circuits served by the Bank project. Funding is also available (US\$180,000) to extend the commercial system to at least three commercial branches, supporting primarily the purchase of computer hardware, meter concentrator terminals, and communication equipment. In addition, the environmental unit will be established, and the environmental adaptation plan will also have been executed and the waste management plan will be in operation.

Creation of the environmental unit is a condition precedent to the use of funds for activities under component 1 (implementation of business management systems and institution-strengthening), subcomponent 3 (support for creating the environmental unit). Conclusion of EU/CIDA accounting studies and financial audits will be a condition precedent to the use of resources from the first subcomponent (business management systems) of component 1.

- 3.8 Upon fulfillment of the conditions precedent to the first disbursement, preparations will begin for procurement of equipment and works under the network rehabilitation component. It will provide funding for the supply and installation of works in the six substations, along with medium- and low-voltage works in the program's 15 circuits. A condition precedent to the use of funding for activities in the medium-voltage and retailing subcomponents will be completion of the environmental activities referred to in the third subcomponent of component 1 and installation of the works in the substations. The activities under this component are expected to be completed in the tenth semester, covering installation of retailing works, service lines and metering devices for users in the program's 15 circuits. Hardware will be procured through batch tenders allowing for a competitive process, while ensuring that continuity in the sequencing of the works is not put at risk. Similarly, for the various batches (substations, medium- and low- voltage circuits, and retailing works) funding will also be provided (US\$2.6 million) for hardware installation, except for works in substations, which will be supervised by EDH.
- 3.9 This execution sequence should be reflected in the program's first AWP and be duly updated. To ensure timely and efficient fulfillment of the conditions precedent, this project will draw on resources from operation ATN/SF-9788-HA to help in execution of the operation. This will make it possible to: (i) coordinate with the World Bank's PREPSEL project, specially in the immediate aspects of coordination of the different management systems; (ii) make headway on setting up the environmental unit and the procedures referred to in the environmental strategy (paragraphs 4.13 and 4.15); and (iii) implement bidding processes in batches to improve the market prices obtained on the local market, in the few purchases made by EDH for distribution works.
- 3.10 Without detriment to the special contractual clauses to be fulfilled prior to the first disbursement, once the borrower has fulfilled the conditions related to presenting the legal report, appointing representatives, and preparing the chart of accounts established in Article 4.01 (a), (b), and (e), of the General Conditions, the Bank may release up to US\$250,000 to cover expenses relating to the fulfillment of the special conditions precedent to the first disbursement and preparation of the initial project report provided for in Article 4.01 (d) of the General Conditions.

D. Procurement

- 3.11 Project procurement processes will be undertaken in accordance with: (i) the Policies for the Procurement of Works and Goods Financed by the Inter-American

Development Bank (document GN-2349-7) of July 2006; and (ii) the Policies for the Selection and Contracting of Consultants Financed by the Inter-American development Bank (document GN-2350-7) of July 2006. The complementary procedures set out in the special ad hoc annex will also be followed, which are currently being used to rectify shortcomings in Haiti's national legislation. The ad hoc annex will be an integral part of the loan contract.

- 3.12 Annex II contains the procurement plan for the first 24 months of the project, and provides a breakdown of the different procedures to be used, the thresholds for each one, and other project procurement conditions.

E. Program monitoring

- 3.13 **Bank supervision.** The program will be supervised by the Bank's Country Office in Haiti. In accordance with the AWP, the borrower will file semiannual progress reports within 60 days following the end of each calendar half year. These reports will be put together by the PTU and must contain the following technical information: (i) progress of works in each of the program's components; (ii) supervision report on works in each subcomponent; (iii) the indicators contained in the logical framework; (iv) report on PTU activities and results; and (v) any other aspect or technical consideration relating to progress and technical fulfillment of program outcomes. The semiannual report must contain a section on the status of administrative and financial aspects prepared by the PCU and approved by the minister of the Minister of Public Works, Transport, and Communications, with the following information, notwithstanding any other provision issued by the Bank on this subject: (i) status of contracting processes; (ii) status of goods and services procurement processes; and (iii) a works supervision report for each installation contract.
- 3.14 **Monitoring and follow-up meetings.** The semiannual progress reports will be reviewed and discussed at twice-yearly monitoring and follow-up meetings, convened by the PCU a month in advance. The semiannual report should be delivered two weeks before the corresponding meeting. The Bank, staff from the PTU, PCU, EDH management staff, and MTPC representatives will participate in these evaluation meetings, which will undertake the following activities: (i) review program outcomes and targets, based on the AWP; (ii) analyze the loss reduction strategy in terms of closer relations with the user and the results obtained, and review indicators in each component as applicable. The PTU director will be responsible for reporting at meetings of the energy sector roundtable and for keeping the Steering Committee informed. The latter will discuss the main challenges for donor community actions in the sector and the external risks (paragraph 4.21) affecting the loss reduction program; as well as the medium- and long-term investment and management plans for the sector, as referred to in paragraphs 1.14 and 2.5. Bank financing will be used to hire an external expert to participate in these meetings, evaluate program performance, propose additional risk mitigation measures, ensure efficient progress is made in program execution, and collaborate in the detailed design of the medium- and long-term strategy.

- 3.15 **External audits.** The program will undergo an external financial and operational audit by a firm of independent auditors acceptable to the Bank, under terms of reference previously approved by the Bank (documents AF-400 and AF-500), in accordance with its policies and procedures. Pursuant to Article 7.03 of the General Conditions, the borrower will submit annual financial statements for the program throughout the execution period, duly audited by a firm of auditors acceptable to the Bank. The program's external financial and operational audit will produce two reports: (i) a semiannual program operational report to be submitted to the Bank by the borrower within 60 days following the end of the first half of each calendar year; and (ii) an annual financial audit of the program to be presented to the Bank by the borrower within 120 days following the end of the previous calendar year. The audit costs are included in the overall cost of the program.
- 3.16 **Compilation of data for the project completion report.** The executing agency, with support from EDH, will compile, store, and keep available all necessary information, indicators, and parameters, including annual plans, the midterm review, and the financial evaluation, to help the Bank prepare the project completion report.

IV. VIABILITY AND RISKS

- 4.1 The Bank has accumulated considerable knowledge on the performance of infrastructure programs in the country, which is being exploited in this operation for the electric power sector. Use will also be made of other donors' experience in the sector, and the close coordination between them that has made it possible to identify project viability and risks, to design an operation that can be viably executed and is highly likely to achieve the objectives.

A. Institutional viability

- 4.2 Within the ICF, support from the institutional community in the electric power sector has always been channeled through the MTPTC, which is the lead agency in the sector, having absorbed the functions of the former Ministry of Energy and Mines. The MTPTC coordinates the electricity roundtable, which channels the main donor community agreements in the sector and through which the main agreements are reached with the MEF for major sector decisions. These include fuel purchase that the MTPTC has to undertake using transfers from the MEF, given the insolvency of EDH. The stewardship, regulation, and supervision of the sector by the MTPTC and MEF are extremely important for maintaining support for donor community initiatives at the highest level.
- 4.3 The top EDH decision-making body is its Board of Directors, which is chaired by the Director General and has representation from the planning, finance, administration, production, transportation, and retailing departments. The Board of Directors is responsible for all of the company's strategic decisions. Although EDH has management staff with broad experience in the sector, institutional experience and analyses undertaken by other donors, particularly in loan operations, indicate the need for execution mechanisms guaranteeing efficient, transparent, and responsive processes that allow for adequate monitoring of goal fulfillment and, in particular, maintain high-level institutional support.
- 4.4 The cohesion of the donor community in the electric power sector roundtable in this project specifically, support at the highest level, and an execution mechanism that places technical responsibility in the hands of EDH but also has a special unit for the administrative and fiduciary management and supervision of the program, show that the institutional arrangements are adequate for the characteristics of the sector and for the nature and scope of the operation, thus making the project viable.

B. Economic and financial viability

- 4.5 As described in paragraphs 1.8 and 1.9, energy losses are the main cause of EDH's precarious financial situation. These programs are clearly viable from economic and financial standpoint; for example, a loss reduction of just 5% per year over a 10-year period, would produce savings of US\$23.05 million in terms of income from loss recovery alone, without considering the benefits brought by information systems in the long term and throughout the company, such as the capacity for

continued customer management in the future (CMS), technical management of distribution grids (TSMS), and the production of financial statements and accounting records for EDH's overall activities (RMS).

- 4.6 An economic-financial analysis was performed to determine the viability of the project and thus guarantee its robustness. Two scenarios were evaluated: (i) recovery of technical losses plus increased demand from regularized users; and (ii) recovery of technical losses only. In the first case, the average internal rate of return (IRR) (all circuits by substations) is 19.5%, and the net present value (NPV) is US\$3.9 million. All interventions in circuits are individually profitable. In the second case, the average IRR is 29.8%, and the NPV US\$9.8 million.
- 4.7 In addition, As part of the PREPSEL project, an economic and financial analysis was made of actions to reduce losses. The NPV was found to range from 15% to 42% and the IRR from 91% to 30%, incorporating different sensitivity factors, in particular those related to different levels of recovery in large-scale user billings.
- 4.8 The impact of the two programs on EDH finances would be considerable; additional revenues arising from loss reduction in the period under analysis (2007-2017) would average US\$10 million per year. In the initial years, these would fluctuate between US\$3 million and US\$15 million, and be around US\$8 million in the intermediate years. A major contribution to improving EDH overall finances (paragraphs 1.8-1.9) could thus be made merely by acting in the distribution and retailing segment. These evaluations did not include the similar positive impact of interventions under other short-term programs in the sector roundtable (paragraphs 1.21-1.22) in other segments (generation) and in the provinces (paragraph 1.14). All these programs are aimed at improving and expanding investments in transmission and improving price conditions for the supply of energy by the public and private sectors, should help put EDH on the road to sustainable financial recovery.

C. Technical viability

- 4.9 The first component, supply of the RMS, would involve acquiring and implementing a system for resource management, accounting, and the company's internal finances, to replace the current system which uses Wang technology. This pre-1980s technology was phased out during the 1990s, and it is now impossible to maintain these systems. Recurrent failures have resulted in significant loss of company information that has prevented it from publishing reliable financial statements. A data recovery process is currently underway with EU cooperation, together with the formation of EDH financial statements which will provide the main data to be entered into the RMS system.

- 4.10 When installing a new technology involving both software and hardware, there are currently several platforms from which to choose.¹² As this is new technology for EDH, but widely used in the industry, the operation provides funding to hire a consultant to determine system and software specifications, as well as the interfaces needed to link with the technical and business systems (CMS and TSMS). At the same time, the supplier will also provide training for EDH staff.
- 4.11 The program does not pose particular technical difficulties; the rehabilitation works to be undertaken in the second component are common daily practices in the operation of distribution grids that can be executed and supervised without special requirements. The equipment to be replaced in the distribution grids is contained in the following categories: (i) transformers and circuit breakers; (ii) medium-voltage cables and metal fittings, or auxiliary equipment; (iii) low-voltage cables and metal fittings; and (iv) metering equipment. Installation of all these pieces of equipment is part the company's normal practices, so there is no special aspect that makes their installation and operation unviable; the equipment has technical characteristics that have not been subject to any major manufacturing or technological upgrade, and no specific training is required. The detailed specification, or inventory, of the works to be implemented in each circuit, in each of the foregoing categories, will be defined through activities financed by technical-cooperation operation ATN/SF-9788-HA. As the first works to be implemented are management systems, installation and rehabilitation works are expected to start in the first year of eligibility.

D. Socioenvironmental viability

- 4.12 The type of works to be financed does not include extending distribution grids for new users; only rehabilitation works and equipment replacement will be undertaken, or replacement of cables, pylons, circuit breakers, etc., which are not expected to have negative impacts requiring special measures. In fact, energy loss reduction helps to reduce pollution emissions, mainly CO₂ and NO_x caused by the consumption (loss) of fuel oil in the main power plants serving the capital city. It will therefore not be necessary to undertake special environmental and social studies (i.e. EAS, EIAS, etc.). Works of this type, however, mainly render materials obsolete in particular dielectric oils¹³ from transformers, reactors, and other equipment widely used in the industry. With respect to EDH, on conclusion of the evaluation made in preparing this project, general environmental guidelines were formulated, as described in Annex IV, EDH General Action Guidelines.

¹² Various possibilities were identified, including recent platforms in Windows or UNIX environments, in accordance with the "Diagnostic assessment of information systems in EDH" financed by AFD and complemented by the World Bank.

¹³ Information from other donors in the sector, visual inspections, and all information compiled with those responsible for maintenance and repair in distribution areas show that there are no transformers built after 1977, so the chances of encountering PCBs or other environmentally hazardous liquids are low.

- 4.13 The evaluation identified the most important environmental and social institution needs and weaknesses: in particular, the nonexistence of an “environmental management culture” (lack of a corporate environmental policy, general environmental guidelines, or environmental laws or regulations associated with the sector, etc.), insufficient qualified technical staff, inadequate facilities, and a nonexistent annual administrative budget for environmental management activities. As an initial step, it has been agreed with EDH authorities to create and set up a small environmental unit, as a condition precedent to the use of resources for the waste management plan and environmental improvement plan (third subcomponent in component 1). The unit will be formalized as an EDH unit and at least three EDH staff specializing in distribution processes and management of transformation equipment will be assigned to it. This will give it permanency and the possibility of having sufficient, stable human and budgetary resources to fulfill its functions.
- 4.14 To initiate the unit’s activities, project funds will be used to hire specialized international consulting services to: (i) prepare, in coordination with the Ministry of the Environment, draft policies, regulations, and general environmental guidelines for EDH; (ii) support the creation of the Toxic and Nontoxic Waste Management Plan (WMP), specifically in relation to this project; (iii) train designated unit employees in general aspects of environmental management and application of the WMP for this project; and (iv) draw up an environmental improvement plan for maintenance and storage facilities in EDH central offices (i.e. engineering designs for facility upgrades, necessary materials, etc.). During the execution period, monitoring and follow-up meetings (paragraph 3.14) will verify fulfillment of the environmental activities mentioned in this section.
- 4.15 This operation qualifies as a social-equity enhancing project, as described in the indicative targets mandated by the Bank’s Eighth Replenishment (document AB-1704). Although the indicators to be used will be all of those related to the electricity service (continuity, losses, financial recovery), and no direct indicators will be used to measure its contribution to poverty reduction and the improvement of social equity, there is a broad consensus in the development literature¹⁴ regarding the impact of basic electricity services on poverty reduction. Although electricity does not reduce poverty per se, it has various direct impacts including: (i) improvement of family incomes as a result of moving from other more costly energy alternatives; (ii) better quality education in the family and schools; (iii) better hygiene conditions in the home, health centers, and schools; (iv) more widespread dissemination of information; (v) increased safety; and (vi) an increase in participatory activities.

¹⁴ IDB, *Reaching the Majority: How to Scale Up Poverty Reduction in Latin America by Improving Access to Basic Infrastructure Services*, 2005. [2] ADB, *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction*, 2005. [3] World Bank, *Water Electricity and the Poor*, 2005.

E. Benefits and beneficiaries

- 4.16 The project will help improve the living standards of the electricity users targeted by this intervention, by sustaining current electricity services and improving service availability and quality. EDH has 184,931 registered users, of whom 112,646¹⁵ are in the Port-au-Prince area; 90% of these are residential, 2% are industrial, and the remaining 8% are commercial or other. The first two circuits to be considered in the program are expected to benefit an estimated 120,000 inhabitants, and as the other circuits progress, up to 650,000 inhabitants of the metropolitan area could benefit. In 2005, when just 373.6 GWh of the 653.5 GWh of energy produced was invoiced and paid for, losses totaled US\$47 million. Under this project, basic absorption capacity would be generated making it possible to demonstrate positive results, and make a broader interventions viable in the sector to raise it to a level where its recovery and growth, under an alternative management model, could be viable.
- 4.17 The expected benefits and outcomes are summarized in the logical framework contained in Annex I. The expected outcomes, ranging from general to specific, can be identified as: (i) reduction of government support for EDH; (ii) reduction of technical and nontechnical losses; (iii) longer hours of service in the project area; (iii) higher recovery rates from irregular customers; (iv) increase in invoice issuance; and (v) increase in invoice collection. Simple and easy-to-monitor indexes could be used to clearly and effectively verify project outcomes. Although the operation is only part of the short-term strategy, the greater results would reduce government transfers to the sector, thus freeing up public sector resources that could be better targeted on other urgent government priorities.
- 4.18 As additional benefits, workers and staff of EDH will gain knowledge and receive training on: (i) customer-oriented business management systems; (ii) financial and accounting management of the company; (iii) technical aspects of planning and electricity distribution and retailing, which will result in increased capacities making it possible to improve the company's technical and managerial capacity with a view to making larger-scale operations viable in the sector on the road to EDH's recovery.
- 4.19 An environmental unit will also be implemented which, as an additional benefit to the functions for this specific project, will be the basis for defining a general environmental policy for the company, with staffing and rules that can form the fundamental basis for its corporate recovery, alongside financial recovery, and for undertaking possible future investments within a growing environmental culture.
- 4.20 As part of the multidonor strategy, within the ICF, significant gains are expected to be generated for the sector, such as greater efficiency and competitiveness in processes relating to energy purchase, and the procurement of fuels and other services required by EDH, which would significantly improve the management of

¹⁵ Data as of September 2005.

the company. This project will therefore bring additional benefits to the multidonor strategy, making EDH's medium- and long-term recovery more viable.

F. Risks

- 4.21 Although the scope of this operation does not encompass all segments of the electricity sector, and forms part of the actions of the donor committee within the strategy and Protocol Agreement of the sector roundtable, in the short run various risks have been identified, together with mitigation measures.

Table IV-1

Risks	Mitigants
Political and social	
Lack of conditions of security and social peace , which can cause serious delays in the preparation and execution of the works.	This risk is basically beyond the control of the project. Nonetheless, one of the main objectives of the ICF process between the donor community and the government is to maintain social peace in the country.
Radical changes in policy towards the sector , which could radically stray from a gradual strategy based on short-term action to improve efficiency, transparency, and financial recovery, followed by adequate strategies in the institutional and structural setting of the sector in the country.	Both the previous and the current government have supported the ICF, and the work of the sector roundtable supports these basic principles. The new Minister of Public Works, Transport, and Communication has made "sell more and sell better" a fundamental strategy, referring to the fact that in the short run emphasis will be placed on efforts to reduce losses. Also, the new administration has already approved the accompanying World Bank operation, whose similar fundamental principles corroborate this aim.
Sector risks and risks of the operation	
Inadequate supply of power generation for the project strategy : Reduction of the current supply of power generation could put the fundamentals of the program at risk; any improvement in customer service and improvements achieved in terms of recovering losses could be eclipsed by an aggravated shortfall in the generating sector.	The work of the energy sector roundtable includes permanent dialogue and actions in relation to electric power generation. Some units are undergoing repairs through CIDA, USAID and AFD, which are expected to be completed, and whose objectives should be achieved as a result of coordinated efforts by the donor community. There is permanent dialogue on transparent renewal of the PPA contracts set to expire next year.
Reduction in cohesion and participation by the donor community in the sector , which could undermine the strength of the strategy and the agreements reached with the government in the energy sector roundtable.	The donor community continues to participate in the energy sector roundtable; and broad cohesion continues to be evident among the main contributors including CIDA, World Bank, and USAID, as evidenced by this operation. All meetings of the roundtable and continuous dialogue with donors will continue to be monitored.
Coordination with other donors , particularly the execution mechanism whose procedures and different procurement regulations could give rise to major transaction costs and execution problems.	Preparation of the operations has been monitored closely by the IDB and World Bank. There are experiences in transport programs in the use of standardized procedures that can be drawn on to reduce this risk. The project report will specify detailed execution arrangements.

Risks	Mitigants
<p>Continuity in the use of other sources of service: Users of a certain level of purchasing power, install inverters to complement the deficient electricity service; persistence of the service deficiency could discourage these users from consuming more from EDH's supply.</p>	<p>The increase in generation as part of other government efforts to guarantee a widespread service provided for more hours per day, is the largest incentive to attract these users back. The parallel World Bank project is considering allowing payment through money transfer offices, which are widely used to send remittances to Haiti. This would be an additional improvement in the service to encourage payment.</p>
<p>Equipment cost overruns: Available information shows that the costs of electrical equipment similar to those to be procured in this operation may be very high given the poorly functioning market in the country. Few suppliers, or import cost overruns.</p>	<p>It is hoped that by using the Bank's competitive procedures, it will be possible to attract the maximum possible number of suppliers who appreciate the security of the funding to be provided through the Bank loan. The project also has the flexibility to reduce its scope to a smaller number of circuits if costs unduly exceed current estimates according to costs obtained in similar supplies.</p>
<p>Institutional incapacity to adapt to the new management systems and procedures, which could lead to inefficient or nonoperational management of business systems, and inadequate application of procedures in business cycles.</p>	<p>The project will stress the need for transfer and permanency of the knowledge to be acquired through training activities. The continuous monitoring and follow-up mechanism, the presence of the Steering Committee, and the PTU/PCU execution mechanism, as well as the present of the international expert (paragraph 3.23) are expected to allow adjustments to be made along the way, as problems are detected and suitable solutions proposed on a timely basis.</p>

LOGICAL FRAMEWORK
REHABILITATION OF THE ELECTRICITY DISTRIBUTION SYSTEM IN PORT AU PRINCE
Haiti (HA-L1014)

Descriptive summary	Performance indicators	Means of verification	Assumptions
Goal To help sustain the continuity and quality of electricity services to the population living in the capital city, and to improve the EDH financial and administrative situation, to pave the way for its recovery and efficient development.	Energy provided in the program area ¹ <i>[Baseline 287 MWh per semester]</i> <i>[287 MWh semesters 1 - 5]</i> <i>[340 MWh semesters 6 - 12]</i> Average number of interruptions per month per circuit <i>[Baseline 126 interruptions]</i> <i>[<33 for semesters 1 - 3]</i> <i>[<21 for semesters 4 - 5]</i> <i>[<15 for semesters 6 - 12]</i> Transfers to EDH recorded in the budget <i>[Baseline X=50 US\$ million 05/06]²</i> <i>[X-5 US\$ million average years 1 - 3]</i> <i>[X-10 US\$ million average years 4 - 6]</i>	PTU/EDH statistics PTU/EDH statistics National balance sheet	1. Political and social stability. 2. Economic expectations do not change radically. 3. The government maintains its support for the IDB/World Bank strategy for recovering EDH losses. 4. Government and the donor community efforts are sustained to support an increase in generation.
Purpose To help reduce technical and nontechnical energy losses in electricity distribution by improving infrastructure, service quality, and the company's management capacity.	Index of technical losses in the program area <i>[Baseline 48.05 MWh per semester]</i> <i>[30.05 MWh semesters 1 - 5]</i> <i>[20.05 MWh semesters 6 - 12]</i>	PTU/EDH statistics PTU/EDH statistics	5. EDH and its employees maintain their support for the project. 6. The PTU and PCU are fully operational.

¹ Refers to all circuits of the following substations: Canapé Vert, Ancien Delmas, Martissant, Rivière Froide, Croix-des-Missions and Croix-des-Bouquets.

² Own prediction using IMF/World Bank data.

Descriptive summary	Performance indicators	Means of verification	Assumptions
	Invoicing rate in the program area <i>[Baseline 75% per month]</i> <i>[80% semesters 1 - 5]</i> <i>[84% semesters 7 -12]</i> Cash recovery index <i>[Baseline 30% per month]</i> <i>[45% semesters 1 - 5]</i> <i>[68% semesters 7 - 12]</i>	PTU/EDH statistics PTU/EDH statistics	7. Business management systems are operating. 8. Progress is made in works installation for component 2.
Components 1. Implementation of business management systems and institution-strengthening	Management system fully operational without interruptions <i>[2 sem.³ - start of TSMS and CMS operation]</i> RMS fully operational <i>[3 sem. – start of operation]</i> Management and technical staff trained <i>[4 sem. – completion of management staff training]</i> <i>[6 sem. – completion of technical staff training]</i> Functioning of waste management plan <i>[2 sem. –environmental unit established]</i> <i>[4 sem. – completion of the environmental improvement plan]</i> <i>[4 sem. – waste management plan operating]</i> Studies/strategy completed for implementing medium- and long-term investment plan <i>[3sem. – completion of works]</i>	Semiannual reports Semiannual reports Semiannual project reports Semiannual project reports Semiannual project reports	9. Adequate security conditions maintained in the country and in Port au Prince. 10. The government maintains its support for IDB/World Bank strategy for recovering EDH losses. 11. EDH and its employees maintain support for the project. 12. The PTU and PCU are fully operational. 13. Procurement processes continue to function efficiently.
2. Rehabilitation of medium- and low-voltage works and retailing.	Rehabilitation of equipment in substations <i>[5 sem. - conclusion of works in six substations]</i>	Semiannual project reports	14. Adequate safety conditions maintained in the country and in the project area in Port-au-Prince.

³ Note for all cases: sem = semesters after fulfillment of conditions precedent to the first disbursement.

Descriptive summary	Performance indicators	Means of verification	Assumptions
	<p>Rehabilitation of medium- and low-voltage circuits <i>[5 sem.- conclusion of works in 10 circuits, 100 transformers installed]</i></p> <p><i>[10 sem.- conclusion of works in 15 circuits, up to 230 transformers installed]</i></p> <p>Installation of service lines and metering devices <i>[5 sem.- completion of installation of metering devices in 10 circuits, 40,000 users]</i></p> <p><i>[10 sem. - completion of installation of metering devices in 15 circuits, up to 55,000 users]</i></p>	<p>Semiannual project reports</p> <p>Semiannual project reports</p> <p>Semiannual project reports</p>	<p>15. Procurement processes continue to function efficiently.</p> <p>16. Contractors with suitable experience are attracted, and adequate conditions are obtained for equipment purchase.</p>

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/06

Haiti. Loan ___/SF-HA to the Republic of Haiti. Rehabilitation of the
Electricity Distribution System in Port-au-Prince

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Haiti, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a program for the rehabilitation of the electricity distribution system in Port-au-Prince. Such financing will be for the amount of up to US\$18,090,000 or its equivalent in other currencies, except that of Haiti, which is part of the Bank's Fund for Special Operations, and will be subject to the Financial Terms and Conditions and the Special Contractual Clauses of the Project Summary of the Project Report.

(Adopted on __ _____ 2006)

LEG/OPR/RGII/IDBDOCS#840226
HA-L1014