PROJECT INFORMATION DOCUMENT (PID)

CONCEPT STAGE

Report No.: PIDC21399

Project Name	Haiti Modern Energy Services For All (P154351)
Region	LATIN AMERICA AND CARIBBEAN
Country	Haiti
Sector(s)	Other Renewable Energy (75%), Transmission and Distribution of Electricity (10%), Energy efficiency in Heat and Power (10%), General energy sector (5%)
Theme(s)	Rural services and infrastructure (90%), Climate change (10%)
Project ID	P154351
Borrower(s)	The Republic of Haiti
Implementing Agency	MTPTC - UCE
Environmental Category	FI – Financial Intermediary
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I. Introduction and Context

Country Context

Haiti is a fragile country in the LAC region, with very specific characteristics and considerable development challenges. Its geographical proximity to the United States, important diaspora, young labor force and substantial geographic, historical, and cultural assets, including abundant renewable energy (RE) resources, offer a range of economic opportunities. However, Haiti's population of 10.4 million, half of which is rural, remains poor. According to the most recent national household survey (ECVMAS, 2012), nearly 60 percent of the Haitian population is classified as poor (living under the national poverty line of US$2 a day) and almost a quarter of the population was extremely poor (<US$1 a day). The country ranks 161st on the 2014 Human Development Index.

Haiti's economic performance has repeatedly been compromised by political shocks and natural disasters. The most devastating impact was registered from the 2010 magnitude 7 earthquake, which killed around 300,000 people and displaced 1.5 million in Haiti's capital and nearby towns, making it one of the deadliest natural disasters on record. It resulted in damages and losses of around US$8 billion (120% of GDP) from which the country is only now beginning to recover.

Post-earthquake politics were marked by the first peaceful handover of presidential power to an

opposition candidate in the history of Haiti. President Michel Martelly succeeded President René Préval on May 15, 2011. Though some electoral irregularities led to demonstrations, there was no widespread violence. New presidential, parliamentary, and municipal elections are now scheduled to be held by the end of 2015.

Although widespread expressions of political violence have been relatively rare since 2010, historically political violence has occurred regularly, including during electoral periods, leading to instability and chronic fragility. Since the end of the Duvalier dictatorships in 1986, Haiti had a succession of short-lived governments. Lacking sufficiently long periods of stability, the country has struggled to develop the institutional mechanisms, capacity, and policy fundamentals essential to economic development and the rule of law, leading to low levels of trust between State and citizens.

Haiti is one of the most unequal countries in the region. The richest quintile holds over 64% of the total country income, while the poorest quintile holds less than 1%. As of 2012, the Gini coefficient was 0.61, the highest in the region. There are also strong disparities between urban and rural areas. While the extreme poverty rate has been falling in urban areas, the rural population has not seen much improvement over the last ten years. One third of the rural population is unable to satisfy its nutritional needs and almost three quarters of rural households are considered chronically poor—both below the poverty line and lacking access to basic goods and services, making it especially hard for them to emerge from poverty.

Gross domestic product (GDP) per capita was US$846 in 2014 – less than 10% of the Latin America and Caribbean (LAC) average. However, since 2011, Haiti has been experiencing positive GDP growth – averaging 3.7% between 2011 and 2014, allowing GDP per capita to rise by 2.4% a year – as opposed to the historic trend of falling GDP per capita since 1971. Throughout the post-earthquake period, Haiti has also managed to maintain macroeconomic stability and met its quantitative targets under an IMF Extended Credit Facility.

However, moving forward, Haiti will need to accelerate the growth rates even more to meaningfully reduce poverty. The 2015 Systematic Country Diagnostic (SCD) illustrates that significant acceleration of growth rates is needed to reduce poverty, but also that growth has to become more inclusive – to benefit disproportionately the bottom income quintile. This will require, among other measures, more attention to the development of economic opportunities in the secondary cities and rural areas, including improvements in access to basic infrastructure services, such as electricity. The 2015 World Bank's Poverty Assessment identifies access to reliable electricity among the essential inputs to elevate productivity and create jobs in rural areas.

Sectoral and Institutional Context

Power sector context

The main provider of electricity services in Haiti is the national, government-owned utility Electricity

of Haiti (Électricité d'Haïti; EDH), serving some 250,000 (legal) customers, mostly in the Port-au-Prince metropolitan area – with additional 11 isolated grids scattered through the country. Current electricity infrastructure is aging and has been poorly maintained. Installed generation capacity is about 320 MW, of which only 176 MW is available—insufficient to meet estimated peak load demand of more than 500 MW, resulting in frequent load-shedding and service interruptions. Most of the power (81%) is supplied through oil-based thermal generation (diesel and fuel oil) with EDH-owned hydropower contributing 19%. These fossil-fuel generation plants are expensive for EDH, straining its financial situation. EDH faces considerable technical, managerial, and financial challenges. Technical and nontechnical losses are 65%. Further, the collection rate is only two–thirds. Consequently, EDH faces difficulties in paying for fuels, basic maintenance, and other operating costs, and depends on government subsidies to bridge the gap. The average daily electricity service of only 16 hours compels most industries to self-generate. It is estimated that the cumulative capacity of individual diesel generators in the country is more than 200 MW.

Haiti has excellent, but largely untapped, RE potential, including hydro, biomass, wind, and solar, as confirmed by recent and current studies. However, despite such abundance, progress in harnessing it has been slow.

Haiti's off-grid energy pathway and challenges ahead

Investments in rural electrification in Haiti have remained scarce in the last 30 years, resulting in an official rural (grid) electrification rate kept more or less constant at around 5%. With EDH absent from most of the rural areas, local governments and users have been left on their own to find solutions to their electricity needs. Considering the high costs of running a diesel gen-set, most rural households (i) rely on kerosene and candles for lighting, at extremely high unit costs and low quality; (ii) charge their increasingly spread and vital mobile phones at commercial charging stations; and (iii) buy disposable batteries for their radios and other similar appliances. Only recently have solar lanterns started to emerge as an alternative, but most of the lanterns sold on the market are of low quality, delivering poor service, and breaking frequently.

Haiti's rural poor spend a very large share of their total household budget on basic lighting and energy services, for very poor service quality and quantity at high unit costs. According to project preparation household surveys, the departmental averages for rural households are between US$10 and US$20 a month – which is high in international comparison. These high costs are not only a burden on the rural household budgets, but they are also constraining growth and productivity of agri-businesses and other rural SMEs.

A range of renewable energy-based solutions exist today that can provide much superior level of service at price points lower than what the Haitian consumers (both households and businesses) pay today. Not surprisingly, many of these products and technologies are now also emerging on the Haitian market, although their penetration levels are still very low and entry barriers are still significant.

The first two RE markets that have emerged in Haiti in post-earthquake years are those for (i) solar lanterns/pico-PV products, and (ii) larger roof-top solar PV systems for self-supply for (mostly urban) businesses and industries to reduce diesel spending (the ”fuel-savers”). More innovative business models, such as pay-as-you-go (PAYG) solar kits and smart micro-grids (see below), are now also beginning to emerge, although all still in the piloting stage. Therefore, off-grid electrification is a viable option in Haiti: (i) consumers have unmet demand and capacity to pay for off-grid solutions, as demonstrated by already high average monthly payments for inferior alternatives; and (ii) various supply options, which can deliver services to different market segments, exist and have been demonstrated (at least on a pilot basis) to work in Haiti. The challenge is to scale-up from thousands of households served to hundreds of thousands and millions. The scale-up is currently constrained by early market stage inefficiencies. The key barriers identified in consultation with the existing off-grid energy companies, and supported by consumer surveys and market data, include:

- Consumers lack of confidence due to market spoilage by inferior quality products and difficulty to pay high upfront payments for higher-end products
- Unfair competition between fossil fuels and renewable energy products/technologies
- Lack of private sector financing due to the nascent character of the off-grid industry and underdevelopment of the Haitian financial markets
- Regulatory uncertainties increasing investors risk premium

An effective public sector intervention therefore should focus on removing early stage market inefficiencies, in particular addressing various (initially inflated) risk perceptions from consumers and investors alike in order to build necessary conditions that would allow phasing out of the public support over time. This in particular include:

- Building confidence of consumers in renewable energy technologies by (i) increasing the market share of high quality products, (ii) leveling the playing field with fossil fuel alternatives and (iii) focusing on the development of business models that allow consumers to “test” technologies at low risk
- Building confidence of investors and financiers by (i) reducing regulatory risk, and (ii) demonstrating profitable business models with growth potential

Relationship to CAS

The proposed Project is fully consistent with the current World Bank Group's Haiti Interim Strategy Note for FY13-FY14 (Report No. 71885-HT) that was discussed by the World Bank (WB) Executive Directors on September 27, 2012. The Strategy defines the program of the second tranche of the US$500 million allocated to Haiti in response to the 2010 earthquake from the IDA16 Crisis Response Window. Its overarching objective is to support the GOH in implementing sustainable post-earthquake reconstruction and shift from emergency response to development, with a focus on: (i) reducing vulnerability and increasing resilience; (ii) encouraging sustainable reconstruction; (iii) building human capital; and (iv) promoting inclusive growth.

The proposed Project will in particular help set conditions supporting the objective of inclusive growth in rural areas. Under the strategic objective of building human capital, the proposed Project will also strengthen the capacity of both the Government and the off-grid electricity providers in rural areas.

Higher Level Objectives to which the Project Contributes

The Project supports the World Bank Group objectives of ending extreme poverty and promoting shared prosperity by targeting investments in rural areas, where the highest poverty levels are found. World Bank's recent poverty assessment "Creating Opportunities for Poverty Reduction in Haiti" (2015) concludes that "continued advances in reducing both extreme and moderate poverty will require greater, more broad-based growth, but also a concerted focus on increasing the capacity of the poor and vulnerable to accumulate assets, generate income, and better protect their livelihoods from shocks. Special attention should be given to vulnerable groups such as women and children and to rural areas, which are home to over half of the population and where extreme poverty persists." The study has identified rural electrification as one of the areas that can improve agricultural productivity and support non-farm income generation – both sources for increasing income in rural areas.

The Project fully supports the Government's objective for universal electricity access. The Government aims for Haiti to become an "emerging country" by 2030. This vision includes the objective to reach universal electricity access by 2030—in line with the SE4ALL goals.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The Project Development Objective (PDO) is to accelerate private sector-driven, renewable energy-based off-grid electrification in rural and peri-urban areas of Haiti.

This objective will be achieved primarily through assisting the Government with the creation of an enabling regulatory framework; and providing funding and market development activities for commercially viable off-grid electrification investments with a potential for replicability and scale-up.

Renewable energy-based off-grid electricity services will comprise a variety of technologies and business models, including individual systems, such as solar lanterns and solar home systems, and village-based systems, such as mini- and micro-grids, powered by renewable energy or hybrid sources (renewables with a diesel back-up and/or battery storage). Private sector is understood to comprise also NGOs and cooperatives.

Key Results

The PDO will be measured against the following indicators:

- People provided with access to electricity under the Project by household connections - Other Renewable Energy – Off-grid (#)*
- Number of enterprises that started and/or scaled up their off-grid electrification activities with assistance of the Project
- Financing leveraged through CTF funding (US$ million)**
- Tons of GHG emissions reduced or avoided over lifetime of the Project (tCO2eq)**

* Core sector indicator; ** CTF core indicator

In addition, the progress in providing high quality, reliable and affordable energy services will be measured through the application of the SE4ALL multi-tier framework (MTF) through household surveys (baseline in 2016 and follow up at mid-term review and project closure), with interim data being collected through a combination of supply (company reporting) and demand (cell phone surveys/beneficiary feedback) measurements.

III. Preliminary Description

Concept Description

1. The project will have the three following components as summarized below and detailed further in Annex 2:

i. Enabling environment and program oversight
ii. Off-grid Electricity Fund (OGEF)
iii. Fund management, pipeline development and technical support

Component 1: Enabling environment and program oversight (US$1.5 million) **–** implemented by the Energy Cell of the Ministry of Public Works, Transportation and Communications (MTPTC)

2. To achieve the desired off-grid electrification acceleration, it is essential to improve the business environment. While minimum conditions for operating off-grid business in Haiti exist today, as demonstrated by the vibrant (yet low quality) solar lantern market and emerging innovative business models, their scale-up is constrained by the early market inefficiencies. Component 1 will include TA activities related to improving fiscal and regulatory environment, setting quality standards and promoting energy efficient solutions, improving consumer awareness of RE technologies, promoting gender-sensitive approaches, strengthening capacities and carrying out knowledge exchanges. It will also support the Energy Cell of MTPTC in its OGEF oversight functions.

Component 2: Access to finance facility (US$12 million) – implemented by the competitively selected Fund Manager (see Annex 2 & 3 for details)

3. This component will establish a flexible Off-grid Electricity Fund (OGEF), consisting of equity, debt and results-based financing modalities responding to different needs of the off-grid energy enterprises, serving different consumer segments. OGEF will be structured according to the following three business lines:

- *Working capital and results-based grants for premium quality solar lanterns.* Experience from

Haiti as well as other countries shows that local distributors (mostly SMEs or NGOs) face problems with access to short-term working capital, which would allow them to (i) import quality products at greater quantities and (ii) provide better financing terms to their retailers and/or final users. Access to working capital would therefore enable a faster market penetration for solar lanterns/solar kits. In addition, this component will provide a time-based limited support in terms of results-based financing (RBF) for premium quality (Lighting Global certified or equivalent) products. This will be a limited and time-bound "pump priming" support aimed at further expanding the share of high quality off-grid products in this crucial stage of market transformation in Haiti.

- *Equity and start-up results-based financing for DESCOs and village grids.* The initial market analysis demonstrates that the Haitian market could support 3-4 DESCO-type businesses, which provide energy services to households, businesses with individual solar kits/home systems, using pre-paid pay-as-you-go meters (see description in Box A1.3, Annex 1). Based on the historic development of DESCOs and smart micro-grids in other countries, early stage equity and grants will be needed to launch these businesses.
- *Medium-term debt for DESCOs and village grids*. While equity/grant combination is usually needed to start a new off-grid venture, the expansion of business will require debt financing, ideally in the local currency, 3-6 years tenors, which will allow companies to pre-finance equipment and recover investment through fees/tariffs over time. As debt financing will likely be the main source of finance of companies in the expansion phase, this business line will also start creating evidence of viable business opportunities for local commercial banks, which should become the main funder of these companies after the closure of the proposed OGEF fund.

Component 3: Fund management, pipeline development and technical support (US$2.5 million) –implemented by the competitively selected Fund Manager (see Annex 2 &3 for details)

4. This component will cover Fund Manager fees (the fee will be determined through the bidding process). In addition, the component will provide funding for the market development activities; monitoring, verification and evaluation; and provision of technical support to the beneficiaries. Market development activities will focus on enhancing the quantity and quality of potential investments presented to the OGEF fund and increasing the chances of success of businesses that have received an investments.

IV. Safeguard Policies that Might Apply

Safeguard Policies Triggered by the Project	**Yes**	**No**	**TBD**
Environmental Assessment OP/BP 4.01	**X**		
Natural Habitats OP/BP 4.04			**X**
Forests OP/BP 4.36		**X**	
Pest Management OP 4.09		**X**	
Physical Cultural Resources OP/BP 4.11		**X**	
Indigenous Peoples OP/BP 4.10		**X**	

Involuntary Resettlement OP/BP 4.12	**X**		
Safety of Dams OP/BP 4.37		**X**	
Projects on International Waterways OP/BP 7.50		**X**	
Projects in Disputed Areas OP/BP 7.60		**X**	

V. Financing (in USD Million)

Total Project Cost:	16.00	Total Bank Financing:	0.00
Financing Gap:	0.00		

Financing Source	**Amount**
Borrower	0.00
Clean Technology Fund	16.00
Total	16.00

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