

## **Peace and Prosperity Through Renewable Energy in Haiti**

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### **Project Background**

In the wake of the devastation caused by the earthquake of 2010 that killed more than 200,000 people and left a million homeless, peace and social stability in Haiti remains tenuous. In October of 2013, citing the effects of ongoing socioeconomic instability, the UN Security Council voted unanimously keep peacekeeping forces in the country at least one more year. Indeed violence, civil unrest and economic instability still threaten this nation's fragile peace. In a press release issued on November 16<sup>th</sup>, 2013, the Head of the UN Stabilization Mission in Haiti (MINUSTAH), Sandra Honore stated, "The Mission urges all Haitians, civil society and other actors, including political, religious and community leaders, to continue working for peace."

In fact, according to the UN Council, a major and growing source of strife in Haiti comes from unmet basic services -- such as electrical power. Electricity's role in providing Haitian peace and stability is crucial. After all, electricity is essential in providing communications, modern education, food security, worker productivity, health as well as personal safety and security. However in Haiti, more than six million people still lack access to the electrical grid. Belbede, Haiti, located in the municipality of Boucan-Carré, is one such rural village suffering the destabilizing effects of energy poverty. Most of the 5000 people who live there struggle without any form of electrical power. At night the village schoolhouse remains dark and shuttered, while children inside their homes breathe noxious emissions from burning kerosene lamps. (Incidentally, pollution from kerosene lamps is responsible for more respiratory illness deaths, of children especially, than HIV/AIDS and malaria combined. Healthcare services in Haiti are already severely strained.) Food shortages and malnutrition can occur during the dry season from November to March. Even though a sizable river passes below Belbede just meters away, without pumps there's no way to direct the water uphill to the crops. Diesel powered generators are simply too expensive to purchase, fuel and maintain for the average subsistence farmer living there. Fortunately recent improvements in cost and efficiency have made solar generated electricity a realistic, cost-effective and sustainable means of ameliorating or even solving energy poverty in off-grid areas of Haiti.

### **Project Summary**

This project will introduce affordable "plug and play" solar energy solutions that will generate electricity in Belbede, Haiti, in a first phase of a planned multiphase project seeking to organically increase renewable energy services to villagers. This first phase will have three renewable energy initiatives:

1. The installation of a solar kit that will provide 500 W of stored power to the schoolhouse. This will be sufficient to power low voltage LED lights, several computers and a fan. The kit will be installed alongside local technicians with extensive solar photovoltaic (PV) installation experience.
2. The installation of a solar powered irrigation pump system that will pump river water up a gentle slope to the farmland acreage above. This system will allow for the drip irrigation of approximately 2.5 acres of land during the dry season and droughts.
3. The dissemination of small but powerful solar rechargeable lamps with cell phone charging capability. These innovative lamps have been developed for individuals to provide light in place of kerosene lamps. Rather than simply give these useful lights away, they will be made available via a small enterprise distribution system with assistance from a micro-finance (MFI) institution.

This proposed solar project has already been met with the enthusiastic approval of all involved parties. The mayor of Boucan Carre, Fegues Germain, and Belbede supervisor, Lucien Joseph have both been apprised of this project and have granted me permission to implement it as described in this proposal. Translation and logistical help has been offered by Fatem, the largest community organization that services the Mirebalais area of Haiti. I personally have practical (as well as theoretical) experience from my working on a similar small-scale solar installation project in rural China. Even though the systems now are far simpler to install than just a few years ago, a local electrician (who worked on the recent flagship Partners in Health, Mirebalais Hospital solar panel installation) will oversee the Belbede installations. The irrigation pump's location has been already been chosen to suit the needs of several community farmers. The project's successful implementation will allow it to scale up to service more farmers, homes and community buildings.

### **Expected Outcomes**

The project's central objective is to ameliorate energy poverty in Belbede as a way to provide peace and stability to the citizens living there. At the same time, we can demonstrate how solar power can be accomplished all over Haiti, and be self-sustaining. To this end, the systems must be affordable. Since upfront cost is an obstacle, a microfinance system will be employed. Four people will be trained to distribute various solar appliances, such as the small lamps through a rent-to-own system. Those who agree to distribute the solar lamp/cellphone charger will acquire the products through a micro-loan system. The successful repayment of loans will allow for future expansion of the project, and greater distribution of off-grid solar power. Given the cost savings and convenience the solar lamps provide (residents currently walk miles to recharge their cell phones); we fully expect this initiative to succeed and be sustaining.