



Haiti Sans Luminere

TRANSFORMING A NEIGHBORHOOD IN HAITI
WITH RELIABLE ELECTRICITY

- Proposed to you by -

HAITI 155

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www.haiti155.org

I INTRODUCTION



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Haiti 155 is a non-profit organization with bases both in New York City and Port au Prince, Haiti. The mission of Haiti 155 is to inspire and support long-lasting social and economic change in Haiti, which begins with empowerment at the grassroots level. We at Haiti 155 support this process through technical guidance, resource mobilization and entrepreneurial innovation. With a permanent presence in Haiti and a center for fundraising and administration in the United States, we embark on small-scale, manageable social empowerment projects in the Fontamara and Carrefour neighborhoods around Port au Prince.

While the devastating earthquake of January 10, 2010 has brought international attention to Haiti, this Caribbean nation was and still is among the poorest in the world. The standard of living is extremely low, and the economy remains largely stagnant. Basic infrastructure, when it exists at all, is often broken with no chance of repair in sight. A lack of functional roads or electricity severely restrict the ability for the average Haitian to make a living, let alone save enough money to rise out of the cycle of poverty.

Haiti 155's work in Haiti started in 2010, with operations based at a house owned by the brothers Lionel and Constant Bernard, the founders of Haiti 155. In Fontamara, neighborhood where the house is located, people in the neighborhood meet to mingle and support one another. Lionel and Constant are both well-known and highly respected within the Fontamara and Carrefour neighborhoods, and have experience in dealing with Haiti's culture and system.

Haiti 155 is currently working on several projects in Haiti: a project to bring a much-needed reliable source of electricity to the residents of Fontamara, another project to establish a business for a group of fishermen in Carrefour, and most recently a partnership with **Blue Marble Dreams** to build a world-class ice-cream shop in Port au Prince called *Bel Rev*.

This proposal focuses on the electricity project, *Haiti Sans Lumiere*.

II. Executive Summary

Haiti Sans Lumiere is an initiative of Haiti 155 which aims to provide a reliable source of electricity for the residents of the Fontamara neighborhood of Port au Prince, Haiti. The residents of Fontamara identified electricity as a key barrier to economic growth and improving their quality of life during an assessment trip Haiti 155's staff made to the area in 2011. While most homes in this area are connected to the electric grid, the supply is often unreliable, going out nearly every night, and outages can last for a few hours to several days without warning. Without a regular supply of electricity, the people of this neighborhood must close business at sundown, have difficulty working or studying at night, cannot store food for extended periods, and live in fear of violent crime during the dark.

Haiti 155 aims to bring reliable electricity to the people of Fontamara through a partnership with Electricite d'Haiti (EdH), Haiti's national electric utility. As per an agreement struck in 2012, Haiti 155 will raise funds to buy a new electric transformer, buy the transformer and ship it to Fontamara. EdH will then install the transformer and repair supply lines to all the homes in Fontamara.

Haiti Sans Lumiere is a highly community-driven project. Haiti 155's house in Fontamara will serve as a base of operations, and several key members of the community have agreed to lead a committee which will manage the use of the electricity. Residents will pay EdH's price in a fair and transparent manner, and will be accountable for

missed payments. The committee leaders will act as the direct contact with Haiti 155's staff, and if any problems arise they have the means to contact Haiti 155 directly and coordinate repair efforts. Haiti 155 will continue to monitor electricity use in Fontamra after installation, to ensure that a reliable electricity supply will bring positive and equitable benefits to people in the neighborhood.

Haiti 155 is currently seeking about \$11,000 of funding to complete the project. A project budget for *Haiti Sans Lumiere* can be found in Section VIII of this proposal. Any requests by donors for monitoring and reporting will be covered in a timely and professional manner.



III. Background: Why?

Why electricity? This project takes place within the following context:

- * **Only about 12.5% of Haitians have access to electricity** as reported by the World Bank. Haiti is the only country in the Western Hemisphere where the majority of the population does not have access to electricity. This is a major obstacle to economic growth in the country.
- * **When available, electricity is extremely unreliable.** A combination of worn wiring, overloading, and illegal “tapping” has resulted in irregular service. Power often goes out at night without warning, leaving people in the dark. In Fontamara, when the power goes out it's said that it may take “2 hours or the rest of the week” for it to come back.
- * Living in darkness makes people in Port au Prince much more vulnerable to crime. **The murder rate in Port au Prince is estimated at 72 per 100,000 population** as of July 2011 (**ten times the global average** for urban areas). The US Embassy in Port au Prince has warned its staff not to venture outdoors after dusk. Home invasions, common in Haiti, have “more potential for violence” at night, compounded by households which are often in darkness.
- * Without electricity, many Haitians **must resort to using kerosene lamps or burning wood** for illumination indoors. The health risks of using these are well known. According to the World Health Organization and studies conducted by the University of California, inhalation of kerosene fumes leads to respiratory diseases and cancer. The lack of illumination also **leads to eye diseases such as cataracts** over time. Wood is scarce as well, with 90% of Haiti's forests being destroyed.
- * **A lack of electricity restricts economic growth.** In urban areas the **average yearly income is \$409**. Unable to trust in a stable supply of electricity, people must take extreme measures to store food or power equipment, often adding substantial cost. For example, without refrigerators many Haitians spend about \$17 per week on blocks of ice to keep food and medicines cold. Without regular lighting, **about 3 to 4 hours per workday are lost** and business can't be conducted.
- * Lack of electricity also dampens education in Haiti. According to the CIA's World Fact book, **Haitian literacy rates are among the lowest in the world**, with rates of 55% and 51% for men and women, respectively. This severely hampers the development of the skilled labor force, limiting the majority of the population to low-wage or subsistence professions and stalling economic growth. Often, children who must work after school **lose valuable time to study at night**. In addition, an estimated **95% of schools in Haiti do not have regular access to electricity**, and only **9.8% of Haitians have internet access**, according to the International Telecommunications Union.

In the past, the Fontamara neighborhood had access to electricity, but in 2003 the triple-pole electrical transformers in the area malfunctioned, and have not been repaired since. While in 2013 power to the street lights was restored, making the area substantially safer, homes in Fontamara still suffer from an unreliable supply of electricity.

IV. Location: Where?

Haiti is a Caribbean nation located on the island of Hispaniola, which it shares with the Dominican Republic. It is the second-oldest country in the Western Hemisphere, achieving independence in 1803. Its capital is Port au Prince, a city of about 2.2 million people.

The Fontamara neighborhood of Port au Prince is situated at the very bottom of the city's hill, bordering the shore, and is bustling with activity. Route HT-2, the major highway from Port au Prince to the town of Leogane, runs through Fontamara.

Fig. I shows where Fontamara is located relative to Port au Prince and the rest of Haiti:

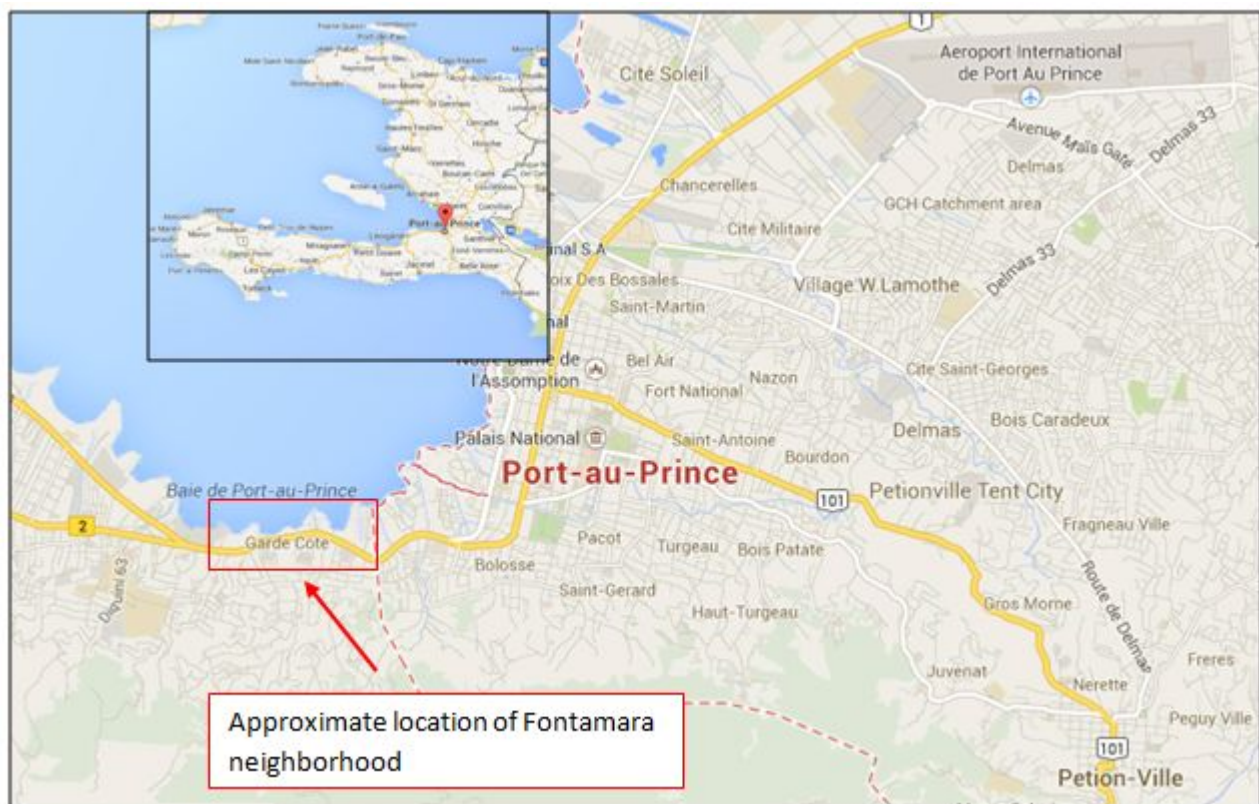


Fig. I: Relative location of Fontamara within Port au Prince

V. Scope: Who?

It is projected that the initial phase of Light up Fontamra will serve approximately 800 to 900 people living in approximately 200 households. The initial replacement of the transformers will serve the block located at 31 – 31A Rue Fontamara, which our house is located on. Once we establish a solid supply of electricity, and ownership has been passed to the residents of this block, we next plan on implementing electricity in the space across the highway.



VI. The Plan: How?

In **Haiti Sans Lumiere**, we at Haiti 155 will restore electricity for those living in Fontamara. Here's how:

A. **What has been Done so Far**

In 2011, Lionel and Constant of Haiti 155 travelled back to their parent's home in Fontamara to assess the current situation there following the earthquake. In conversations with neighbors and other residents, they found that recovery was beginning, but there were many barriers keeping them in severe poverty. Notably, most people they talked to were adamant that if electricity was reliable again, as it was before 2003, they could more easily increase their standard of living. Some reasons why the residents need a reliable supply of electricity are:

- Without a consistent, 24-hour supply of electricity, businesses and homes in Fontamara cannot rely on using tools when they need them, leading to reduced income and decreased work opportunities.
- Social activity is non-existent after dark. Businesses must close early, restricting incomes and decreasing job opportunities.
- Food cannot be refrigerated safely. Many residents have to buy ice blocks on a regular basis to keep food fresh. Constantly having to buy ice and food puts a major financial burden on families.
- Internet connection is inconsistent, leaving people in Fontamara isolated from the benefits of online usage.
- Without lights in their homes, people cannot work or study at night, leading to gaps in education and productivity.
- After sunset, Fontamara is a dangerous place in the dark. Many people live in fear of crime and will not go outdoors.

A video was made during the first assessment trip. It can be found here: <http://www.youtube.com/watch?v=WEgf0zENR18>.

Lionel travelled to Haiti again in August 2012, and met with leadership of Electricite d'Haiti, the national utility, and forged a partnership. Haiti 155 agreed to purchase a replacement electrical transformer and bring it to Fontamara, and EdH agreed to install and provide technical support for the transformer and repair broken connections.

Throughout 2013, we have been in constant contact with our staff on the ground in Fontamara, who have agreed to set up a management committee to oversee the sustained operation of the transformer once it is installed. The table below summarizes the three-way agreement between the Fontamara community, Haiti 155 and EdH:

Haiti Sans Lumiere – Partnerships		
Haiti 155	EdH	Fontamara management committee

<ul style="list-style-type: none"> • Raise funds to purchase transformer and equipment • Transport transformer and equipment to Fontamara • Monitor use of electricity and its operations • Coordinate efforts to fix major issues with system. 	<ul style="list-style-type: none"> • Install triple-pole transformer bought by Haiti 155 • Repair broken electrical connections to homes which use electricity • Work to repair any major issues 	<ul style="list-style-type: none"> • Ensure those using electricity are paying fair rate to EdH. • Ensure illegal “tapping” does not occur. • Work with Haiti 155 to monitor electricity use and record benefits. • Notify Haiti 155 immediately if technical problems arise, work to help resolve issues.
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B. What’s Next

Our current goal is to raise enough funds to purchase a new transformer and the necessary equipment. EdH has given Haiti 155 an estimated budget for the equipment, which is outlined in Section VIII.

Once the transformer is purchased, Haiti 155 will transport it to Fontamara and store it in a designated garage until EdH arrives to install it. Edh will then coordinate and execute the installation of the new transformers and connect them to households in Fontamara.

During the transformer installation and connection, the management committee will meet with Haiti 155 staff and representatives from EdH to confirm the community’s ownership. EdH will notify the community of the fee each household will need to pay for electricity use. The committee members, with our assistance, will then visit families to notify them of the agreement.

The installation is projected for August 2014. More details can be found in Section VII.

C. Our Staff in the Community

Haiti Sans Lumiere is not possible without regular support of members of the community of Fontamara.

Community development requires equal consideration on the environmental, economic and social fronts. The best way to achieve sustainability is through community ownership, where the people who are benefitting from a project are the project’s direct owners. Outside organizations such as Haiti 155 serve to provide the tools needed, but ultimately it is up to the community to keep an infrastructure project going. Haiti 155’s approach to sustainability focuses on passing ownership of the electrical system directly to residents of Fontamara. While Haiti 155 will lead the implementation and initial set up of the electricity project, it will ultimately be the responsibility of the residents of Fontamara to maintain the new electrical system and ensure its continued fair use.

Our house in Haiti serves as base of operations in Fontamara, and is occupied 24 hours per day by staff we trust. Haiti 155’s staff on the ground live and work in the neighborhood, and will be among those who benefit from a new, reliable source of electricity. The leading residents of Fontamara who have and will continue to provide support through the management committee are:

- **Mr. Petion Eli Joseph**, an engineer and technician who graduated from College Canado Haitien, with an engineering degree. He serves as the designer and builder for the system.

- **Mr. Chery Olivier Alexandre**, who assists Eli in all activities related to Haiti 155. He has a Bachelor Degree in Administration from the College Magloire Ambroise, and also has a great amount of technical knowledge.
- **Mr. Zizi Francois**, a police officer who is well-respected in the community. He will lead the management committee, ensuring fees are being paid and the electricity is being used legally.

As the committee grows, Eli, Olivier and Zizi will include more members, notably women and people of varying economic status.

D. How will the people benefit from electricity?

In 2013 Eli assisted us in conducting a survey of residents in Fontamara on their current quality of life without electricity, and how they would support a new source of electricity. Some key results from the survey include:

- Most businesses in Fontamara close around 6:30 PM. If there was regular electricity, they could stay open until 11 PM. Nightlife would greatly increase.
- With electricity and increase income, most people would buy a refrigerator first.
- People in Fontamara would be interested in expanding business in the information technology, metalwork, sewing and cultural activities with more electricity. They would be interested in acquiring more computers and office equipment such as copy machines.
- Everyone surveyed was willing to pay the fair rate and collaborate on use of electricity.

After installation, Haiti 155 will conduct regular surveys to follow up and see how people have benefitted from more reliable electricity. We will report on these results regularly.

A major problem with electrical infrastructure in Haiti (and the developing world in general) is overloading, where the demand on the system is greater than what it was designed for. Haiti 155 plans to rectify this problem in Fontamara with the use of electrical meters. Every household in Fontamara we connect electrical lines to will also be provided with an electrical meter attached to the wiring. Monitoring will be done both by EdH and by Haiti 155 staff to ensure a safe amount of electricity is being used without overloading the system.

Haiti 155 will continue to survey our beneficiaries in Fontamara about their electricity use. We will also ensure that residents are paying a fair price for their electricity. In the event that a household is paying more or less for the amount of electricity it consumes, Haiti 155 will investigate and take action. Such actions could include applying to EdH for a cheaper price on behalf of the homeowner, looking to add excess or supplemental capacity, or, in the event that electricity is being sold or used illegally, work with EdH to cut supply.



E. Expanding the Project – A Phased Approach

Haiti Sans Lumiere's current coverage is limited to one block of the Fontamara neighborhood (see Section V). However, the entire area has similar needs regarding electricity. Thus, we will expand the project further in the future. This will be done in a phased approach. Changes made to the neighborhood are done in a controlled manner which is flexible enough to cover delays on the part of the utility. We will start on the block in the immediate vicinity of our house in Fontamara, and then carefully monitor use and economic changes brought about. Then, considering lessons learned in this first phase, we will work to expand coverage to the adjacent blocks, step-by-step until all of Fontamara has a regular electricity supply again.

VII. Timeline – When?

The following is a preliminary schedule of the first phase of Haiti Sans Lumiere.

<p>Phase One: Preparation (March – July 2014)</p>	<ul style="list-style-type: none"> • Finalize management committee in Fontamara • Establish guidelines with EdH to prevent tampering with electrical system once installed. • Secure, install and test needed equipment and fixtures. • Educate community members on the equipment and electricity use. • Establish and practice operational systems.
<p>Phase Two: Implementation (July – September 2014)</p>	<ul style="list-style-type: none"> • Bring in and deliver Transformer to Fontamara • Continue operational training with residents. • Plan to install Transformer as a trial run to ensure all parts and systems work in unison. • Finalize implementation by October 2014
<p>Phase Three: Monitoring (October 2014 onward)</p>	<ul style="list-style-type: none"> • Redo survey from 2013 once again, compare results. • Establish reporting of



continued electricity use.

- Begin to evaluate next area to bring electricity to.

VIII. Project Budget

The estimated cost for the installation of the transformer is \$10,677.33. A copy of the proposed budget can be found below:

Electricite D'haiti - Ingeniere		ROUTE DE CARREFOUR,		
Planification		FONTAMARA 31 - 31A		
Detail Articles		DEV # 4802		
# Project		POT # JJD - 3		
DATE		5/10/2012		
Item #	Qts	Description	Prix	Total
B01	9	Insulation Case 5	\$6.90	\$6.90
B05-B	0	Mechanical Bolt 3/8 "X 4 1/2"	\$0.00	\$0.00
B05-C	4	Mechanical Bolt 1/2 "X 1 1/2"	\$1.05	\$4.20
B05-E	2	Mechanical Bolt 1/2 "X 8"	\$1.35	\$2.70
B05-C	2	Mechanical Bolt 5/8 "X 8"	\$3.50	\$7.00
B05-I	0	Mechanical Bolt 5/8 "X 12"	\$2.15	\$0.00
B07	3	Flange Through 3	\$0.90	\$2.70
B10-A	0	Conne Split Ball 5/16	\$3.00	\$0.00
C09-A	2	Ankle Of Steel, Short Rod 5/8	\$14.00	\$28.00
C14	45	D Bare Wire # 4	\$1.35	\$60.75
C17	10	Connector 4-D Compressible Wr159	\$1.00	\$10.00
C17	4	Connector 4-D Compressible Wr279	\$2.10	\$8.40
C17-0	0	Connector Compressible Wr369	\$0.99	\$0.00
C18-B	0	Luxury Grounding	\$4.75	\$0.00
C24-A	3	Cup Circuit Without A Fuse	\$5.00	\$15.00
C25-A	0	Crampon 11/16' X 2"	\$0.50	\$0.00
C26-C	6	Compressible Log For F# 2/0 2Tr	\$5.65	\$33.90
C36-D	1	Angle 1/5" X 7" X 3" X 3" X 1" X 4"	\$121.50	\$121.50
C36-E	1	Angle 8" X 8" X 3" X 3" X 1" X 4"	\$96.75	\$96.75
E03	3	Fuse Element	\$4.55	\$13.65
E0-A	4	Steel Spacer	\$4.60	\$18.60
F03-A	4	Wire Attach Of Al	\$0.30	\$2.40
I03-A	2	Ankle Isolator B2 CI 55-3	\$6.50	\$13.00
M10	0	Molding For Over Polieth From Malyt 1/2" X 96"	\$2.60	\$0.00
P02-A	3	Kv Distribution	\$64.00	\$192.00
P07-A	3	Branch Clip # 3 @6400	\$26.00	\$78.00
PiC-Z	1	Concrete Type A Implantation	\$600.00	\$600.00
R06--A	2	Equarie Washer 2" X 2" Ball 1/2"	\$0.60	\$1.20
R06-B	2	Equarie Washer 2' X 2' 5/8"	\$0.36	\$0.78
R07-A	0	Brake Washer 5/8"	\$0.25	\$1.00
R07-B	6	Brake Washer 1/2"	\$0.15	\$0.90
S03	2	Bracket Transformer	\$291.50	\$583.00
T03-B2	0	Rod Earthing	\$27.00	\$0.00
T04-B	0	Tire Bottom 4 1/2" X 1/2"	\$1.15	\$0.00
T05-0	0	Wooden Traverse 05 X 7"	\$72.00	\$0.00
T09-C	3	37.5 kva Transformers 2B	\$2,325.00	\$8,775.00
			↑	
Sub-total of Prix (Price)			\$3,699.00	↑
Sub-Total of Total order				\$10,677.33

IX. Key Partners

BEL REV and Blue Marble Dreams

Haiti 155 and Blue Marble Dreams, are joining forces to build BÈL RÈV, soon-to-be Haiti's most spectacular ice cream shop. A happy place with a clear and authentic “by the people, for the people” vibe.

Bel Rev will train and employ local women, equipping them with confidence, practical skills and a steady income. Together, we will build a sustainable food business that sources products from area farmers and producers, engages local tradespeople and otherwise serves to support the health of the local economy.

While a trip to Bel Rev cannot instantly heal these wounds, we can offer our customers a respite from hardship and a brief but precious opportunity to revive, mentally and emotionally. We believe this is a very positive step in the right direction and, hopefully, will open the doors to a renewed view of life.



X. Questions

1. What makes *Haiti Sans Lumiere* a community driven project?

Many projects in the developing world are done without any input or consent from the people actually living there. This leads to conflicts and failures. However, Lionel and Constant have spent years working in Fontamara, and have had extensive conversations with those in the community, and time and again they have identified electricity as a key need. The community surveys further reinforce their ownership.

2. Will the people living in Fontamara eventually be able to run the whole system itself?

This is an end goal. However, it will likely take several years for this to happen. Keep in mind that Haiti 155 has a base directly in the neighborhood out of the house. This ensures that we will keep a close eye on how the electricity project is going.

3. Why not just use solar power?

While micro-grids and solar panels are becoming widespread, we wanted to ensure continuity of electricity supply. The transformers and wiring have already been in Fontamara for decades, we are simply repairing the same system. Solar panels would have to be installed and connected to every home, making it very costly to serve the area. Also, solar panels are delicate and complex – if there was a malfunction we would have to find help outside of EdH to repair it. Finally, as the sun does not shine at night, electricity produced during the day would have to be stored in expensive and toxic batteries, which we wanted to avoid.

4. Is this project safe?

Haiti is an exceptionally poor country, and its safety standards and regulations unfortunately lag behind much of the rest of the world. All of the technical (dangerous) work will be performed by EdH staff to that company's standards. We cannot control the safety of EdH's workers, though we will do everything in our power to ensure that the residents in Fontamara are safe.

5. How is this project environmentally sustainable?

We are looking at delivering power, not generating it. Much of Haiti's grid power is produced using either fossil fuel or hydropower sources. Again, this is out of our control, but regular electricity means that residents will no longer have to resort to kerosene or other oil-based lamps at night.

6. What if there's not enough power?

If this situation arises, we will determine how much additional energy is needed, and then look to supplement the grid source with solar power where needed. However, as explained in Question 3 this is not ideal and would be a last resort.

7. How is this project relevant to the BEL REV ice cream shop?

BEL REV is an initiative of Blue Marble Dreams, a separate organization which has partnered with Haiti 155. *Haiti Sans Lumiere* is a separate, stand-alone project from BEL REV. However, as Haiti 155's storefront attached to the house will be converted to the ice cream shop, it will use some

electricity from the new transformer. However, as significant energy will be needed for that facility, BEL REV will install solar panels there to meet most of the shop's power demand.

8. How can I find out more information?

Email us! Lionel and Constant are always willing to have a conversation about Haiti 155, our projects and your enthusiasm for Haiti and its people! You can reach us at haiti155@gmail.com. We hope to hear from you!

