

ELEPHANT
ENERGY



WOMEN'S ENERGY PROJECT & RENT-TO-OWN FINAL REPORT



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The Women's Energy ("WE") Project was initiated by Elephant Energy ("EE") in July 2010 to inspire rural women to be leaders in sustainable development through the use and marketing of appropriate sustainable energy technologies ("ASETs"), like solar-powered lights, cell phone chargers and clean-burning cookstoves (See Appendix 1: ASET Products). The use of new technologies has often been the domain of men. In a strongly patriarchal culture where women are not often provided public places to support one another, the WE Project provides a culturally-appropriate scene for women to communicate and gain confidence in mastering new technologies and skills. The WE Project is now Elephant Energy's field laboratory in Africa, where new products and financing and distribution systems are piloted by women who have no or very limited access to electricity. Following testing via the WE Project, new products and strategies are mainstreamed into Elephant Energy's core activities. For the last two years, the WE Project was implemented in three phases, as outlined in Table 1.1 below.

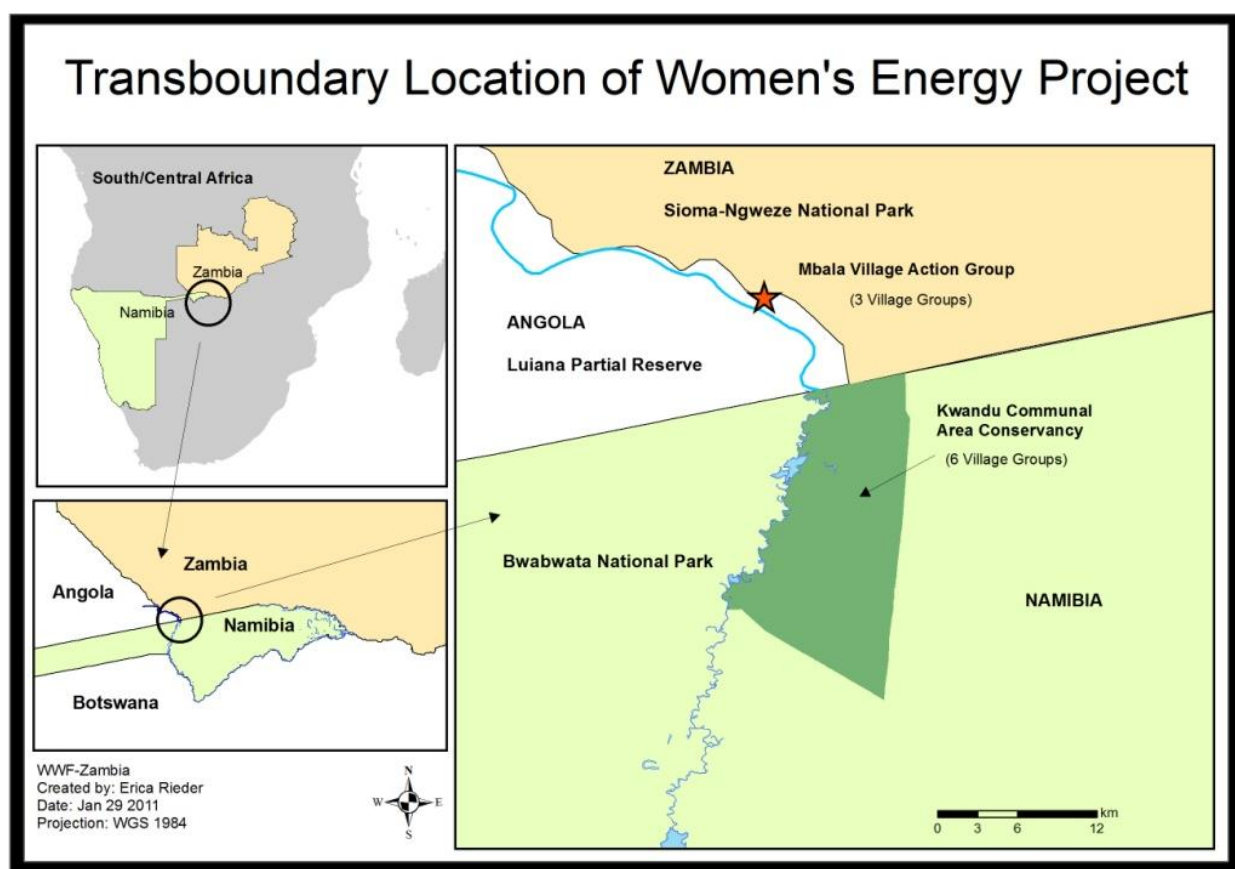
TABLE 1: WE PROJECT PHASES

Phase	Activities	Location	Participants	Products & Methods Tested
1 July 2010 To February 2011	- Tried products and provided feedback - Conducted baseline energy surveys - Conducted Kwandu-wide women's energy meeting (Feb. 9, 2011)	Kwandu Conservancy Namibia (Six sub-khata areas) & Mbala, Zambia	<u>Product Testing</u> - 62 women (48 in Namibia and 14 in Zambia)	<u>Product Testing</u> - Brazier Cooker (local) - Envirofit Cookstove - Eton Solar/crank radio/light - SL2 and Mini Bogo Light - Sun King lamp - Firefly lamp/phone charger - D.Light Kiran lantern - Tough Stuff Solar Panel
2 March 2011 To October 2011	- Tried products and provided feedback - Conducted Rent-To-Own Pilot Project	Kwandu Conservancy Namibia (five sub-khata areas) & Mbala, Imusho and Mbao VAGs, Zambia	<u>Product Testing</u> - 62 women <u>Rent-to-own</u> – 98 customers & 8 Salespersons	<u>Product Testing</u> - Megabrite light & charger - Nokero N100 & N200 - Solio cell phone charger - D.Light S.1 <u>Rent-to-own</u> - Sun King lamp - Mini Bogo Light - Stovetec Cookstove
3 November 2011 To June 2012	- Conducted Rent-A-Light Project (modified Rent-To-Own Project)	Kwandu Conservancy, Namibia & S.W. Zambia	<u>Rent-To-Own</u> - 129 customers & 11 Salespersons	<u>Rent-to-own</u> - Sun King Pro Lantern/charger - Firefly lamp/phone charger



Creating the Women's Energy Groups

Phase one began in July 2010 with the formation of six women's groups of eight members each covering all six areas in Kwandu Conservancy in the Caprivi Region of Namibia. These groups were established with permission and by referral from the *Khuta* (traditional authority). Fourteen women from Mbala Village Action Group area in Sioma Ngweze National Park in Zambia's Western Province joined the 48 women from Namibia. All of these women live in the Kwandu River Corridor, a major wildlife corridor for migratory game between Botswana, Namibia, Zambia and Angola. Two local Field Coordinators, one from Namibia, Brideness Muatuli - Community Resource Monitor from Kwandu Conservancy - and one from Zambia, Memory Shakoi, administered the project activities.



A total of 62 women in both countries piloted the use and maintenance of eight technologies, which included various types of solar-powered lights, radios, cell phone chargers and fuel-efficient cook stoves over a two month period at the end of 2010 (See Appendix 1). During this period, the women came together each week to discuss the energy technologies that they were using and to provide feedback to Elephant Energy on the products that best met their needs. Surveys were also conducted to evaluate the impact that these energy products had on the daily lives of women and their families, including providing light for children to study and reducing the amount of time spent collecting wood.

After the product testing, a lottery was held so that each participating woman received one of the technologies. In addition, on February 9, 2011, over 50 women from around the Caprivi Region and across the border in Zambia joined together at an event held in Kongola, Namibia to celebrate the Women's Energy Project and discuss the energy needs of women.

Baseline Energy Survey

Elephant Energy surveyed 60 participants in the women's energy groups to determine their normal energy usage and needs. Survey questions related to lighting needs, wood usage and expenditures on energy products. The women reported that indoor lighting was more important than outdoor lighting, and a large percentage of families relied solely on candles to meet their indoor lighting needs (See Figure 1). Previous surveys conducted by Elephant Energy in 2009 also revealed that households in Caprivi spend an average of N\$45.00 (US\$6.00) per month on candles.

35 of the 60 women surveyed reported having cellular phones, though few had access to a reliable energy source to charge their phone. The women used a variety of sources to charge their cell phones, including government buildings, the local wildlife conservancy office, generators, electric lines and other sources (See Figure 2). Sources of cell phone charging were often far from their homes.

Figure 1: Sources of Indoor Lighting

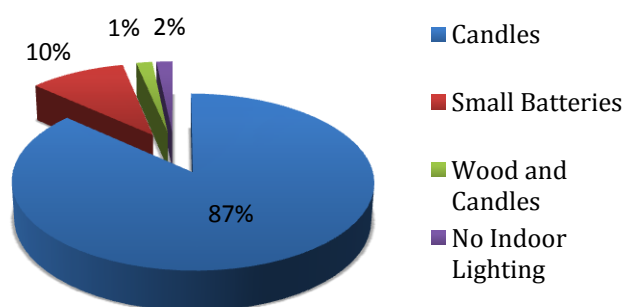
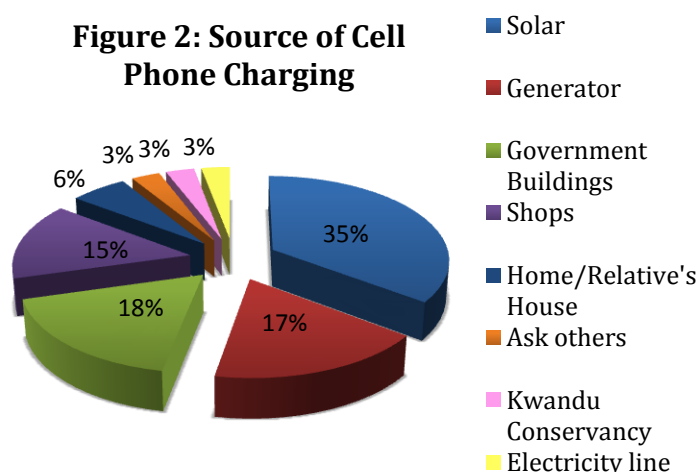


Figure 2: Source of Cell Phone Charging



Almost all households surveyed reported using wood as fuel for cooking. Women must collect this wood in the surrounding forests. Thirty-five percent of the women surveyed reported having to walk one to two hours one-way to fetch wood, and 33% reported having to walk two to three hours one-way. Women reported fetching wood about three times a week in forested areas. During the survey, women also noted the potential risk of burns to women or children as a result of using wood as a fuel.

Follow-Up Survey Feedback and Results

Elephant Energy met with the women's groups weekly to facilitate follow-up surveying and to collect feedback regarding the energy products. In January 2012, final meetings to discuss the energy products were held. The feedback from product testing was overwhelmingly positive:

- **The energy products helped the women save money and time.** Families no longer spent large portions of their monthly income on candles for indoor lighting and cell phone charging. "Since the project started, I have never bought a candle for my house," said Fiona Malimi from Sikaunga area in Kwandu Conservancy. Women used the money that they saved to increase family nutrition and health, and to invest in agriculture and other productive activities. Women and children also spent less time searching for wood for fuel because of the efficient cookstoves. With their extra time, women farmed more, worked for cash and took time for leisure.
- **Portable solar lights helped protect the women and their property from injury/damage caused by wild animals.** One third of the women reported successfully protecting themselves from wildlife using each of the different types of solar lights that they tested. Eleven wildlife species were deterred, including elephant, hippo, bush pig, spring hare, duiker, hyena, leopard, wild dog, genet, venomous snakes (black mamba, cobra and puff adder) and scorpions. Irene Tubengise said, "I truly like this product, because in December last year, I used the light when a hyena wanted to kill my cattle in the kraal. I used the product to protect my animals."
- **The solar light/radio product and the cell phone charging products connected the women to their families, communities and the world.** The solar cell phone chargers provided women with a more reliable source of energy to charge their cell phones, which allowed constant communication with their friends and family. One solar light functioned as a radio, improving access to information about affairs outside the village and reducing expenditures on batteries.



- **Women participating in the WE Project gained confidence.** The women's groups provided women with a space to support one another as well as an opportunity to gain self-confidence in mastering new technologies. At the end of project assessment meetings, women frequently commented that they were pleased they had learned something new. Viona Bafumisi from Kongola area in Namibia said, "We did not know that we could use these products properly. These lights have changed our lives." Members of the women's groups discussed issues as simple as weekend plans and as serious as female/male relationships, HIV/AIDS, wildlife conservation and family planning.
- **Solar lights helped children with their studies.** Anetty Kachitomwa (a leader of the Sesheke women's group in Namibia) reported that her 16 year old son used the lights to study at night, which helped him achieve distinction in his year-end school exams.
- **Solar lighting helped bring babies into the world.** Two women, one in Zambia and one in Namibia, gave birth under the light of Elephant Energy's solar lights during the trial period.

While the benefits of solar lighting/charging and clean cookstoves are many, only two women were able to afford to buy an additional solar light on their own (aside from the product each woman received in the lottery) because of the extremely limited amount of cash available in this area. Although the women valued the products, there was no way for them to make such a large payment at one time. **As a result, Elephant Energy began looking into ways to increase incomes in the project area, and make clean energy technologies accessible to those with small and irregular incomes.**





Introduction and Project Structure

The Rent-To-Own Pilot Project began in early 2011. “Rent-to-own” is a market-based approach to product financing tailored to meet the needs of those not capable of purchasing a product outright. This approach is also known as an “installment plan,” where the customer receives the product after they make an initial deposit and then make monthly payments until the product is paid for in full. Elephant Energy’s Rent-To-Own Pilot Project was conducted in three different areas: Mission Village in Katima Mulilo (Namibia), Kwandu Conservancy (Namibia), and Mbala and Imusho Areas (Zambia). Each project had slightly different structures, pricing and payment schedules. Elephant Energy was able to reach over 100 customers that were not able to afford products at full cost via these first pilot projects, and nearly all of the money owed to Elephant Energy by renters was collected. The pilot projects conducted by the WE Project in Kwandu Conservancy and Mbala/Imusho Areas in Zambia are described below.

Kwandu Conservancy Rent-To-Own Pilot Project Structure & Challenges

The Kwandu Conservancy pilot project was managed by one Area Coordinator and one saleswomen chosen by each of five of the six women’s groups (grid electricity had arrived in the Kayuwo area). The Area Coordinator, Brideness Muatuli, was responsible for overseeing project operations, including collecting monthly payments from the saleswomen and dividing proceeds between Elephant Energy and the saleswomen. She was paid a monthly salary for her efforts. The chosen saleswomen, including Gloria, Angelica, Meria, Ines and Annetty, signed contracts outlining their responsibilities and the details of the Rent-To-Own Pilot Project. The saleswomen were each responsible for locating eight customers at the start of the project. They also committed to collecting monthly rental payments from each customer for the duration of the Pilot Project.

To assist with rental payment collections, customers signed simple contracts outlining payment schedules and other requirements. Rent-To-Own customers could purchase a a Mini Bogo Torch, a Sun King Lamp or a Stovetec Cookstove for recurring payments of N\$35.00, N\$45.00 and N\$65.00, respectively (See Table 2). The final month’s payment for each product was set aside as compensation for the saleswomen, which provided an incentive for the saleswomen to collect all rental payments, despite difficulties they might encounter. Finally, additional terms were included in the customer contracts, including the ability of the saleswomen to repossess products in the event of non-payment.

TABLE 2: RENT-TO-OWN KWANDU PAYMENT SCHEDULE

Product	Deposit	Month 1	Month 2	Month 3	Month 4	TOTAL
Mini Bogo	N\$35.00	N\$35.00	N\$35.00	N\$35.00	N\$35.00	N\$175.00
Sun King	N\$45.00	N\$45.00	N\$45.00	N\$45.00	N\$45.00	N\$225.00
Cookstove	N\$65.00	N\$65.00	N\$65.00	N\$65.00	N\$65.00	N\$325.00

The Kwandu Rent-To-Own Pilot Project successfully delivered clean energy products to nearly 50 families at a price they could afford, but numerous difficulties were encountered. Most of the renters paid on time, but multiple visits to a customer's home were often required to collect a single payment, and payments were frequently in odd amounts. Most of the saleswomen had to repossess at least one product, though renters usually caught up with their payments and products were returned.



The most persistent complaints from the saleswomen regarded the challenging nature of the work, and the fact that they were not paid for their efforts until the end of the project. The saleswomen were all concerned that they might not receive compensation because of confusion around the payment scheme, which initially diverted all proceeds from the Pilot Project to the women's groups, not the saleswomen. In the end, the women's groups voted to allow the saleswomen to keep all of the proceeds of the final payment.

Another problem expressed by a saleswoman was that people refused to make payments because the products were less expensive in the Zambia Rent-To-Own Pilot Project. A saleswoman located near the border found that she had to visit customers nearly twice as many times as other saleswoman to collect payments.

Another saleswoman had difficulty receiving payments from a renter who was renting three products, including a cookstove, Mini Bogo Light and Sun King Lamp. This customer fell months behind in making rental payments. Another saleswoman decided to rent to people outside of her village, and was then forced to walk many miles to collect payments from some renters.

The last challenge presented by this pilot project was the cost and effort expended by Elephant Energy to collect monthly payments from the Area Coordinator. The costs of traveling to collect money each month were high relative to the amount collected. Proceeds from rental payments from the small number of customers involved in the Pilot Project did not cover transportation from Katima Mulilo to Kongola, which costs N\$600.00 (US\$80.00) via taxi. Because of these costs, Elephant Energy staff would only collect proceeds from the Kwandu Rent-to-Own Pilot Project when there was another reason for visiting the area.

Zambia Rent-to-Own Pilot Project Structure & Challenges

The Zambia Rent-to-Own Pilot Project was more streamlined than the Kwandu Rent-To-Own Project. Memory Shakoi was responsible for collecting payments in the Mbala area, and Boniface Mulibe was in charge of collecting payments in the Imusho area. However, Memory left Mbala midway through the pilot project to pursue employment with the World Wildlife Fund (“WWF”), so Boniface took over the administration of the Zambia Pilot Project in both regions.

The Zambia Pilot Project offered Mini Bogo Lights for N\$100.00 (US\$13.30) in four installments of N\$25.00, and Sun King Lamps for N\$150.00 (US\$20.00) in five installments of N\$30.00 (See Table 3). The project operated in two currencies, Kwacha and Namibian Dollars. The exchange rate was set at K500 to N\$1.00. Other contract terms were similar to the Kwandu Pilot Project, though the contracts did not specify any penalty for late payments.

TABLE 3: RENT-TO-OWN ZAMBIA PAYMENT SCHEDULE

Product	Deposit	Month 1	Month 2	Month 3	Month 4	TOTAL
Mini Bogo	N\$25.00	N\$25.00	N\$25.00	N\$25.00	-	N\$100.00
Sun King	N\$30.00	N\$30.00	N\$30.00	N\$30.00	N\$30.00	N\$150.00

The Zambia Pilot Project encountered similar problems with payment collection as the Kwandu Pilot. The main difficulties with the Zambia Pilot related to the extremely remote project area. Communication with Boniface was difficult due to the poor cell phone network, and often EE would not receive rental payments until a month after they were collected. In addition, Elephant Energy relied on WWF employees to retrieve funds from Boniface and deliver them to Katima Mulilo, Namibia. As a result, rental payments came in at irregular times and in varying amounts. Many renters also fell behind in their payments, but lower prices and the favorable exchange rate made it easier for defaulting customers to catch back up. However, the use of two currencies presented additional problems for Elephant Energy. Accounting was extremely difficult, and the Kwacha depreciated in value relative to the Namibian Dollar from K500 to N\$1 to K700 to N\$1 over the course of the pilot project, resulting in a loss to Elephant Energy.



Refining the Rent-To-Own Model

While the Kwandu and Zambia Rent-To-Own Pilot Projects were successful, providing access to clean energy for nearly 100 additional customers, the system must be streamlined and scaled-up if it is to provide a sustainable solution to Elephant Energy's product financing problems. The Projects identified a number of structural issues to consider when implementing future rent-to-own systems:

- There must be an appropriate compensation system for every sales agent. Without sufficient compensation, saleswomen have no incentive to be persistent in collecting payments.
- There must be a system in place to repossess products when renters fall behind in their payments. This system was only in place in the Kwandu Pilot Project, and it proved to be effective.
- Sales territories should be limited. Making multiple visits to households that are many kilometers away is time consuming without a means of transportation.
- An Area Coordinator is essential. Rental payments must be pooled in a central location by a competent local manager based in an area that is frequented by EE staff. The Area Coordinator also is necessary to monitor the system and immediately resolve problems that arise.
- Shortening the payment schedule and increasing the amount of each payment could increase the efficiency of the system. Many renters paid more than the minimum monthly installment during the rental period. Increasing the minimum monthly payments would shorten the rental period and reduce transaction costs, but could prevent some poorer customers from participating.
- Saleswomen should be in charge of collecting from no more than 30 customers. Boniface had to collect payments from more than 50 people per month after Memory's departure. When considering that each household has to be visited multiple times, this number is too high. It is also unsafe for one person to handle this much money at one time.
- Future rent-to-own projects must be strategically located to make monthly collections possible. The Zambia Pilot Project was possible only because of EE's close connections to the WWF. Relying on middlemen and third parties to retrieve money will not be a feasible in a larger rent-to-own system.
- There must be a procedure for when a light breaks so that lights can be repaired and returned to the customer in a timely manner, ideally during the next collections period. The customer should be charged for the repair if it is outside the warrantee period.
- All prices must be fixed at a certain level. The price differentiation between the pilot projects in Namibia and Zambia caused tension between some saleswomen and their customers.
- Renters should not be allowed to rent more than one product at a time. Some customers rented more lights than they could afford.



Introduction and Project Structure

The Rent-A-Light Project was initiated to refine the rent-to-own system and determine if it could be scaled-up into a financially sustainable distribution system for clean energy products. From November 2011 to April 2012, customers from six community conservation areas in two countries (Sobbe, Mayuni and Kwandu Conservancy, Namibia and Imusho, Mbala and Mbao Village Action Groups, Zambia) purchased 129 solar lights/cell phone chargers from eight women from Namibia and one woman and two men from Imusho, Zambia. The Rent-A-Light Project resolved many of the problems encountered in the Rent-To-Own Pilot Projects, changing the lives of 129 customers by facilitating access to lighting and cell phone charging services and providing a source of income for 11 Sales Agents.

Similar to the Kwandu and Zambia Rent-To-Own Pilot Projects, the Rent-A-Light Project was based on an installment sales model, which included an up-front deposit and four monthly installments (See Table 4). Sales Agents distributed two different types of light/cell phone chargers through the Rent-A-Light Project, including the Sun King Pro by Greenlight Planet and Firefly 12 Mobile by Barefoot Power. For each deposit and rental payment collected, Sales Agents earned a commission of N\$15.00 (US\$2.00) for the Sun King Pro and N\$10.00 (US\$1.30) for the Firefly. All other recommendations for refining the rent-to-own model, as listed above, were incorporated into the Rent-A-Light Project.

TABLE 4: RENT-A-LIGHT PAYMENT SCHEDULE

Product	Deposit	Month 1	Month 2	Month 3	Month 4	TOTAL
Firefly	N\$100.00	N\$50.00	N\$50.00	N\$50.00	N\$50.00	N\$300.00
Sun King Pro	N\$125.00	N\$75.00	N\$75.00	N\$75.00	N\$75.00	N\$425.00

Efficiency of the Rent-A-Light Model

To manage 11 Sales Agents and 129 rented products, Elephant Energy developed a detailed paper-based monitoring system consisting of Customer, Sales Agent and Area Coordinator contracts and recording sheets. This information was collected and entered into the computer to allow Elephant Energy to evaluate all aspects of the Rent-A-Light model. This information provides insight into the feasibility of transitioning from the localized non-profit Rent-A-Light Project into a large-scale, self-sustaining or profitable business venture that could meet the needs of thousands (or even millions) of rural Africans.

Rental payments reimbursed Elephant Energy for the cost of the products and covered Sales Agent and Area Coordinator commissions and operating costs. However, oversight of the project by Elephant Energy staff, including purchases of office supplies, assistance with accounting and the collection of payments from Kongola, over 100 kilometers from Katima Mulilo, were not covered. These costs were significant, consisting of 22 days of work by Elephant Energy Staff at N\$1,000.00 per day (US\$130.00) and monthly trips to Kongola at N\$600.00 (US\$80.00) per trip to collect payments and assist the Sales Agents and Area Coordinator with accounting and management of the project. These costs could be significantly reduced in future rent-to-own projects. However, if the Rent-A-Light Project is to eliminate its reliance on donor support, the costs must be completely internalized by increasing monthly payments, adding additional months to the payback period or increasing the number of customers serviced by each Sales Agent.

Similar to the Rent-To-Own Pilot Projects, the most significant difficulty of the Rent-A-Light Project involved collecting payments from rural customers. Customers missed nearly 20% of the required payments (See Table 5). In addition, there was a great variability between the ability of the various Sales Agents to collect payments. Gloria, with only six customers, had a very high default rate of 41.67%. However, Boniface, with 36 customers, did not fail to return a single payment on time to Elephant Energy. While it is likely that this data is skewed (meaning that Boniface made up for any missing rental payments with his own funds), it is clear that his default rate was extremely low.

TABLE 5: PAYMENT DEFAULTERS BY MONTH

Sales Agent	Total Customers	Defaulters Per Month						Total Payments	% default payments
		M1	M2	M3	M4	End	Total		
Gloria	6	1	2	3	4	0	10	24	41.67%
Angelica	14	5	1	6	6	3	18	56	32.14%
Meria	13	9	2	6	2	0	19	52	36.54%
Annetty	13	2	0	1	0	0	3	52	5.77%
Iness	5	0	0	1	0	0	1	20	5.00%
Herriter	14	3	6	8	1	0	18	56	32.14%
Joyce	6	4	0	0	0	0	4	24	16.67%
Ozaria	10	10	3	3	0	0	16	40	40.00%
Boniface	36	0	0	0	0	0	0	144	0.00%
Vincent	6	1	0	6	3	0	10	24	41.67%
Loveness	6	0	2	1	1	0	4	24	16.67%
TOTAL	129	35	16	35	17	3	103	516	19.96%

While Sales Agents did have the right to repossess products if full payment was not made for two consecutive months (i.e. both the missing month and current month had to be paid), this did not help the Sales Agents collect payments in the first month the customer defaulted. While the possibility of losing their product did encourage customers to pay in the second month, some Sales Agents were hesitant to repossess products from their neighbors after a double default. Only one customer's light was repossessed and sold to another customer during the entire trial. If the Customer contract was

strictly enforced, eight customers would have lost their lamps after the second month of rentals, three more after the third month, and eight more after the fourth month. Seventeen customers were behind on their payments as of the “official” end of the Project in April. As a result, collections continued into the month of June, resulting in 14 more customers completing payments, and leaving three customers that never completely paid off their products.

In addition to a problem with defaulters, the physical act of collecting payments required a significant amount of effort from the Sales Agents. To evaluate this problem, Elephant Energy requested that Sales Agents record the number of contacts required to collect a payment from each customer. While not all Sales Agents collected this information, data from six Sales Agents in Namibia illustrates the great amount of effort required to collect payments. These six Sales Agents visited each customer twice on

TABLE 6: CUSTOMER CONTACTS PER PAYMENT

Sales Agent	Customers	Average Contacts Per Payment
Angelica	14	1.43
Meria	12	2.98
Iness	5	2.15
Herriter	14	1.63
Joyce	6	1.79
Ozaria	10	2.33
Tot. Average		2.02

average each month to collect payments (See Table 6). Some Agents averaged almost three visits to their customers each month. Boniface Mulibe’s records relating to contacts per payment is not included in Table 6 because his records indicate that he never traveled to any of his 36 customers’ homes more than once. This is not likely true, but the fact that he also never recorded a defaulter or returned less than the total amount due to Elephant Energy at the end of the month indicates that his average number of contacts was likely near one per customer per month.

Most challenges with the Rent-A-Light system involved customers missing payments or repeat visits to collect payments. However, the costs of administering the Project were also increased because Sales Agents missed meetings where payments were reviewed and returned to Elephant Energy. Nearly all Sales Agents missed a meeting during the rental period, resulting in additional costs to locate the Sales Agent and account for their payments.



Benefits to Sales Agents

In addition to providing a financial mechanism to allow access to solar lighting/charging for poor Namibians, the Rent-A-Light Project generated significant income for Sales Agents (See Table 7). Sales Agents earned between N\$350.00 (US\$46.70) and N\$1,305.00 (US\$174.00) depending on how many customers they had. In total, the 11 sales agents earned N\$7,240.00, nearly US\$1,000.00. Boniface

Mulibe was the clear star of the Sales Agent team. Despite being located in an extremely poor and rural area of Zambia, Boniface collected payments from 36 customers during the project. While Elephant Energy's small inventory of Sun King Pros limited him to 17 customers in the first month of the project, he was allowed to rent

TABLE 7: INCOME TO SALES AGENTS

Sales Agent	Total Customers	Commission (N\$)	Travel/Phone Payment (N\$)	Total Payment (N\$)
Annetty	13	765	140	905
Joyce	6	350	140	490
Ozario	10	475	140	615
Meria	13	705	140	845
Angelica	14	660	140	800
Gloria	6	205	105	310
Loveness	6	250	160	410
Boniface	36	1145	160	1305
Vincent	6	220	160	380
Iness	5	210	140	350
Herriter	14	690	140	830
TOTAL	129	5675	1565	7240

additional Fireflies after returning all rental payments on time in December. Boniface rented eight additional lights in December and eleven additional lights in January, after which he was cut off by the Area Coordinator. Despite his large number of renters, Boniface never had a late payment. While some Sales Agents receive much lower commissions than Boniface, all Sales Agents wished to continue with the Project upon its completion.

Customer Survey Results

In May 2012, a survey was conducted of 31 Rent-A-Light customers (nearly 25%) that were serviced by Sales Agents in two of the six community conservation areas (Kwandu Conservancy, Namibia and Imusho Village Action Group, Zambia). The 31 customers purchased 37 products (25 Sun King Pros and 12 Fireflies). Six customers in Zambia purchased two products each. The type of light rented related largely to supply and not economic factors. Most customers wanted to purchase a Sun King Pro, but there were not enough to satisfy demand at the start of the Project.

Of the 31 customers, 23 were female and 8 male. The majority of female customers was likely due to the fact that most of the Sales Agents were women that participated in the WE Project Groups. The age range of customers was from 26 to 89 years (average age 44 years). Sources of income used to purchase the lights/cell phone charges varied from employment by the government, to informal employment (ex: weeding fields), selling natural products (ex: reeds, thatch grass and the medicinal plant, devil's claw) and old-age pensions in Namibia.

At the time of the survey, only one customer was not using the product they purchased (a Firefly that stopped working). All other customers were satisfied with their purchase, however, four customers in Zambia reported problems with the functioning of their Firefly and two customers mentioned problems with the durability of the small Nokia connectors for charging cell phones.



The Rent-A-Light payment system was very popular. Marena Kakuw from Sikaunga Area said that “rental payments are a good system that helps us to manage our budget.” Customers said they preferred this system because they would not have had the cash to pay for the light in one up-front payment. Customers who did default on monthly payments had valid reasons. For example, some were unable to work because they were sick or had more urgent expenditures, such as paying for their children’s school or exam fees. Only one customer reported that the payment period was too short.

Purchasing the solar light/cell phone charger enabled customers to save cash to pay monthly rental payments, as they did not need to buy candles or pay to charge their cell phones. At least one customer in the survey was earning extra cash from charging other people’s cell phones. Betty

Lusapani from Sesheke village said: “I am very satisfied. The Sun King Pro is helping me a lot. Buying candles used to finish my money each and every month. It is a long time since I have bought a candle, since last year. With the money I used to use to buy candles, I now buy food.”

Three customers were connected to the electric grid but still wanted the solar light because they could use it outside at night, during power cuts and when they had no cash to buy electricity. Many customers recommended that the Rent-A-Light Project continue, and all customers who were asked said that they would buy another product on the same terms. Marena Kakuw said “Continue the project. Poor people get a lot of money at one time. With the credit, we can get more lights for our children.”

Conclusions

Through the Rent-A-Light Project, Elephant Energy distributed 129 solar-powered lights/chargers at prices that poor African customers could afford. These lights changed the lives of hundreds of people in the Project area, protecting people from snakes and wild animals, providing light for children to study and improving communication, among numerous other benefits. The Project also increased the incomes of 11 Sales Agents, including women that had little access to cash before the Project began. The Project took a major step away from the practices of the past by making Sales Agents and Customers partners in the development of their own communities instead of providing handouts and creating dependency. However, the Rent-A-Light system is, at most, an extremely efficient non-profit financing and distribution model, as Elephant Energy’s oversight costs have not been internalized.



Starting in June of 2012, Elephant Energy began taking the next steps to develop a truly sustainable and scalable system to bring clean energy technologies to rural Africans. Building on the Rent-A-Light Project, Elephant Energy is moving forward with new initiatives to locate and train the most effective Sales Agents and develop the technology Sales Agents need to maximize their efficiency and energize entire communities.

Sales Agent Expansion: Finding the Boniface...

One of the most stunning results of the Rent-A-Light Project was the ability of Boniface Mulibe to collect payments from 36 customers, account for sales with few mistakes and return payments to Elephant Energy on time. Boniface's efficient work minimized oversight costs, and earned significant income both for Elephant Energy and Boniface himself. As a result, Elephant Energy has embarked on a campaign to "find the Boniface," via a rigorous Sales Agent application, training and review process. Sales Agents will not be allowed to implement Rent-A-Light sales until they have demonstrated an ability to invest their own funds in their business, travel to a market hub to purchase inventory and accurately account for their inventory and finances.



In June 2012, Elephant Energy held a two-day training in Katima Mulilo, Namibia to recruit a new group of Sales Agents who will work on a commission of N\$10.00 to N\$35.00 for each product sold. Potential Sales Agents were recruited using word of mouth, messages disseminated through local NGOs and advertisements placed on the radio. After a careful interview process, 18 individuals (14 women and 4 men) from villages throughout Caprivi were selected to attend the training.

As Elephant Energy expands into new areas, there is a great opportunity to scale this women-focused sales model to change the lives of thousands of rural Africans. Elephant Energy remains committed to viewing women not just as customers, but as drivers of the energy revolution in Africa.

The Divi Light: Creating Digital Kerosene

As opposed to electric power in Namibia, which is pre-paid and turns off when there are no more “units” on a home’s power meter, there was no way to “turn off the lights” on a Rent-A-Light customer that didn’t pay on time. As a result, Sales Agents were forced to travel to a customer’s home numerous times to collect rental payments, instead of the customer coming to the Sales Agent’s location to pay. In addition, cultural barriers prevented some agents from repossessing lights when rental payments were past-due. These deficiencies greatly increased the amount of time required to collect payments, and reduced the number of customers each Sales Agent could support at any given time.



To resolve this problem, Sonopro Power & Light, a company based in Ft. Collins, Colorado is developing a new pay-as-you-go solar light and cell phone-charging technology called the “Divi Light” that automates much of the Rent-A-Light process. Mimicking the structure of the Rent-A-Light system, the “Divi Light” allows customers to pay off a high quality, aspirational product for a deposit of between US\$5-10 and payments of around

30 U.S. cents per Divi credit, which is equal to 24 hours of light. If a customer has no credits available on his/her lamp, then the lamp shuts off until more credits are purchased. Each Divi Light comes with seven credits up-front, and once a customer pays for 120 additional credits, the light unlocks and is free to the customer. As a result of these innovations, Divi Light customers visit Sales Agents to purchase credits when their lights turn off, eliminating the need for Sales Agents to chase customers to collect payments and repossess lights. In addition, customers have much more flexibility in their payments if they cannot afford to purchase credits for short periods of time.

In addition to streamlining product finance, the Divi Light represents an innovation in product distribution. Much like a customer would travel to town to purchase kerosene or candles, customers can purchase Divi credits from Elephant Energy’s shop in Katima Mulilo one-by-one or in bulk. These credits are transferred onto a customer’s Divi Light via a cell phone application, which initiates a wireless connection between the phone and light. The customer can use their credits to meet their own lighting needs or can transfer credits to their relatives, neighbors or other customers when they return to their village via a lamp-to-lamp wireless connection. And just like kerosene, days of light are transferred from lamp to lamp by physically shaking and pouring credits from one lamp to the other.

In July 2012, Elephant Energy’s team of WE Project Sales Agents began working with engineers from Sonopro to test 100 prototype Divi Lights with customers in Katima Mulilo and Kwandu Conservancy. Two years ago, these women didn’t have light in their homes. Now they are testing a product that could provide energy access to millions of people in the years to come. **Women + Energy = Development.**



Carol Murphy – For leading the WE Project and inspiring women throughout Namibia and Zambia.

Rent-To-Own Sales Agents, including Annetty, Joyce, Ozario, Meria, Angelica, Gloria, Loveness, Boniface, Vincent, Iness, and Herriter – For taking their valuable time to empower their communities.

Area Coordinators / Facilitators, including Brideness Muatuli, Charity Kuwana, Memory Shaoi, Vincent Miniso, Boniface Mulibe & Crispin Miyanda – For many long hours working to bring light to their Areas.

Kaitlin Wiedeman – For her dedication in setting up the WE Project in July 2010.

Doug Vilsack – For his leadership, from designing forms and contracts to securing funding.

Katie Murphy – For supervision and encouragement.

Tim Weiss – For managing the first Rent-To-Own Pilot Project in Kwandu Conservancy and organizing the Divi Light Trial.

Annah Simbilu & Joseph Ziezo – For training women in sales techniques and solar light use

Rosemary Stapleton – training WE Project members in Zambia in income generation activities

IRDNC/WWF Employees, including Karine Nuulimba, Chris Weaver, Richard Diggie, Janet Matota, Peggy Tutalife, Joyce Sitapata, Benetty Busihu and many others – For their ongoing support and assistance.

Jen Dill & Lizzie Aldrich – For their help with this report and advising EE on the Project.

Open Meadows Foundation – For providing the seed funding for the WE Project.

The International Foundation – For providing the funding to help a young organization grow.

John Steininger and the Sonopro Power & Light Team – For pushing the Rent-A-Light Project forward, and thinking big about what comes next.

And finally, to all of the Women in Caprivi and Zambia who helped make the WE Project a possibility. Your efforts have helped us take one great step toward sustainable energy for all.

APPENDIX 1: ASET PRODUCTS

Envirofit Cookstove
(www.envirofit.org)



SL2 Bogo Light
(www.bogolight.com)



Mini Bogo Light
(www.bogolight.com)



Valulamp Light & Charger
(www.valulamp.com)



Nokero N100
(www.nokero.com)



Nokero N200
(www.nokero.com)



Solio Charger
(www.solio.com)



D.Light S.1
(www.dlightdesign.com)



D. Light Kiran
(www.dlightdesign.com)



Stovetec Cookstove (Ecozoom)
(www.ecozoomstove.com)



Sun King
(www.greenlightplanet.com)



Sun King Pro
(www.greenlightplanet.com)



Firefly 12 Mobile
(www.barefootpower.com)



Eton Solar/Crank Radio
(www.etoncorp.com)



Tough Stuff Solar Panel
(www.toughstuffonline.com)

