ELEPHANT ENERGY SHOPS PROJECT SUMMARY & OPERATIONAL REPORT

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2010

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EXECUTIVE SUMMARY

In 2010, Elephant Energy piloted the Elephant Energy Shops Project, opening its first energy shop in Katima Mulilo, in the Caprivi Region of Namibia. In its first two months of operation, Elephant Energy sold over 220 appropriate sustainable energy technologies (ASETs), including solar-powered lights, cell phone chargers, and crank radios to customers from areas across the Caprivi Region. This shop is the central focus of the first phase of the Elephant Energy Shops Project and will serve as a model for future energy shops established throughout Namibia. Two months of energy shop sales data indicate that there is significant potential for the project to bring even more ASETs to a wider audience in its next phase.

Elephant Energy also continued its work with Caprivi's community-run conservancies in 2010, partnering with Balyerwa Conservancy to carry out a solar light sale based on the "direct sale" model, where solar lights are sold directly to conservancy members in coordination with the conservancy's yearly benefit distribution plan. To advertise this sale and introduce these new technologies to conservancy members, Elephant Energy conducted night-time demonstrations of solar lights in each of Balyerwa's four villages, attended by over 350 people.

INTRODUCTION

Elephant Energy is a non-profit organization based in the United States and Namibia. Its mission is to provide access to appropriate sustainable energy technologies (ASETs) to underserved rural communities in Africa and Indian Country in the United States. Elephant Energy aims to meet the energy needs of those at the base of the economic pyramid with technologies that are useful, highly affordable and serve a social purpose. By switching from traditional sources of energy, rural families receive immediate financial, health and safety benefits, as well as an increased number of hours available for educational and economically productive activities.

Innovations in ASETs designed to meet the needs of communities in the developing world have been pronounced in recent years. From just a handful of products in 2008, today over 70 products are available for purchase in Africa. Prices are falling as well; where most ASETs were priced around US$50 a few years ago, today, products are available from US$10-$30. These products provide highly practical and effective solutions for meeting the energy needs of people living in rural, off-grid communities.

NAMIBIA

Namibia, an arid country to the northwest of Southern Africa, faces a serious energy crisis. NamPower, the state-run utility, struggles to meet energy demand and is forced to import nearly half of its power from South Africa. In addition to difficulties meeting the needs of urban residents and businesses with grid connections, rural communities suffer disproportionately from a lack of energy access. Only fifteen percent of rural households have access to the national electric grid and 93% of homes use wood for cooking. The majority of the Caprivi Region is considered an "off-grid area" that, according to the *Renewable Energy Distribution Master Plan for* Namibia, will not have access to electricity within 20 years. Rural residents in Caprivi are often geographically isolated and must travel long distances by foot or pay inflated costs for candles, kerosene, single-use batteries, or car batteries in order to meet their energy needs.

ELEPHANT ENERGY SHOPS: AN OVERVIEW

The Elephant Energy Shops Project builds on over two years of on-the-ground research in Namibia. It aims to address the biggest problem with provision of energy—access to high quality, low cost energy sources—through a centrally located shop in the Katima Mulilo Open Market. The project is helping Elephant Energy determine consumer acceptance of energy products and willingness to pay for such products. Elephant Energy is now charting a course forward to expand the Elephant Energy Shops model to meet the energy needs of off-grid communities throughout Namibia.

The Elephant Energy Shops Project tests the feasibility of marketing ASETs in rural Namibia at a price that internalizes wholesale product costs, shipping costs, import duties, and shop operational costs. Ultimately, this model helps Elephant Energy achieve two goals: scalability and sustainability. If Elephant Energy is to meet the demand for ASETs of the 1.2 million Namibians without grid electricity, we can no longer afford to subsidize the cost of ASETs via donor-supported funds. A sustainable, market-based sales model ensures Elephant Energy's long-term presence and reliable, continued provision of energy solutions independent of external donor financing.

ELEPHANT ENERGY SHOPS PRODUCT LINE

Elephant Energy's initial product line includes eight different ASETs, chosen to meet the Caprivi's highest priority energy needs while conforming to willingness to pay measures, as identified during data collected in 2009. Surveyed rural Caprivians informed Elephant Energy that indoor lighting, communication and cooking are their highest priorities and that they can afford to purchase energy products that cost between N$50-200 (N$7.5:US$1). They also reported that they spend an average N$89 per month to meet their energy needs. While long term cost savings is a key benefit of these technologies, an affordable up-front price point is paramount for Elephant Energy's cash poor customers.

Product	Price Point	Website
Big BoGo Solar Torch	**N$225** (US$30)	www.bogolight.com
Mini Bogo Solar Torch	**N$150** (US$20)	www.bogolight.com
Sun King Solar Lantern	**N$170** (US$23)	www.greenlightplanet.com
Firefly 12 Mobile LED Lamp and Cell phone Charger	**N$200** (US$27)	www.barefootpower.com
Tough Stuff Solar panel/Lamp	**N$180** (US$24)	www.toughstuffonline.com
Kiran Solar Lantern	**N$130** (US$17)	www.dlightdesign.com
Eton Microlink 150 Solar/Crank Radio & Light	**N$240** (US$32)	www.etoncorp.com
Envirofit G330 Cookstove	**N$330** (US$44)	www.envirofit.org

ASET FIELD TESTING AND QUALITY ASSURANCE

This year, Elephant Energy began standardizing a quality assurance protocol so that all EE products are thoroughly field tested and meet specified standards for value, quality, durability, versatility, and suitability for the Namibian context. We field test the Energy Shops product line by various methods, including testing by Elephant Energy personnel in the US and Namibia, testing by 60 women involved in Elephant Energy's Women's Energy Project, and through a six week loan-and-rotation program to villages in Conservancy areas. While Elephant Energy's product line is composed of the best ASETs available, some limitations and issues were encountered during field-testing. Namibia's environmental conditions—heavy rains, ubiquitous sand and dust, and extreme heat—challenge the durability of any product. The following table summarizes positive and negative attributes of each product, issues encountered during field testing, and Elephant Energy's mitigating response to these problems.

Product	Positive Attributes	Negative Attributes	Field-Tested Results	Mitigation
Big BoGo Solar Torch	• Durable • Versatile • Long life • High quality illumination • Low lifetime cost • Long charge life	• High relative up-front cost • Susceptible to rains (water resistant, not water-proof) • No cell phone charger	• Battery caps prone to cracking and breaking • Some buttons wearing out (from lights purchased in 2008) • Some plastic light shells cracking	• Verbal and written instructions provided to user on battery cover issues • Three spare battery caps provided with purchase • Elephant Energy is seeking a local repair person for button issues
Mini BoGo Solar Torch	• Durable—waterproof and drop-resistant • Simple to operate (one setting) • Small & portable • Low initial and life-time cost	• Lesser versatility: one brightness setting and not as bright as the Big Bogo • No cell phone charger	• One incidence of power switch wearing out	• Discussion of power switch issue with manufacturer • Seeking repair person to deal with power switch issues
Sun King Solar Lantern	• Low initial and life-time cost (3 year battery) • Durable—drop and water resistant • Versatile: functions as torch and dual-setting lantern with stand	• No cell phone charger • Fixing solar panel to roof increases risk of theft	• Can charge some Nokia brand cell phones	• Encourage purchasers to take precautions against theft
Firefly 12 Mobile LED Lamp and Cell phone Charger	• Versatile: charges 6 brands of cell phones and acts as a lantern • High quality illumination: very bright room light • Long charge life: works up to 50 hours on one charge	• "High setting" is too bright without a shade, can harm eyes • LED light bulbs last only 1 year before needing replacement • Samsung & LG connector cable not included	• Does not work with all makes and models of cell phones (only 70% of phones) • Reports of broken connectors for nokia cell phones	• Verbal and written instructions provided to user on proper use • Discussion with manufacturer on cell phone charging shortcomings • Each customer must test their cell phone with the charger prior to purchase
Tough Stuff LED Lamp and cell phone charger	• Low initial and life cycle cost • Highly efficient, user-friendly product package	• The LED lamp is not very bright • The button on the lamp can wear out	• The panel has high success rates with the "small nokia" brand connector, but not with other brands.	• Discussion with manufacturer on cell phone charging shortcomings

Kiran Solar Lantern	• Durable—drop resistant • Quality, dispersed illumination for indoor tasks • Affordable	• Not water proof and must be placed outside because panel is fixed • Some do not like the appearance of the product, including the opaque plastic shell	• One incidence of power switch infiltrated by sand and dirt	• Verbal and written instructions provided to user on proper care and maintenance of lantern • Elephant Energy is seeking a local repair person for button issues
Microlink 150 Radio and Solar Torch	• High quality, multi-functional device • Flexible charging options: crank or solar powered	• Cell phone charging not useful: long cranking time and connectors not included	• Hand cranks break not for daily use • Solar panel is not effective	• Discussions with manufacturer on crank/panel issues • Search for alternative products
Envirofit G330 Fuel Efficient Cookstove	• Durable & long lasting product • Easy to use • Compatible with traditional cooking styles	• High shipping and importation costs make sales unsustainable	• Bottom tiles broke during shipping • External body blackens quickly after use	• Inform manufacturer of broken tiles and obtained free replacements • Purchase black stoves in the future

In an effort to bring the best possible products to our customers, Elephant Energy is currently testing a variety of new products, including the Nokero Solar Light Bulb (www.nokero.com), K-Light (www.pisatsolar.com), D.Light Nova (www.dlightdesigns.com), MegaBrite 1000 (www.valuelamp.com), Solio Classic Charger (www.solio.com), StoveTec Wood Stove (www.stovetec.net), and various solar-powered radio products.

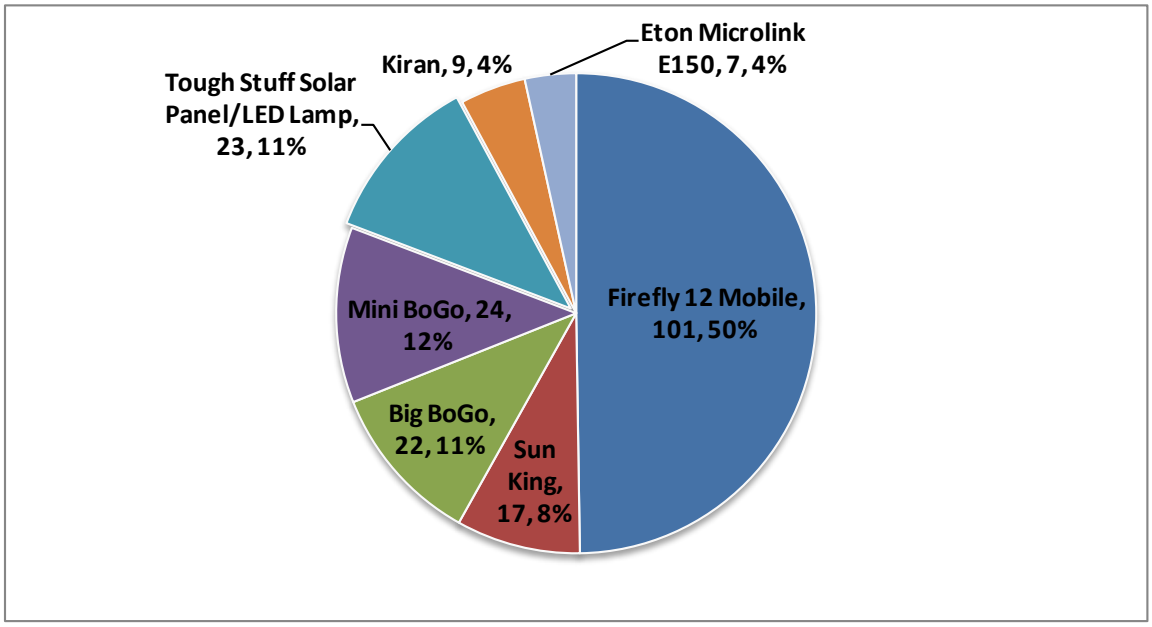
ELEPHANT ENERGY SHOP: START UP PHASE

Income: Product Sales

The grand opening of the Energy Shop took place on October 18, 2010. Product demonstrations were held, there were product give-a-ways, music was played by local DJs, and local paper *The Caprivian* attended to interview Elephant Energy staff members. Sales during the 10 weeks of shop operation were variable, but strong, with the shop **selling a total volume of 222 products by the close of the year**.

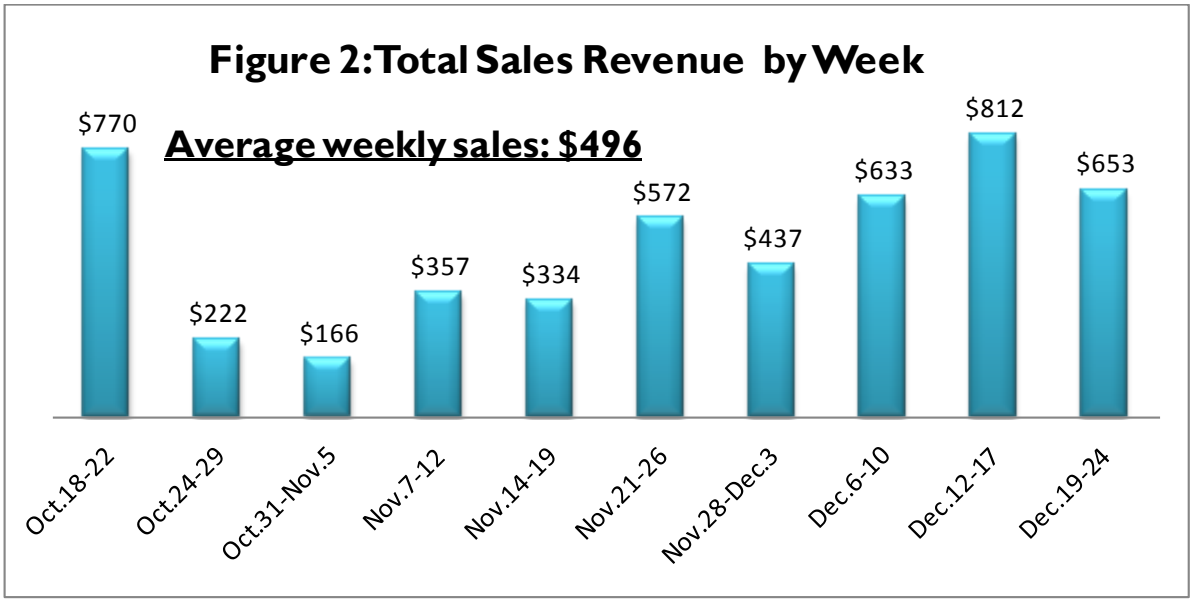
After 10 weeks of operation, there are several observable sales trends. Initial customer response has shown strong preferences for certain products and product functions. Specifically, demand for products with cell phone charging capabilities has been particularly strong, garnering 61% of total number of products sold. As the chart indicates, the most popular product is by far the multi-function Firefly 12 mobile cell phone charger and light, of which 101 units were sold, accounting for half of all products sold. The Mini BoGo was the second highest selling product, representing 12% of total products sold. The Tough Stuff Charger & Light and Big BoGo each accounted for 11% of all products sold, the Sun King Solar Lantern accounted for 8%, and the Kiran and Eton Microlink 150 each accounted for 4% of all products sold.

Figure 1: Total Energy Shop Sales by Product



In December, Elephant Energy instituted promotional prices for the Mini BoGo and Sun King in order to jumpstart sluggish sales, reducing the cost of the Mini Bogo from N$150 to N$100 and the Sun King from N$170 to N$150. Advertised exclusively in Katima Mulilo, this promotion saw a noticeable uptick in sales for the Mini BoGos, with 18 of 24 total Mini BoGos sold occurring during the two weeks of this promotion. However, the Sun King experienced virtually no change, with 5 of 17 Sun Kings purchased occurring during this promotion. Perhaps the N$100 price of the Mini Bogo is low enough to provide an increase in accessibility to people with immediate cash on hand. In addition, while the Sun King is a high quality product, the great demand for the cell phone charging capability of the Firefly makes it difficult for the Sun King to compete, even at these lower prices. This promotion requires further advertising, particularly to rural areas and will be continued through the early part of the year in order to stimulate sales, with a radio advertisement planned for February.

Figure 2: Total Sales Revenue by Week



Expenses: Shop Operating Costs

Start up and operating costs for the shop are evaluated (below) to determine the sustainability and scalability of the Elephant Energy Shops model. The economics of the Energy Shop are still uncertain in this initial stage, two months into operations, and a picture of ongoing income and expenditures can only be estimated. **In the first 10 weeks of operation, the Energy Shop brought in N$37,522 (US$5,003) in sales revenue and had N$45,892 (US$6,119) in expenses, totaling a loss of US$1,116.**

Table 1: Energy Shop Operational Expenses (Actual, 10 weeks)

Budget Item:	Amount (US Dollars)
Energy Shopkeeper Salary	$866
Advertising/Promotion*	$553
Rent**	$16
Shop set up and supplies	$761
Total Start up and operational expenses	**$2,196**

*Advertising includes payment for grand opening entertainment and equipment rental, radio ads, payment to people for leafleting, and to Field Demonstrators.
**Cost of market stall rent is N$50 per month, or US$16 for 2.5 months

For use in future planning, Energy Shop sales and expenses are projected over a one year period. While the costs associated with Energy Shop operations are expected to drop substantially after the initial launch phase, growth in on-going operational expenses should be anticipated.

Table 2: Energy Shop Operational Expenses (Estimated, 10 week period)

Budget Item:	Estimated Amount (US Dollars)
Energy Shopkeeper Salary	$866
Advertising/Promotion*	$600
Rent	$230
Shop supplies	$15
Miscellaneous Expenses	$80
Total Estimated Operational Expenses	**$1,791**

***Advertising/Promotion costs include**: radio commercials, Field Demonstrator salaries, and payments to people for leafleting and postering.

In the first 10 weeks of operation, three things were crucial to keeping operating costs low: the low cost of open market rent, the absence of a bank account (and related banking fees), and waivers for shipping duties and value-added tax (VAT), which together saved Elephant Energy US$7,221 in excess fees in 2010. However, these waivers cannot be guaranteed in the future and Elephant Energy is now seeking a new shop location outside of the marketplace, which will cause a substantial rise in monthly rent. Further, Elephant Energy must set up a Namibian bank account in 2011 in order to securely managing its finances. In order to continuing using this pricing model (internalizing costs) while keeping products in the range of Caprivians' willingness and ability to pay, each of these areas must be studied during the next phase of the Elephant Energy Shops Project. Elephant Energy will continue to find ways

to reduce expenses while increasing sales through a concerted focus on broadening marketing efforts in Caprivi's rural areas.

With constant sales, the Energy Shop's estimated yearly gross sales would total US$26,015 in 2011 and projected expenses, including operating costs and costs of purchasing and importing ASET products, would be US$29,712, resulting in a loss of US$3,697 in 2011. However, an increase in sales volumes as a result of expanded marketing efforts could result in a profitable Energy Shop in 2011.

Table 3: Energy Shop Actual and Estimated Profit and Loss

	Actual (10 weeks)	Estimated (10 weeks)	Estimated (1 year)
Total number of product sold	222	222	1,154
Gross Sales	$5,003	$5,003	$26,015
Product, Importation Costs	-$3,923	-$3,923	-$20,399
Shop Operational Costs	-$2,196	-$1,791	-$9,313
Total Net Income	**- $1,116**	**-$711**	**-$3,697**

ADVERTISING AND MARKETING STRATEGIES

Through the Elephant Energy Shops Project, Elephant Energy piloted a number of advertising and marketing strategies, including radio advertisements, posters and leaflets, mass text messaging, solar cell phone charging services, community-based demonstrations, and shop-based marketing. These strategies are summarized below:

Radio advertisements: Two radio advertisements were produced in Lozi and aired on the Namibian Broadcasting Company (NBC) station twice weekly from October through December. Radio is a widely used means for obtaining information in both rural and urban areas, making this a cost-effective means for reaching a widely dispersed audience. While customer surveys have yet to be analyzed, many shop patrons reported that they learned of the shop from radio advertisements.

Posters and Leaflets: Leaflets in English and Lozi were distributed and posters displayed at gathering spots and walking paths in rural villages throughout the Caprivi and in Katima Mulilo's residential and commercial areas. Children spread leaflets to people around Katima Mulilo at month end, the town's busiest shopping time, and at public events. Posters were placed in several taxis and local buses (or "combis") which carry rural residents to and from Katima Mulilo.

Shop-based marketing: An interactive "night-time box" at the shop allows customers to test out the various lights in simulated darkness.

Other shop-based marketing includes signage communicating the cost savings of using a solar torch over candles over one and two year time periods. Further, shopkeeper Annah Simbulu demonstrates a "whack test" of products to customers, hitting products on display against the shop's concrete countertop in an effort to demonstrate products' durability to customers.

Mass text messaging: Elephant Energy laid the ground work for future application of "mass SMS" technology, an increasingly popular communication tool to spread messages to people in off-grid areas throughout the developing world. Cell phone numbers of customers are collected at the shop and mass-text message announcements will be sent out when new products became available or promotions are held.

Solar cell phone charging service: Using the Firefly cell phone charger, this service was introduced in early November at the shop as a tool for attracting customers. A cost of N$2 (approximately US$.30) was assigned to this service, to make it more affordable than the cell phone charging services frequently used by people in off-grid areas, which typically cost N$5.

Community-based demonstrations These demonstrations were carried out in the high density residential areas on the outskirts of Katima Mulilo, where large numbers of residents continue to light their homes with candles because electricity is either too expensive or the electric grid is unavailable. Elephant Energy's Field Demonstrators, Amedius Macua and Joseph Ziezo, carried out product demonstrations to groups at night and through door-to-door, in-home demonstrations during the day. Field Demonstrators were provided monitoring forms to track information about each demonstration which will be compiled with rapid energy surveys to gauge effectiveness of this marketing strategy. After just five weeks, 68 homes were visited, 3 night-time group demonstrations were conducted and **294 people** were reached.

DATA COLLECTION AT THE ENERGY SHOP

Elephant Energy is continually collecting quantitative data concerning energy use in Caprivi by encouraging each Energy Shop customer to complete a rapid baseline energy survey with their purchase. In 2011, energy surveys will be analyzed to help Elephant Energy determine the attributes of potential customers, including locations, timing of their cash flow and needs and energy priorities, as well help to steer future marketing strategies.

Additionally, Elephant Energy collects cell phone charging data at the Energy Shop. Cell phone charging technology in the ASET industry is imperfect, with all chargers on the market experiencing some problems with charging different makes and models of cell phones in use today. While Elephant Energy has among the highest quality portable solar cell phone chargers available today, as noted above, they do not successfully charge all cell phones for which they are intended to be compatible. In order to address this issue, the shop has instituted a "charge before you buy" policy, where customers are required to test their cell phone at the shop before they are able to purchase and take them home. Elephant Energy then records cell phone charging data through this policy and its charging service in order to better understand what cell phones the chargers do not work for. Elephant Energy aims to minimize/eliminate purchase of cell phone chargers for non-compatible cell phones, and to contribute to a longer term solution by feeding this information back to product manufacturers, in order to inform products designed for the African market.

REFINING THE MODEL: LESSONS LEARNED AT THE ELEPHANT ENERGY SHOP

- Many customers remark that the products are "too expensive". Elephant Energy must continue efforts to build awareness on the long-term cost savings of solar products at the shop through print and radio advertisements and one-on-one interactions with customers.

- While rent for the current stall is very affordable, the space is too small to accommodate all of our products (the Envirofit cookstove was not introduced for sale because of lack of display space), and jeopardizes the security of items as they must be stored in the marketplace's communally used storage locker. A larger, locked stall must be acquired in order to facilitate display of Elephant Energy's product line, improved profile and visibility in the marketplace, and security of items during off-business hours. A shop space outside of the marketplace may be necessary, though the cost of rent should be considered in relation to shop's overall financially sustainability.
- Many customers are sceptical of electronic goods in Caprivi because of the cheap, poor quality electronics sold in Caprivi's ubiquitous "China Shops". Customers often ask where products are made and say they would not be willing to invest money in products manufactured in China. This should change in time as people see the durability of Elephant Energy's products first hand in their villages. Building a reputation as a trusted seller of high quality products is crucial for Elephant Energy's ability to meet unmet energy needs in the Caprivi.
- In order to provide the large majority of people in off-grid areas access to these modern energy technologies while selling products at unsubsidized prices, consumer financing is crucial. Development of other strategies to make these products more affordable, such as a "rent-to-own" plan, should be researched and tested in 2011.
- As inventory needs are better able to be anticipated and volumes increase, shipping by sea must be utilized in order to reduce the high costs of air freight.

- Elephant Energy assigned a fee of N$2 for the cell phone charging service, however, at this price, few customers utilized this service. This could be attributable to the fact that people are able to find free power sources from other sources in town or to insufficient advertising to rural areas. This service has the potential to attract customers (particularly those in rural areas) and should be adequately advertised and offered free of charge.
- It is sometimes difficult or impossible to carry out the "charge before you buy" policy, because it is cloudy or raining, the customer's cell phone is already fully charged, or customers state that they don't have time to leave their phone. Elephant Energy must continue communicating with its suppliers to help them design cell phone charging products that are more reliable and able to charge all varieties of cell phones.
- Two returns made for malfunctioning cell phone chargers were fixed by providing the user new cell phone connector tips. Elephant Energy must stock spare cell phone tips at the shop so that replacements can be made of these components, instead of the whole product. Elephant Energy also has received requests from many customers for Samsung and LG brand charger tips, which must be located and made available to customers.
- There is little known about the residents of Katima Mulilo's sizeable peri-urban residential areas, their levels of energy access priority energy needs, desired means of meeting these needs and willingness to pay to meet those needs. Data should be collected through community-level demonstrations currently being conducted in these areas in order to better understand the needs of this population.

BALYERWA CONSERVANCY: THE "DIRECT SALE" MODEL

Elephant Energy and Balyerwa Conservancy: An Overview

Balyerwa Conservancy was registered in October 2007. The conservancy is divided into four areas, or villages: Nongozi, Mbambazi, Sauzo, and Lianshulu. Approximately 1,700 people live in the conservancy, roughly 1,200 of who were registered members of the conservancy as of 2009. Balyerwa Conservancy generates most of its revenue from trophy hunting, although the conservancy receives additional income from a traditional village and lodge located within the conservancy. In 2009, Balyerwa Conservancy earned nearly N$700,000 (US$93,333) and distributed approximately N$150,000 among its members as cash payments. Each member received approximately N$100. Other funds covered operating costs, including staff salaries and a conservancy car.

Balyerwa Conservancy managers informed Elephant Energy in July 2010 that the conservancy would be able to devote resources from their yearly cash distribution for a solar light sale. After an initial meeting in August, Elephant Energy loaned Balyerwa Conservancy a "basket" of ASET products for Area Representatives to introduce these products to conservancy residents and

gauge interest in having such products available for sale in the conservancy. A rotation schedule for sharing products among villages was determined, and after six weeks, Elephant Energy returned to meet with Balyerwa staff. All reported enthusiastic response from conservancy members for conducting a sale in the conservancy. Elephant Energy received reports of varying levels of involvement from Area Representatives—two representatives reported that they held demonstrations and actively oversaw the rotation of lights among households in their villages while two representatives were accused by other conservancy staff members of keeping the lights for their own use throughout the loan period. Elephant Energy's ability to effectively monitor this process or verify these accounts was limited.

Elephant Energy worked with Balyerwa Conservancy to plan a solar light sale based on a "direct sale" model, where all conservancy members would be given equal access to buy solar products. It was decided that the sale would take place during the conservancy's distribution of cash benefits, in order to take advantage of a time where conservancy members have cash on hand. The purchase of a solar light would be optional, so that members would have a choice to spend their money on Elephant Energy's products or use it for other purposes, like paying school fees.

One month prior to the planned distribution of cash distribution, Elephant Energy and Balyerwa Conservancy held night-time demonstrations of solar lights in each of Balyerwa's villages. The purpose was to allow Elephant Energy to anticipate ordering volumes to bring back for sale, to explain the details of this sale to conservancy members and allow them sufficient time to plan, and to expose conservancy members to Elephant Energy products at night, when they are best experienced. Approximately 200 people (plus an additional 150 under the age of 18) attended these demonstrations. At each demonstration, audiences "voted" with pieces of paper for which light they planned to buy at the solar light sale. It was stressed that they should only vote after looking at the price and considering what they really would buy.

The conservancy assured Elephant Energy that the cash benefit distribution would occur over four days in November, with one day of cash distribution in each village. However, following night-time demonstrations, the planned dates for cash distribution were delayed a number of times. The conservancy then stated that the cash benefit distribution would take place in mid-December, with the final days being determined at the conservancy's Annual General Meeting (AGM) on November 30. Elephant Energy attended the AGM to communicate with conservancy members about the upcoming sale, but the AGM was unorganized and Elephant Energy representatives were not given a chance to speak. Also, at the AGM, the conservancy changed its plans so that all four distributions would occur on December 3rd at 8am. Elephant Energy staff quickly organized sale materials and traveled to Balyerwa Conservancy to meet conservancy members during these cash payouts. However, cash distributions were again rescheduled to afternoons or other dates due to funerals to be attended by village headmen or other unknown reasons. Cash distributions eventually took place on December 3rd, 4th and 6th. Elephant Energy sold 32 products over the course of these days, including 19 Sun Kings, 7 Kirans, 1 Mini BoGo, and 5 Big BoGos, bringing in a total revenue of N$4,843 (US$646).

There were some very happy customers who purchased lights. An elderly man at Lianshulu village returned to tell Elephant Energy staff the next day to say what a great light he had bought. A young woman who said she wanted to save her money from buying candles waited on the road with her extra cash she got from her husband and flagged down the Elephant Energy vehicle to buy another. One man said he wanted the Sun King as he is studying at the university in Katima Mulilo. However, the disorganization of Balyerwa Conservancy resulted in few sales being made, despite optimistic sales forecasts from the nighttime demonstrations.

REFINING THE MODEL: LESSONS LEARNED AT BALYERWA CONSERVANCY

- Balyerwa Conservancy's plans for cash benefit distributions were conveyed to Elephant Energy as definite, but changed many times in the weeks and days preceding the distribution. This disorganization of the benefit distribution process thwarted Elephant Energy's ability to coordinate and advertise location and timing of sales with cash distribution.
- Conservancy staff blamed low sales on people spending their cash on alcohol. However, Elephant Energy staff members did not observe many people drinking at the local bars while conducting sales. Elephant Energy spoke with conservancy members who said there are a lot of demands on the cash, with several people stating that they used their cash to pay debts they already had.
- The relative input of time and expenses into this conservancy partnership did not pay off relative to the number of sales. In the future, Elephant Energy should focus on reaching communities living in conservancies through direct sales through the energy shop and rural marketing efforts involving informal entrepreneurs in 2011. Elephant Energy should only work with conservancies if strict pre-conditions are met and should not rely on the contentious AGM process to provide funding for direct sales.
- The night-time demonstrations provided Elephant Energy a valuable opportunity to introduce solar lights to people at night, communicate cost savings directly to large audiences and answer questions in an open community forum. Night-time demonstrations should continue to be employed as a marketing strategy in the future by Elephant Energy Field Demonstrators who live in villages and are able to travel easily to demonstration locations. Products should be made available locally to audiences within one month of a demonstration, either by purchase from Elephant Energy Field Demonstrators, or one-day sales conducted by Elephant Energy staff travelling to rural areas by car.

CONCLUSIONS AND FUTURE PLANNING

Elephant Energy must address **energy access** by making products more affordable, expanding distribution and enhancing awareness though its Elephant Energy Shops model. Utilizing the data from the pilot project, Elephant Energy should develop a business plan for a broader Energy Shops program that expands its marketing and sales efforts to provide access to ASETs for communities deep in the bush. Elephant Energy should further develop its "Rural Entrepreneur Model", where small businesses-people located in areas far away from market centres are loaned "baskets" of energy products to sell the products in other areas of Caprivi.

Elephant Energy should establish **financing** strategies at the Energy shop to improve cost-accessibility. "Lay by" is a financing scheme where the customer makes several payments to pay off the price of the desired item, and is common in the Caprivi. This type of program also avoids the complications of microcredit defaulting.

As an extension of on-going **marketing and advertising** efforts, Elephant Energy should create a solar education campaign, informing potential and current customers about the use and benefits of ASETs. This can include night-time and in-home demonstrations or "infotainment" carried out in radio productions or skits performed during community demonstrations. These methods attract audiences while incorporating educational and marketing content.

Elephant Energy must work to integrate environmental **sustainability** into the Energy Shops model, including a shop-based system to receive and handle warranty claims and manage product repairs. Elephant Energy is currently seeking out a local technician with the capacity to perform repairs of defective technologies. Waste Management is also a concern as Elephant Energy moves into rural areas of Caprivi. Once-off sales should not be undertaken and a system must be put in place to collect broken products and spent batteries.

Additional market and customer **research** is also necessary to determine the attributes of our potential customers in Caprivi, including sources and timings of income and expenditures for rural residents. Additionally, the various factors influencing demand for ASETs and reasons behind solar adoption must be better understood. The barriers to adoption, such as high initial investment, lack of knowledge of economic savings, preference for traditional lighting methods, etc., must also be better understood. Each of these should be used to form a more effective marketing strategy.

Elephant Energy should continue to develop relationships in Namibia to **reach urban areas** with our ASET products. While our focus will always be on providing access to ASETs in rural areas, increasing sales volumes through sales to established shops in heavily populated areas such as Windhoek and northern Namibia will allow us to reduce importation costs and increase access to our products through lower prices. Elephant Energy must take steps to ensure its status as the prime ASET provider in Namibia as the market continues to emerge.

Elephant Energy should continue to **build partnerships** with manufacturers and other distributors of ASETs in Africa and throughout the developing world by sharing its experience and field-tested data. All participants in this emerging market must work together to design better quality, cheaper, more appropriate technologies, and develop the most cost-effective strategies to distribute ASET products to those that need them most.

We end 2010 energized by the world of difference a simple light can make in the lives of rural families in Caprivi. In December 2010, a child was born under beam of one of Elephant Energy's solar-powered lights. Welcome to the future of Africa…