FLETCHER D-PRIZE COMPETITION

2017-2018 Academic Year

Scale Access To Solar Lamps

A simple $25 solar lamp creates enormous benefits for developing world families. Lamps reduce household fire dangers, increase incomes and allow children to study more. In three months, sell 300 solar lamps to rural or urban low-income homes, generate US $5,000 in revenue, and plan to scale to 25,000 homes in two years.

The Problem: An estimated 600 million individuals in sub-Saharan Africa light their homes using kerosene lamps.[1] They are dim, cost a minimum of $35 per year to keep fueled, create poor indoor air quality, and cause fires that can injure children.[2, 3] The problem is particularly acute in rural Africa, where kerosene rates can be 35 percent higher versus urban areas.[4] Alternatives, like batteries and candles, are similarly expensive.

The Proven Solution: Solar lamps provide up to 15 times more illumination than kerosene lamps[5]. They cost $15-$50 per unit, and pay for themselves in less than a year for most households.[6] Families that switch from kerosene to solar lamps can see household incomes increase by 15-30 percent, and double the number of available study hours for children.[7, 8]

Your Challenge: We will award up to $20,000 to a social entrepreneur who can sell solar lamps to 25,000 households over the course of two years. The new organization should begin with a three-month pilot program, which should sell at least 300 lamps to rural or urban-slum homes and generate at least $5,000 in revenue.

---

1 http://www.lightingafrica.org/about-us/in-numbers.html

2 Howe, Charles; Lawrence, Joanne; Patel, Hitendra. SolarAid: Revolutionizing the Way to Make Energy Affordable for Everyone." Hult International Business School Publishing. January 2012.

3 E. Mills, "The Specter of Fuel-based Lighting," Science 301, 1263 (2005).

4 Cost of Kerosene in Africa Threatens Access to Lighting. Lighting Africa, 2012. http://lightingafrica.org/cost-of-kerosene-in-rural-africa-threatens-access-to-lighting

5 http://greenlightplanet.com/our-products

6 Cost comparison between retail sale price of Greenlight Planet Solo and Pro2 lamps, and the average annual cost of one kerosene lantern.

7 http://www.thegef.org/gef/sites/thegef.org/files/publication/gef_renewenergy_CRA_rev.pdf

8 Agoramoorthy ; Hsu: Lighting the Lives of the Impoverished in India's Rural and Tribal Drylands. In: Human Ecology 37 (2009), S. 513–517

Additional Information:

- Solar lights could actually be very profitable to sell: each light has typically at least a $10 mark-up from its production costs. The total Africa market size is estimated at 600 million people, and off-grid market penetration of solar lamps is only 3 percent.[9, 10] The potential market value is estimated at $27 billion.[11]
- The greatest need for lamps is in rural and peri-urban areas. An estimated 2 percent of rural homes have access to the energy grid, compared to 30 percent in urban areas.[12] Lighting Africa, a World Bank and IFC initiative, has published extensive market reports on Ethiopia, Ghana, Kenya, Tanzania, and Zambia.[13]
- One challenge facing solar lamp distribution is franchisee and customer financing – it can often take six months between placing an order for new products and when cash is finally received from customers.[14] Other barriers include market spoilage by sub-standards products, low consumer awareness, and ineffective servicing. A social entrepreneur who creates a distribution model, and addresses financing and warranty needs along with lamp sales, could be highly impactful and profitable.
- Drawing from extensive field testing, D-Prize endorses Greenlight Planet solar lamps.
- Past winners include Clair de Lune (Burkina Faso), Juabar (Tanzania), PayGo (Ghana), SolarRoute (Nicaragua), Qorax (Somaliland), Bright Renewables (Zimbabawe), Phoenix Solar (Nigeria), AL Tech (DR Congo), SoLight (Uganda), and Azimuth Solar (Sierra Leone).

Ready To Apply?

Download a First Round Application Packet and start creating your proposal. www.fletcher.tufts.edu/D-Prize

Questions? Email Dorothy Orszulak at dorothy.orszulak@tufts.edu.

[9] http://www.geni.org/globalenergy/library/media_coverage/africa-renewal/energy-key-to-africas-prosperity.shtml

[10] http://lightingafrica.org/

[11] http://www.renewableenergyworld.com/rea/news/article/2013/03/building-an-african-market-solar-entrepreneurs-on-the-rise

[12] Howe, Charles; Lawrence, Joanne; Patel, Hitendra. SolarAid: Revolutionizing the Way to Make Energy Affordable for Everyone." Hult International Business School Publishing. January 2012.

[13] http://lightingafrica.org/resources/market-research/consumer-insights/

[14] http://lightingafrica.org/