

SOLAR HOUSEHOLD ENERGY ANNUAL REPORT



2019
In Review

A Note From Our President



David Grossman Board President

Dear readers,

Thank you for your interest and support for SHE without which we would be unable to maintain our robust array of activities and programming. 2019 has been an active and exciting year for us. With your support, we have launched new social enterprise approaches to our field-based initiatives, and contributed significantly to advances in global research and development to deploy much improved cook-stoves for use in our ongoing projects in Africa and Latin America. Given ever heightened concern about the impacts of global warming and the immediate needs occasioned by natural disasters, SHE has been collaborating with a wide-range of international non-profit organizations who are seeking clean energy and off-grid solutions to incorporate into their community development strategies.

I encourage you to take a deep dive into this annual report and learn about our innovative Solar Ambassador Pilot Program in Mexico, the advances made in the Haines 2.0 solar oven and its deployment in a refugee camp in Uganda, contributions to the International Organization for Standardization (ISO) cook-stove testing protocols and our many advocacy efforts and outreach events. This report brings you several uplifting success stories from around the world which I trust will inspire you to stay involved with us at SHE.



— *David Grossman*

SOLAR HOUSEHOLD ENERGY

Solar Household Energy (SHE) promotes solar cooking to improve social, economic and environmental conditions in sun-rich areas around the world.

Over half the world's population relies on wood, charcoal or other biomass sources for cooking in their day to day lives. This contributes to deforestation, climate change, and a rise in air pollution that causes serious health issues. Families whose options are limited must also often incur high fuel expenditures and time poverty, especially for women, who collect fuel and often tend to the smoky stove.

Solar cooking offers a practical, affordable, and sustainable alternative to gas-cooktop and wood-fired cooking methods.

MISSION AND VISION

Since 1998, Solar Household Energy has worked with governments, non-governmental organizations and the private sector to promote solar cooking with modern solar cookers (e.g. the “HotPot” developed by SHE).

We help to introduce the technology in developing countries by creating suitable devices within the context of comprehensive training initiatives, including progress monitoring and project evaluation. We primarily focus on a few pillars of engagement involved in solar cooking:

1. Implement Field Projects and Report on Results
2. Foster Technology Research and Development
3. Raise Awareness and Advance Education

Committed to accountability and transparency



Solar Household Energy is a 501(c)(3) non-profit corporation and public charity. We are committed to accountability and transparency, and are [GuideStar](#) Gold certified. We will be happy to send you our 990 tax return upon request.



**Click here to visit
SHE's website**





A Holistic Approach

SHE has been working to expand how it engages with communities around the globe.

SHE first became engaged in promoting solar cooking in Mexico in 2003 after winning a “Development Marketplace” grant from the World Bank.

Fifteen years later, over 50,000 HotPot™ solar cookers have been disseminated worldwide, thanks to partnerships instigated and promoted by SHE.

SHE is currently supporting Mexican solar cooking expert Lorena Harp in her dream to bring solar cooking to the rural women of Oaxaca State through a sustainable social enterprise.

She is introducing an affordable but durable panel-style solar cooker called the Haines Solar Cooker (HSC) for use across the globe.

Prior to launch of the initiative, Lorena conducted local market research and optimized the HSC for local consumer preferences.

She then trained three rural women to become “solar cooking ambassadors” to sell HSCs for 500 pesos (about \$25 USD) on a commission basis (earning 200 pesos, about \$10 USD) to members of their communities and provide follow-up support to maximize adoption of this alternative cooking model.

SOLAR AMBASSADOR PILOT PROGRAM



50%

INCREASE IN OVERALL SAVINGS

In Oaxaca, Mexico, the site of the solar ambassador pilot project, local ambassadors, women, and families avoided 50% of their normal expenditures on wood and gas through the use of solar cookers. This factor seems to grow over time as solar cooker owners adapt to the product.

**407
SOLAR
COOKERS**

SOLD TO LOCAL RESIDENTS AND NGOS IN OAXACA SINCE PROGRAM START

By offering alternatives, citizens are electing to make the switch to environmental and human friendly options. The project's unique solar ambassador model helps community members distribute within their social circles.

ADOPTION AND IMPACT

SHE's model focuses on channels of access and education to solar cooking, as well as providing programming, training, and demonstrations that showcase solar cooking as being practical for local residents. By providing resources to increase solar cooking skills, we can further increase adoption and impact levels, increase usage, and promote savings in health and environment costs.

INNOVATION

SOAPS, PLATES AND SOLAR COOKED FOOD



The social enterprise is growing, with SHE, Lorena and her ambassadors are discovering along the way how to improve the social enterprise model, providing more opportunities for ambassadors to thrive, both **financially and as environmental leaders** in their communities.

Lorena has been actively promoting solar cooking in diverse circles, from preschoolers, to farmers, to the media, to global organizations.

In 2018, a group of 20 women in Pueblo Nuevo received HotPot solar cookers, donated by the Xquenda Cultural Association. Lorena provided training and follow-up.

In April 2019, Lorena visited these women to see how they produce **biodegradable plates and cups**, by solar dehydrating **the fiber by-product of their prickly pear cactus beauty products**.

They are exploring this avenue as a **business opportunity since sale of plastic plates + cups was recently banned in the area**.

SOLAR COOKING: A SUITE OF BENEFITS FOR WELLBEING

- **Solar Cooking in Humanitarian Aid**
- **Solar Cooking and Informal Recycling Occupations**



Lorena's social enterprise is expanding through partnerships with local humanitarian and development organizations.

Lorena's involvement with these organizations started in September 2017, when Mexico was hit with the strongest earthquake in a century and more than 11,000 homes were damaged or destroyed in Oaxaca. (The Washington Post, 2017).

She traveled to earthquake zones to distribute solar cookers and train users, with funds and material donations from SHE, Roger Haines, and local organizations.

In 2018 and 2019, SHE continued these efforts, we are working to formalize partnership models to ensure mutually beneficial results for all involved, both **supporting the social enterprise and enabling humanitarian endeavors.**

Lorena Harp has partnered with the Oaxacan non-profit organization

Xquenda A.C. to distribute and sell solar cookers in some of the poorest areas in Oaxaca.

In the villages of El Manantial and Zaachila, women make out a living by sorting through mountains of open-air garbage dumps. Enduring pollution, violence and crime, they dedicate themselves to the "pepena," searching for PET and other plastics to sell for 3 pesos (15 cents) per kg.

Lorena visited these towns 4 times in 2019 to carry out initial training with the donation of 50 HotPots, and then follow-up workshops.

She also introduced the Haines solar cooker, teaching women how to preserve jams, and bake flan and bread pudding among other dishes. SHE hopes that these skills can produce income generating activities for its beneficiaries.

(Continued on next page >>>)

Despite their extreme poverty, women were so enthusiastic about the solar cookers that many of them purchased Haines Solar Cookers at full price (500 pesos), so they could have two solar cookers.

One of these, Fidelia Mosqueda, has now become the ambassador for the pilot project in El Manantial, selling more Haines solar cookers to members of the community.



Lorena follows up with this ambassador and other customers via WhatsApp, offering feedback and tips on videos they share with her of their solar cooking experiences.

Canadian-Oaxacan partnership introduces Haines Solar cookers in Teotitlán del Valle

In March, Lorena collaborated with visiting Canadian High School students through GIE Oaxaca, as well as Oaxacan NGO "Techamos Una Mano" and the Anahuac University of Oaxaca to donate 8 Haines Solar Cookers to households with limited resources in Teotitlán del Valle.

(One of the social enterprise ambassadors, Bibiana Hernandez, who lives in a nearby community, assisted with training and will ensure long-term follow-up.)



HAINES 2.0 SOLAR COOKERS

FOR REFUGEES IN PALABEK, UGANDA

In late January, 2020, 33 women in the Palabek Refugee Community in northern Uganda received Haines 2.0 Solar Cookers and were extensively trained in their usage, especially in reference to cooking local cuisine with the devices.

The project was organized by the Gulu-based Alliance for African Assistance in partnership with Solar Household Energy, the African Refugee Education Project, as well as the San Diego Rotary Club and the Solar Connect Association of Uganda.

We are proud to be involved with so many organizations dedicated to empowering change within Refugee Communities. The goal is to establish 33 women in the community as long-term solar cooking enthusiasts.



Three of the women will be selected by their peers as to conduct periodic surveys to evaluate the long term use and adoption of the cookers, and the possibility of establishing a sustainable solar cooker enterprise in the community.



SOLAR COOKING WITH PPAF

VIA THE UNIVERSITÉ NOTRE DAME D'HAITI AT HINCHE

In Haiti, SHE is working alongside the Public-Private Alliance Foundation (PPAF), a New York-based 501(c)3 non-profit organization, recognized by the United Nations Economic and Social Council.

PPAF promotes the 10 Principles of the United Nations Global Compact and the 17 United Nations Sustainable Development Goals (SDGs) and uses a business approach for poverty alleviation with emphasis on renewable energy, public health, climate change, gender and entrepreneurship.

In 2018, PPAF began collaborations with the Université Notre Dame d' Haiti at Hinche, and other organizations, for funding and support of a "first ever in Haiti" course on sustainable energy through solar cooking and biodigesters for biogas and garden fertilizer. The first two semesters were in fall of 2018 and spring of 2019. A second iteration of the course began in fall of 2019.



On the project side, PPAF currently works with collaborators to support university teaching and fieldwork in Haiti on sustainable energy. PPAF also supports young entrepreneur classes at a Haitian training institution for children of low-income families, particularly those that promote brighter futures for adolescent girls.



RESEARCH AND DESIGN

Paul Arveson, Director of Research, worked to measure the standard power of the Haines Model 1 and 2 solar cookers for comparison.

He was involved in the work on the ISO standard, as well as on the Field Testing standard, ISO-19869, for which he contributed to the Safety section.

The Model 1 was tested in 2019 and found to have a standard power of 40 Watts.

The Model 2 was tested in 2018 and measured 100 Watts.

These values are based on the solar cooker standard of ASAE S.580.1 and ISO-19867-1.

The Model 2 report was published on our [website](#) in 2019. The report can be accessed [here](#) for more information.



International
Organization for
Standardization

Both of these standards are now published and available at the [website](#) of the International Organization for Standardization in Geneva.



INNOVATION WITH IMPACT



A photo showing the test equipment setup for measuring the Haines Solar Cooker Model 1 (June, 2019). The photo shows two copies of the test item, along with the solar and thermocouple instrument box and a solar panel to power the instruments.



Paul Arveson,
SHE Treasurer

AWARENESS | CAMPAIGN



"OUR ROSTER OF CAMPAIGNS HAVE GARNERED SUPPORT AT LOCAL AND INTERNATIONAL CONVENTIONS."

International Outreach and Advocacy

-Invitation to speak at the German-Mexico Energy Alliance Forum “Power of the People” in March 2019. This event was ultimately cancelled, but it allowed GIZ, the German government Development Fund, one of the event organizers, to learn more about her project.

-GIZ visited the solar cooking project communities in June, accompanying Lorena to various communities where they met with 10 solar cooker recipients and customers in their homes. They were very impressed by the women’s commitment for renewable energy cooking, many of whom solar cooked on a daily basis. This led GIZ to partner with Lorena and SHE to collaborate on the creation of a recipe and tips booklet for customers.

-Participation in the Mexico Energy Poverty Observatory, a conference between the University of Birmingham in the UK, the Autonomous University of Mexico’s Renewable Energy Institute, and the Cuban Central University, among other actors.

EDUCATION | ADVOCACY



"COMMUNITY IS AN ESSENTIAL
QUALITY AT ALL LEVELS OF
SOCIAL CHANGE."

Promotion in the Media

- Radio interview on "**Conversations over Oaxacan coffee**"
- Video interview by a student from the **Oaxaca University of Anáhuac** with plans to interview ambassadors and customers to **produce a documentary on the project.**
- Interview of Lorena, customers, ambassadors and SHE Board member Margarita Battles by **journalist Emilio Godoy**, whose local news article featuring videos was picked up by several news agencies including the international "**Inter-Press Services.**"

Educational Initiatives

- Presentation at **CONALEP, the National College of Technical Education**, which prepares over 900 students for technical careers.
- Solar cooking demonstration at the **Santa Maria Huatulco School of Science and Technology Studies** during climate change week.
- Solar cooker demonstrations at the **ecological Nilahui preschool in Ocotlan**, whose teachers already solar cooked from a 2009 donations. 13 HSC were sold to parents of preschoolers.

ORGANIZATION | PARTNERS



"AS THE SUN CANNOT BE OWNED, IT REMAINS ONE OF THE FEW VANGUARD RESOURCES WHOSE BENEFITS REMAIN OPEN TO ALL."

Partnership Development

-**"Espacios de Encuentro de los Pueblos Originarios" (EECO)**, a non-profit providing eco-technologies reducing greenhouse gases to the most vulnerable populations in Oaxaca, and whose Director is the coordinator for the Oaxaca state government Climate Change program.

-**Oaxaca municipal palace offices** (including demos during national conservation week).

-**CAMPO (Support Center for the People Oaxacan movement)**, with whom 50 hotpots donated after the earthquake were delivered in the community of **San Mateo of the Sea**,

-For years, **CAMPO** has promoted the use of solar ovens at their annual fair **"The Sun Rises For Everyone"**.

-**Elena Vergara**, who has been active selling solar ovens in recent months, has made considerable sales in ambassadors communities. Elena has sold a significant number of HSC at **the University of the Elderly** and held **several events with them**, and has promoted the HSC in the marginal area of San Felipe de Water, with excellent results.

EVENTS SHE ATTENDED IN 2019

Education and Advocacy

- Solar Cooking Demonstration at New Hope Academy
- An interview for Emerald Planet
- Presentation at the National Academy of Sciences (hosted by John's Hopkins University)
- Two weeks of presentations at the San Diego Cultural Fair

**WANT TO GET
INVOLVED OR HAVE
EVENTS FOR SHE TO
ATTEND?**

INQUIRIES@SHE-INC.ORG

- Presentation at CONALEP, National College of Technical Education
- Presentation at Santa Maria Huatulco
- Biodiversity festival in Oaxaca City
- 15th Annual Ecological Forum of Juchiteco
- 15th Ecological Fair Expo "The Sun Shines for All" (El Sol sale para todos)



CONT; EVENTS

Education and Advocacy

- Solar cooker demonstrations at the ecological Nilahui preschool in Ocotlan
- Radio Interview on "Conversations over Oaxacan Coffee"
- Invitation to speak at the German-Mexico Energy Alliance Forum
- Participation in the Mexico Energy Poverty Observatory
- Canadian-Oaxacan partnership to donate solar cookers



- STAR Tides
- Highlighted on the Inter Press Service News Agency
- Oaxaca Municipal Palace demos
- Work with the German Govt. Development Fund in Oaxaca, Mexico
- Work with Xquenda A.C. in Oaxaca

FOR NEWS • UPDATES

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VIDEO TUTORIALS FOR SOLAR COOKING

An HSC assembly usage and training video was created (see above), starring local ambassador Bibiana Hernandez, as a new cost-effective approach to support ambassadors in their training efforts. Other avenues were explored, including selling heat-retention baskets and solar products alongside HSC to attract more customers. These initiatives are still under development.

In September, a local social enterprise development consultant, Adan Santos, joined the team to help light the way forward. A passionate supporter of Lorena's solar cooking work for over 15 years, he first volunteered his time and expertise for months beforehand. Adan is contributing to writing up lessons learned, partnership development documents including proposals, and a comprehensive, long-term business plan for the social enterprise to one day reach financial sustainability.



Thank you from each and
every one of us at
**Solar Household
Energy!**



Our work is made possible
by generous contributions
and donations, volunteer
workers, a dedicated board
of directors and staff, and
partner organizations - all
who share in the vision of
solar cooking.



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