

EMPOWERING WOMEN THROUGH SOLAR TECHNOLOGY

PROJECT REPORT



COMMEMORATING THE INTERNATIONAL DAY OF RURAL WOMEN

Report Prepared by Glow Initiative for Economic Empowerment

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Overview

About The International Day of the Rural Woman

The crucial role that women and girls play in ensuring the sustainability of rural households and communities, improving rural livelihoods and overall wellbeing, has been increasingly recognized. Women account for a substantial proportion of the agricultural labour force, including informal work, and perform the bulk of unpaid care and domestic work within families and households in rural areas. They make significant contributions to agricultural production, food security and nutrition, land and natural resource management, and building climate resilience. Therefore In 2008, the United Nations passed a resolution to establish the International Day of Rural Women to recognize the impact of women in rural and indigenous communities on agriculture, ending poverty, rural development and ensuring food security in communities.

This year's theme - Rural Women and Girls Building Climate Resilience highlights the important role that rural women and girls play in building resilience to face the climate crisis.

Glow Initiative for Economic Empowerment commemorated this important day by training 50 select women on Renewable Energy Technology and Business Opportunities in the sector as an economic empowerment skill that will lift them out of poverty and equip them to combat climate change, Production of a video documentary to showcase project impact and testimonials from trained women, mentorship and business advisory support for 10 select trained women.

Women and girls in rural areas suffer disproportionately from multi-dimensional poverty. While extreme poverty has declined globally, the world's 1 billion people who continue to live in unacceptable conditions of poverty are heavily concentrated in rural areas. The impacts of climate change, including on access to productive and natural resources, amplify existing gender inequalities in rural areas. Climate change affects women's and men's assets and wellbeing differently in terms of agricultural production, food security, health, water and energy resources, climate-induced migration and conflict, and climate-related natural disasters. To contribute towards creating better opportunities for women to thrive in the climate changing world, we received support from Access Bank to launch the Solar Women's Program to train 50 women on opportunities in the renewable energy sector (solar) including the basics of designing and installing a solar PV system to generate electricity. This action will see to an increase in the knowledge of solar technology and subsequently promote womens participation in the energy sector aid [#ClimateAction](#). The programs and activities are detailed below;

Project Activities

Activity 1

Training Program for 50 select women.

We will work with community leaders and women groups to select Fifty women from rural communities across Ogun state who will be divided into three groups and will undergo training on three focal areas;

- 1) Starting your Solar Business (Solar Business Value Chains);
- 2) Opportunities in the Renewable Energy Sector Sector for Women
- 3) Solar PV Design and Inverter Installation.

First Part

We worked with community leaders of Asesse, Pakuro and Omurural communities to select fifty rural women to undergo the training program. On the 24th November, we held a full day training workshop where the women were trained on renewable energy and the various value chains in the solar energy sector such as;

- Curbing Energy Poverty through solar
- Solar Design
- Solar Product Distribution
- Solar Consulting
- Energy Audit for Solar Installation
- Energy Efficiency and Management
- Retailing solar products and solutions, etc.

The goal was to expose the women to various opportunities for local impact. Opportunities with which they can start a new source of income. This action will go a long way to improve the economic situations of the community. The value chains we trained them on, are areas that the women can engage in an make immediate money. Our partner companies –Renewable Energy Technology Training Institute (RETTI) trained on Solar Energy Business, Energy Efficiency and energy Audit whilst our partner Asteven Solar trained on Solar Design, Distribution, Retailing and Curbing energy Poverty.

Quiz Competition

At the end of the training workshop, fifteen active women won Solar Lanterns for home use which will displace the kerosene lamps after participating in a quiz competition.



Picture of the solar lamps shared

Second Part

At the end of the training, the stakeholders of the rural communities nominated ten women to undergo the full week hands on training on Solar PV Design and Inverter Installation.

Training Course Objectives

1. To reduce unemployment in Nigeria by raising and grooming solar energy and energy efficiency professionals who will then be qualified for jobs in the sector.
2. Create competent solar installers across the nation with international standards
3. Provide manpower for small and large scale solar installations across the nation
4. To groom Solar Entrepreneurs

Solar Training learning Objectives;

- Recognize the various types of solar photovoltaic systems and components currently in use.
- Demonstrate safe working practices.
- Properly design and size solar photovoltaic power systems.
- Assist in the planning and installation of solar photovoltaic arrays and components.
- Understand the types of codes and standards that apply to the proper installation of solar photovoltaic systems.
- Understand the types of permits, warranties, and the customer relations required for completion of the overall solar project.
- Assist in the maintenance of common solar photovoltaic systems.
- Improve technical know-how and the quality of solar photovoltaic installations in the country.

Solar Training Course Outline

- Introduction to Solar Energy.
- Basic Solar Terminologies.
- Introduction to Electricity.
- Energy Management and Energy Auditing

- Installation Tools and Safety Basics
- Solar Photovoltaic System Components
- PV Module Fundamentals
- PV Battery System Design
- PV Controller System Design
- PV Inverter System Design
- Solar Photovoltaic System Sizing
- Installation of Solar Photovoltaic Systems
- Solar Photovoltaic System Electrical
- Solar Photovoltaic Applications
- Maintenance and Analysis
- Economic Analysis
- Practical
- Evaluation and Assessment

These trainings built the capacity of the participants in the following Renewable energy technology value chain such as:

- Designing/Developing
- Installation Engineers
- Marketers and Distributors
- Independent Consultants
- Solar Energy Promoters
- Trainers

After these trainings it is expected that participants should be capable of designing and implementing solar power solutions. As an outcome they might;

- Design and size up systems and sell to manufacturers
- Supply electricity through micro grids
- Distribute solar solutions
- Provide installation and maintenance services
- Become advocates of a solar powered Nigeria.

Ten select women were trained on the following broad areas which has sub-topics;

Day 1: Climate Change, Solar energy and PV Components

Day 2: Solar PV Entrepreneurship, Solar Systems Design

Day 3: Solar Site and Safety Practices, Installation, Assembling and Disassembling

Day 4: Solar PV Applications, products, Installation, Maintenance and troubleshooting

Day 5: Reviews, Solar Entrepreneurship/Examination and Certification

Timetable Used

	Time	8 -10.30AM	10.30 - 11AM	11-2PM	2-3PM	3-5PM
Day	Topic	Subtopic	SHORT BREAK	Subtopic	LUNCH BREAK	
Mon 25 th Nov	Introductions Climate Change Solar energy and PV Components	Concept of Climate Change and Environmental Sustainability Astevens facility Tour		Solar Electricity Sun as a Resource Solar Panels Understanding Solar Cell and Applications		Understanding IV Curve and Characteristics Class Practical/Exercises: Use of a Multimeter Solar Array Connections
Tues 26 th Nov	PV Entrepreneurship, Awareness and Systems Design	Intro to PV Entrepreneurship Starting your Solar Business The Entrepreneurial Profile Success or Failure of a Small Business	Inverters; Inverter characteristics and Types Batteries: Battery Types and Characteristics Solar Charge controller Voltage drop calculation and cable sizing	Energy Audit Developing Load Profile Basic System Sizing (Battery, Inverter, Panels and Charge Controller) Types of Load Site survey, tools and materials Class Practical/Exercise Series and Parrallel Connections Solar array connections		

	Time	8 -10.30AM	10.30 - 11AM	11-2PM	2-3PM	3-5PM
Wed 27 th Nov	Solar Site and Safety Practices Installation Assembling and Disassembling	Safety measures and practices in installation Safety tools, application, awareness and practices.	SHORT BREAK	Fuses and circuit breakers Group Solar PV Installation Design Exercises Panel property Use of Irradiation and angle of inclination simulation kits	LUNCH BREAK	Shading Solar PV systems configuration Group Solar PV Connections Use of solar simulation table and excel sizing and calculation sheet Installing a 1kw Solar System Installation Testing and Commissioning
Thurs 28 th Nov	Solar PV Applications, products, Installation, Maintenance and troubleshooting	Solar Entrepreneurship Sales Marketing Opportunities Marketing Strategies Understanding your Market (Nigeria Renewable Energy Market Overview)		Group solar pv installation and commissioning Rooftop panel mounting technics 12v/24v systems installation (group)		Group solar pv installation and commissioning Rooftop panel mounting technics 12v/24v systems installation (group)

	Time	8 -10.30AM	10.30 - 11AM	11-2PM	2-3PM	3-5PM
Fri 29 th Nov	Solar Entrepreneurship/Examination and Certification	Compiling a Business Plan Business Forms Financials Reviews and Revisions		Examination		Certification and Closing Ceremony

Outcomes

Fifty women empowered with economic knowledge on renewable energy value chains for money making

Fifty women now equipped with the knowledge to design and install solar system for electricity generation for homes or commercial use.

Fifty women now equipped with the capacity to start their own solar businesses with distribution support from our partners company – Asteven Solar.

Activity 2

Creation of a Video documentary to showcase project impact.

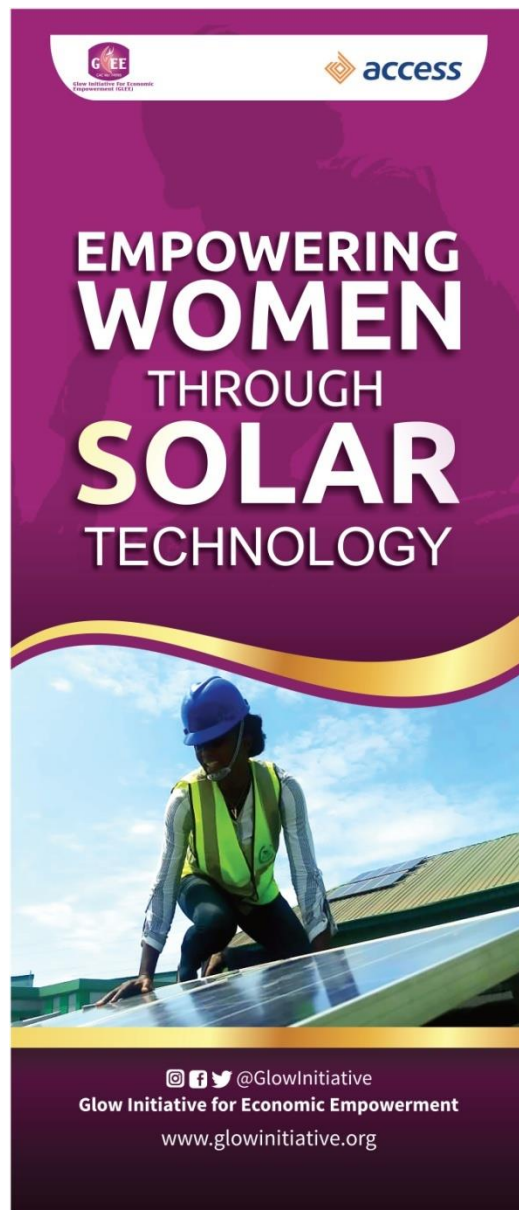
We created a documentary that covered the training process and period to showcase the project impact on beneficiaries. The video attached in this report has just been released. This will be broadcasted in our media pages and stand as testimonial to Access Bank's work and demonstration investing in rural women. Our goal for next January, 2020 is to publicize this documentary so that Nigerians and the rest of the world will see.

Activity 3

Mentorship

We are currently working with the Nigerian association for women in renewable energy – The Women in Renewable Energy Association of Nigeria (WIREN) to pair the women with mentors. Our goal is to mentor ten women who are on the journey to starting their own solar businesses. At this time, two of the women have begun their mentorship. The goal is to match them with fellow women who have made an impact in the solar business sector and are running successful solar businesses. One of the women, already secured a contract with her local church in Pakuro community of Ogun State to supply solar lanterns.

IECs and Promotional Materials Used



Roll Up Banner used

Access Bank Support

The support from Access Bank PLC enabled us to train fifty women on;

- Starting your Solar Business (Solar Business Value Chains);
- Opportunities in the Renewable Energy Sector Sector for Women
- Solar PV Design and Inverter Installation.

- The support covered expert designs for our IECs and publicity materials.
- The support helped us produce four video documentary which we presume will reach more than 200, 000 people hundred thousand people when we publisize it for one month.

Gallery



Some of the women pose for a picture after their training



The instructor showing the women basics of battery connection



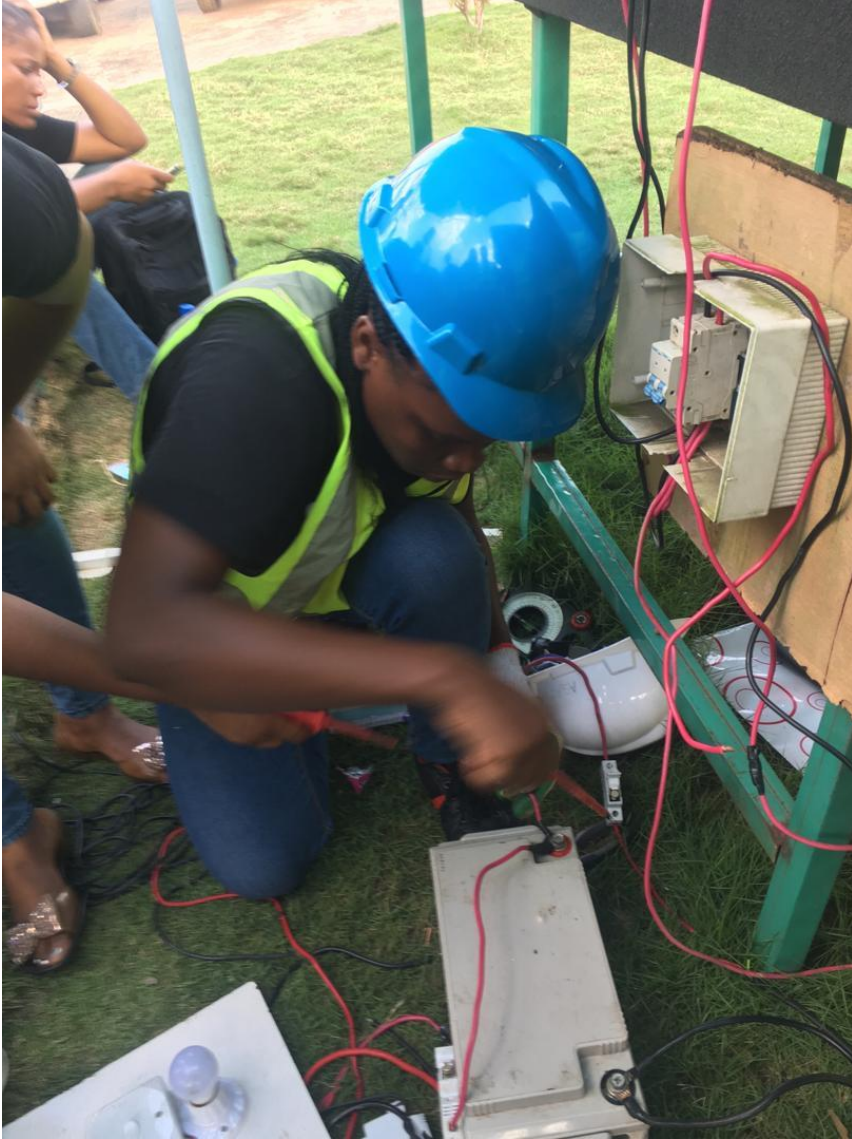
Women getting set to connect a bulb to see how solar power generates electricity



Training Ongoing



Some of the beneficiaries pose with the 'Proud Solar Entrepreneur banner'.



Participants connecting solar panels to the battery.



Women pose with solar panel and connection cables right after disconnecting it.



A beneficiary poses for the camera right after installing a panel on the roof





Group picture with all trainees



Participants pose with their certificates



Pictures right after practical lessons

About Glow Initiative for Economic Empowerment and Climate Smart Nigeria

Glow Initiative for Economic Empowerment is a non-governmental organization set up to harness the economic potentials of communities and empowering them using same. We work to tackle economic problems such as unemployment, poverty and climate change by exploiting and utilizing raw talents and inherent resources of communities to boost their economic growth and development.

Climate Smart Nigeria is the arm Of Glow Initiative which is set up to combat environmental problems like Climate change to improve the nation's power sector by spreading the awareness of Climate Change to curb climate illiteracy and promoting the intervention of renewable energy. Through CSN, we use the tool of education to curb climate illiteracy.

Our whole goal is to boost the economic development of Nigeria and attain a Climate Smart nation come 2026 through pioneering investments in renewable energy, Climate education and agriculture.