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<http://www.leap-re.eu/>



LEAP-RE

Long-Term Joint EU-AU Research
and Innovation Partnership on Renewable Energy

**Portfolio of ideas, solutions and business cases using digital technologies in context of mini grid
and Community of Practice (Scientist, Innovator, Investor, policy maker) for innovative digital
solutions in mini grid**

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Summary

This deliverable will report the results of the collection and selection of ideas and solutions respectively business cases for the digitalization of minigrids. This is the second report of the task 13.2

Approval

Date	By
2024-01-15 16:12:07	Dr. Riccardo MEREU (POLIMI)
2024-01-15 17:49:36	Mr. Léonard LÉVÊQUE (LGI)



Portfolio of ideas, solutions and business cases using digital technologies in context of mini grid and Community of Practice (Scientist, Innovator, Investor, policy maker) for innovative digital solutions in mini-grid

SETADiSMA

Deliverable D13.5

This deliverable will report the results of evaluation framework development, analysis, and selection of the best business and delivery models for mini-grid. This is the first report of Task 13.2.

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Open Innovation on Minigrids and Renewable Energy **IDEATHON**

9th and 10th October, 2023



Event Report By

AFRILABS



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Overview

The LEAP-RE programme seeks to create a long-term partnership of African and European stakeholders in a quadruple helix approach involving government (programme owners and funding agencies), research and academia, private sector, and civil society by empowering local research through Europe-Africa cooperation while fostering the conditions for transforming research into effective innovation

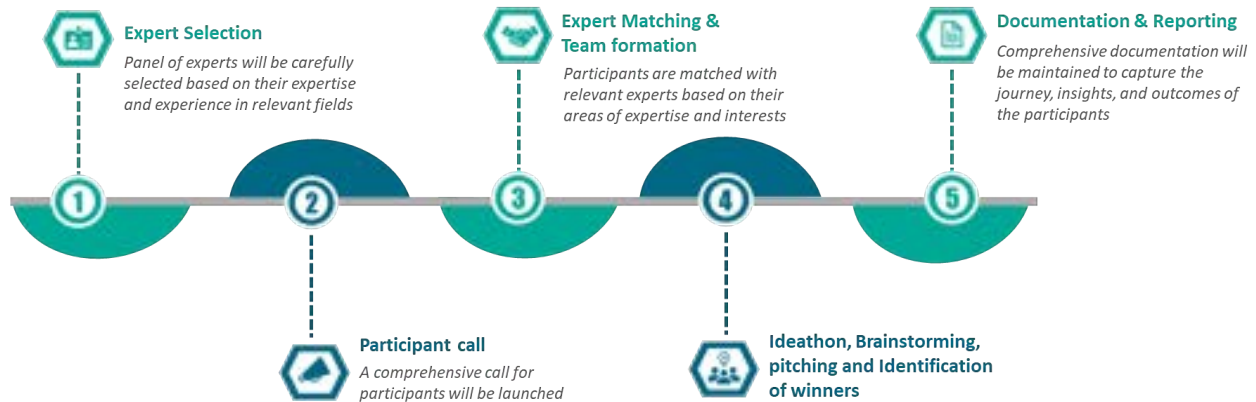
The LEAP-RE Open Innovation on Mini Grids and Renewable Energy Ideathon was a hybrid event held in Kigali, Rwanda from Thursday, October 9th to Friday, October 10th (during the AfriLabs Annual Gathering and LEAP-RE Stakeholder Forum). The LEAP-RE Open Innovation Ideathon was organised as a gathering of creative and innovative young minds across the African continent. Its primary goal was to foster the generation of innovative ideas and solutions for addressing Africa's energy challenges in the mini-grid and renewable energy sectors. This initiative seeks to set the continent on a sustainable energy path by harnessing the ingenuity of its youth. It offered an exclusive opportunity for selected participants who possessed pioneering ideas and solutions within the realm of renewable energy and the mini-grid sector to actively participate. Participants were selected according to the following criteria:

The participants were distributed into teams based on the countries of origin to enable a reasonable country spread and enable innovators from different locations to interact and share knowledge. The innovators received support in form of mentorship from high profile mentors to enable them succeed ahead of their pitching sessions.

The key objective of engaging and providing a platform for participating innovators to brainstorm and present innovative solutions was well achieved as many of the innovations were economically viable, with several ideas involving the use of minimum capital to generate new scalable products and services.

Ideathon Methodology and key outputs

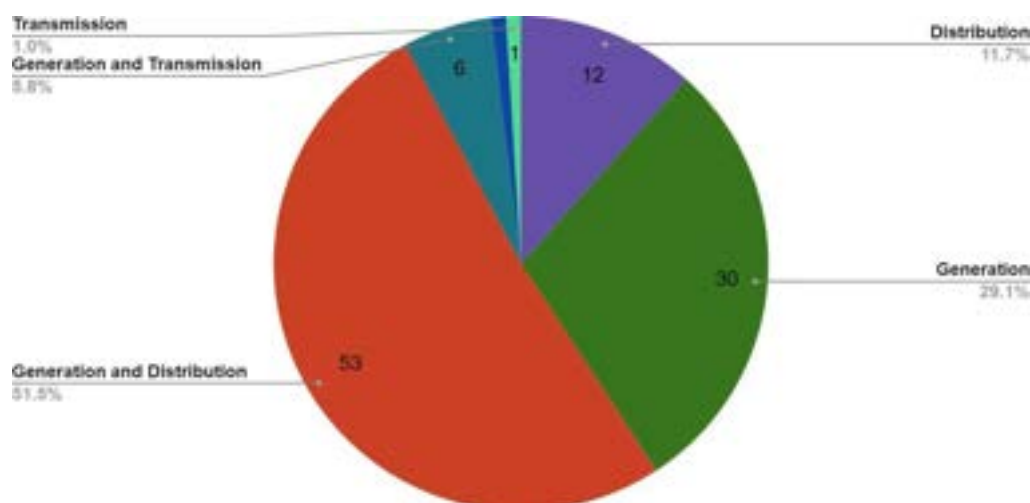
leveraging AfriLabs' robust network of innovation and technology hubs, which includes high-level subject-matter experts, mentors and innovators, the ideathon was implemented through the following methodology and activities:



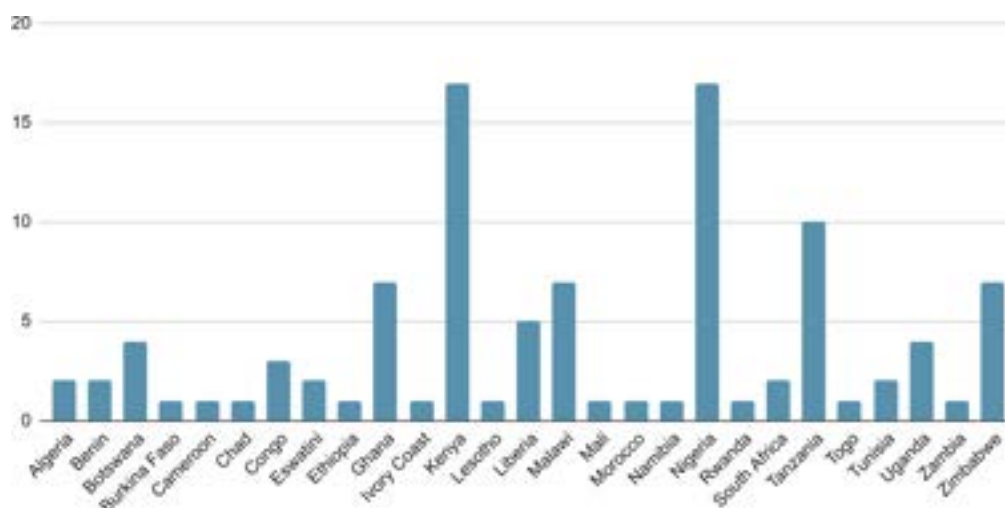
- I. **Expert Selection:** A panel of experts were carefully selected based on their expertise and experience in relevant fields such as renewable energy, technology, finance, entrepreneurship, and mini-grid solutions. These experts played a crucial role in guiding, mentoring, and evaluating the participants' ideas and solutions throughout the ideathon process
- II. **Participant Call:** A comprehensive call for participants was launched, targeting innovators, entrepreneurs, and technologists from across Africa. The call was widely promoted through AfriLabs' extensive network, including its member hubs, industry partners, and social media platforms.
- III. **Expert Matching and Team Formation:** Once the participant applications were received, a careful matching process took place to pair participants with relevant experts based on their areas of expertise and interests. The goal is to create diverse and well-rounded teams, combining different skill sets and perspectives within each group. The teams were formed with a focus on fostering collaboration and encouraging cross-pollination of ideas.
- IV. **Ideathon:** The ideathon spanned for two (2) days, allowing the teams to engage in intensive brainstorming sessions, idea generation, and solution development. The participants were provided with access to necessary resources, including relevant datasets, research materials, and technological tools. Throughout the ideathon, participants had opportunities to interact with their assigned experts for mentorship, guidance, and feedback. Regular check-ins and progress assessments ensured that the teams stay on track and receive the necessary support to refine their ideas.
- V. **Pitching and Identification of Winners:** At the end of the ideathon, each team presented their ideas, concepts, and solutions to a panel of judges, which included the selected experts. The teams had the opportunity to showcase their innovative solutions through compelling pitches, demonstrations, or prototypes. The judging criteria focused on the novelty, feasibility, scalability, and potential impact of the proposed solutions. The top three qualifiers were selected and recognized for their exceptional contributions and potential for further development.
- VI. **Documentation and Reporting:** Throughout the ideathon process, comprehensive documentation was maintained to capture the journey, insights, and outcomes of the participants.

The methodology and activities outlined above created an engaging and collaborative environment, fostering innovation and encouraging participants to leverage their skills, knowledge, and creativity to propose impactful solutions for the mini-grid sector.

The Open Innovation Ideathon had a total of **259** applications from individuals spanning various regions in Africa: West Africa (**112**), East Africa (**69**), Central Africa (**2**), South Africa (**72**), and North Africa (**4**). After the evaluation of the applications a total of **103** ideas were identified as mini-grid/ renewable energy ideas.



Pie Chart showing the categorization of ideas



Column Chart showing the innovators country spread

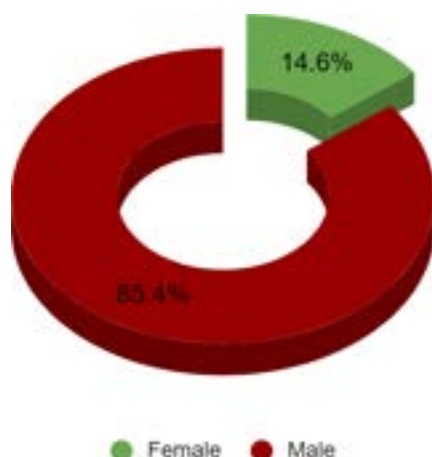


Chart showing the gender distribution

The applicants, primarily composed of dynamic young Africans with ideas in the mini-grid and renewable energy, underwent a comprehensive evaluation process. The assessment, conducted on a rolling basis, adhered to the specified selection and eligibility criteria. These eligibility criteria ensure that the selection process considers applicants who meet the necessary qualifications, possess relevant expertise and backgrounds, demonstrate commitment and interest, and are able to actively contribute to the ideathon event. By adhering to these criteria, the selection process ensured fairness, inclusivity, and alignment with the objectives and requirements of the Open Innovation Ideathon.

1. Citizenship/Residency: Citizens or legal residents of African countries.
2. Age: 18 years and above.
3. Background/Expertise: Open to innovators, entrepreneurs, technologists, and students with relevant backgrounds in renewable energy, technology, finance, entrepreneurship, or mini-grid solutions.
4. Interest and Motivation: Demonstrate a genuine interest in renewable energy, innovation, and driving positive change in the mini-grid sector in Africa.
5. Availability: Full Participation in the two-day ideathon event and any virtual engagements or preparations leading up to the event.
6. Language Proficiency: Proficient understanding of English or French, as the ideathon activities and communication will primarily be conducted in both languages.
7. Other requirements: Ability to work collaboratively; Demonstrate commitment; Compliance with all rules, guidelines, and regulations.

Participants who expressed interest to submit their application also had to meet the following requirements:

- Participants must be willing to work in a team of 3-5 people.

- The team should submit a concept design; solution on solving existing challenges related to the themes.
- Must have an idea in solving one of the challenge area
- Must be an early stage startup

Event Summary

Day 1: 09th October, 2023

The hackathon was a hybrid event with participants joining virtually and in person. The in person event was held at the Onomo Hotel, Kigali, on the sidelines of the AfriLabs Annual Gathering 2023 while virtual participants connected through the Zoom platform to engage with fellow participants and contribute to the ideation. The session commenced with registration at 8:30 am EAT, followed by introductory remarks from Lydia Ezenwa, Senior Programmes Officer at AfriLabs. She provided context for the Ideathon process and outlined the rules for participation.

Nanko Madu delivered the opening remarks, offering a comprehensive overview of the LEAP-RE programme, elucidating its goals and objectives and Baluku Dounnah, Programmes Officer at AfriLabs, conducted a training session on Hacking for success, guiding participants through the hacking process and outcome.

After the introductory session, participants and mentors introduced themselves. A dedicated session followed for the mentors, who also served as judges for the Ideathon. The mentors/judges included:

- Mukeshimana Olivier, an Electromechanical Engineer with over 18 years of experience in the energy sector and a Masters in Renewable Energy.
- Susan Onyango, a Social Scientist with more than fifteen years of experience in development work, focusing on geothermal development along the Eastern Africa Rift Valley for eleven years.
- Jost Uwase, a Certified Clean Cooking (CC) Specialist, possesses 14 years of experience in project and program management across renewable energy, rural development, food security, agriculture, and socio-economy.
- Abdulrahim Shaibu-Issah, an entrepreneurship and innovation coach with nearly a decade of experience in green business. He serves as the CEO of RUG hub, a climate innovation hub dedicated to supporting green business and climate-smart innovation.



Five teams participated in the Ideathon. The groups were assigned their mentors after which they brainstormed and further developed their innovative solutions. The mentors assessed and provided feedback to all the groups while they were ideating and refining their solutions. The groups were distributed as captured in the table below;

Team	No.of Member	Idea
Physical team		
Team 1	3	Electric Motorboat Engine
Team 2	4	Smart Solar Dryer
Team 3	4	Nishati Mix Machines
Team 4	4	Safi Sola
Team 5	4	Automated Solar Cleaner
Virtual Team		
Team A	3	Agrisolar Innovations
Team B	3	Afripower

Team D	4	Ecobest Burner
Team F	2	Renewable Energies for Africa

Table 1: Participants Group Distributions and Ideas during the Ideathon

PHYSICAL TEAMS			
S/N	NAME	COUNTRY	GENDER
Team 1			
1	Aloo Ogutu	Kenya	Male
2	Sharlene Mutheu Mutonga	Kenya	Female
3	Andruda Benjamin	Uganda	Male
Team 2			
4	Bill Clinton Otieno	Kenya	Male
5	Fanleck John Chaula	Tanzania	Male
6	Hamidu Ssonko	Uganda	Male
7	Munyambabazi Daniel	Uganda	Male
Team 3			
8	Laetus Buberwa	Tanzania	Male
9	Gideon Kipngetich	Kenya	Male
10	Aloys Munyembabazi	Rwanda	Male
11	Augustine Okoth	Kenya	Female
Team 4			
12	Lewis Waiganjo	Kenya	Male
13	Ochieng Steve Otieno	Kenya	Male
14	Philipo Ezekiel Gazika	Tanzania	Male
15	Gerald Muema	Kenya	Male
Team 5			
16	Rodgers Ademba	Kenya	Male
17	Edna Wanjiru	Kenya	Female
18	Emmanuel Oling'a Ojilong	Kenya	Male
19	Simalike Musika	Tanzania	Male
Virtual Team			
S/N	NAME	COUNTRY	GENDER
TEAM A			
1	Iwuoha Caleb	Nigeria	Male

2	Jubilee M. Sibanda	Zimbabwe	Male
3	Kesete Tekalgn Atalay	Ethiopia	Male
TEAM B			
4	Nomathemba Ndlovu	Zimbabwe	Female
5	Kamel Ali	Algeria	Male
6	Shadreck Shaba	Malawi	Male
TEAM C			
7	Francis Chanyenga	Malawi	Male
8	Gedion Ikpong	Nigeria	Male
TEAM D			
9	Moses Kaponda	Malawi	Male
10	Junais Erasmus	Namibia	Male
11	Fungai Ashley Mubururu	Zimbabwe	Male



Participants Engaging with Mentors

Day 2: 10th October 2023

The culmination of the Ideathon featured a presentation by Prof. Riccardo Mereu, an associate professor at the Department of Energy of Politecnico di Milano (POLIMI) and lecturer of courses such as "Innovative Technologies for Energy" and "Sustainable Development" at POLIMI. Prof. Mereu, whose organisation seats as the WP13 (SETADISMA) lead, provided insights into energy access in the mini-grid/renewable energy sector in Africa.



Prof. Riccardo Mereu WP13 (SETADISMA) lead



Subsequent to the presentation, the participating teams dedicated their efforts to refining their products and pitchings. Following this preparation session, the groups presented their innovative solutions to both the audience and a panel of expert judges. The judging panel comprised of representative from AfriLabs and the mentors



Participants Pitching their Innovative Ideas to the Panel of Judges

The groups were assessed based on a pre set evaluation framework and criteria developed by AfriLabs, each team gave a short pitch and a demo of their solution and were judged and scored based on the criteria below using a scoring platform:

- Articulation of the Mini-Grids and Renewable Challenge being addressed
- Innovators description of the innovation/idea
- Teams ability to demonstrate effectiveness of their idea
- Teams ability to demonstrate sustainability and practicality of their idea
- Teams collaboration and teamwork
- Teams potential for growth and development
- Team communication and presentation skills

Pitch Day		Scores	
1	Articulation of the Mini-Grids and Renewable Challenge being addressed		20%
2	Innovators description of the innovation/idea		20%
3	Teams ability to demonstrate effectiveness of their idea		25%
4	Teams ability to demonstrate sustainability and practicality of their idea		15%

5	Teams collaboration and teamwork		7%
6	Teams potential for growth and development		7%
7	Team communication and presentation skills		6%
Total			100%

Figure 3: Participant's scoring guide

Following the pitching session, the top three solutions were selected by the jury, the winning teams were presented with a certificate of achievement



Project & Prototypes

The project submissions are described below:

Team 5 Automated Solar Cleaner- (1st Place)

Members: Lewis Waiganjo, Ochieng Steve Otieno, Philipo Ezekiel Gazika, Gerald Muema

Project Description: Automated Self Cleaning and PV tracking device with 50% increase in performance and 20% more battery lifespan due to full charging.

The solution seeks to address the following problems:

- Reduce the electricity bill by using renewable energy from solar panels to power equipment, We also aim to provide solar pumping solutions for remote areas with no electricity giving everybody access to water.
- Using elevated tank towers to generate pressure by using gravity eliminating the need of boosting water using a pump.
- Remote energy and water devices being tested will be an essential tool to optimize and automate energy and pumping systems. The remote monitoring devices source code will be patented upon testing completion.

Team 1: Electric Motorboat Engine (2nd Place)

Members: Aloo Ogutu, Sharlene Mutheu Mutonga, Andruda Benjamin

Project Description: The innovation seeks to upgrade diesel powered motorboat engines to customised rechargeable electric engines. Some of the benefits are:

- Lower operational costs
- Reduced environmental impact
- Customisable engine options

Team A (Virtual): Agrisolar Innovations (3rd Place)

Members: Iwuoha Caleb, Jubilee Sibanda, Kesete Takalgn Atalay

Project Description: A unique and sustainable modular mobile solar cooling storage system with innovative dual-axis solar tracking technology and an IOT platform for temperature monitoring and real-time data collection.



Judges during the pitching session

presentation of certificate to winning team

The LEAP-RE Open Innovation on Mini Grids and Renewable Energy Ideathon showcased the brilliant opportunities and ideas that can be discovered and the successful collaborations that take place when Africa's youth are given access to environments that catalyze and foster innovation. ***(please refer to annex III for participants pitch decks)***

Post Event Activities

Lessons learned - Project Successes

- **Significant Number of Interested Applicants:** The hackathon received 259 interested applicants, and after critical reviews and evaluation by AfriLabs, 43 participants (9; 5 physical and 4 virtual groups) qualified to take part in the Ideathon. The significant number of applicants within the short broadcasting period showed that there is interest amongst youth to participate, and improvise using viable innovation solutions in renewable energy necessary to make lives better, embracing new technologies and solving issues in their societies.
- **New and Innovative Ideas were Showcased, Fostered Collaboration:** The Ideathon presented the opportunity for young innovators in the renewable energy sector to meet with their counterparts from different countries in Africa, ideate and innovate to solve minigrid access issues.

Lessons learned - Project Challenges

- Budget was limited; a larger number of physical participants could not partake in the Ideathon. Virtual participants were engaged but their participation could have been better.
- One physical participant was unable to participate due to travel policy restrictions.

Recommendations

- Launch of program and call for applications should go out way in advance to give ample time for applications and short listing.
- Increased funding to enable more participants to be physically present.
- Marketing campaign to attract quality applications.

- Criteria to participate should include ability to travel eg, have passport or ID

Appendices - Please see attached



LEAP-RE

Long-Term Joint EU-AU Research
and Innovation Partnership on Renewable Energy



AfriLabs

Open Innovation on Minigrids and Renewable Energy **IDEATHON**

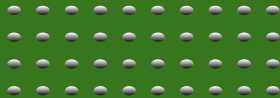
9th and 10th October, 2023



Funded by
the European Union

The LEAP-RE Programme has received
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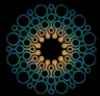
SMART SOLAR DRYER

Team 2



MIRE AFRICA

REVOLUTIONIZING AGRICULTURE, ENERGIZING COMMUNITIES



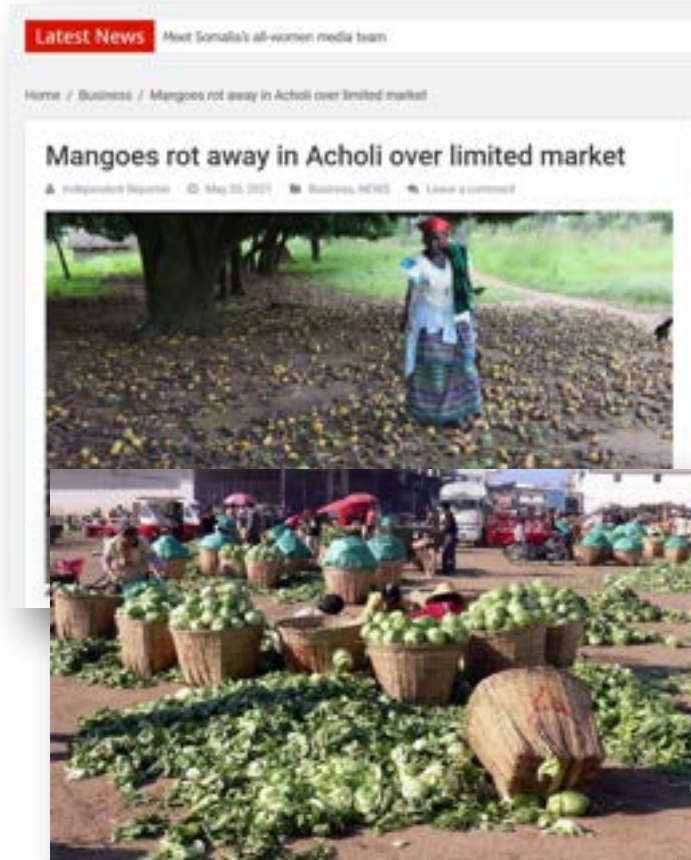
AfriLabs



PROBLEM

AGRICULTURE POST HARVEST LOSS

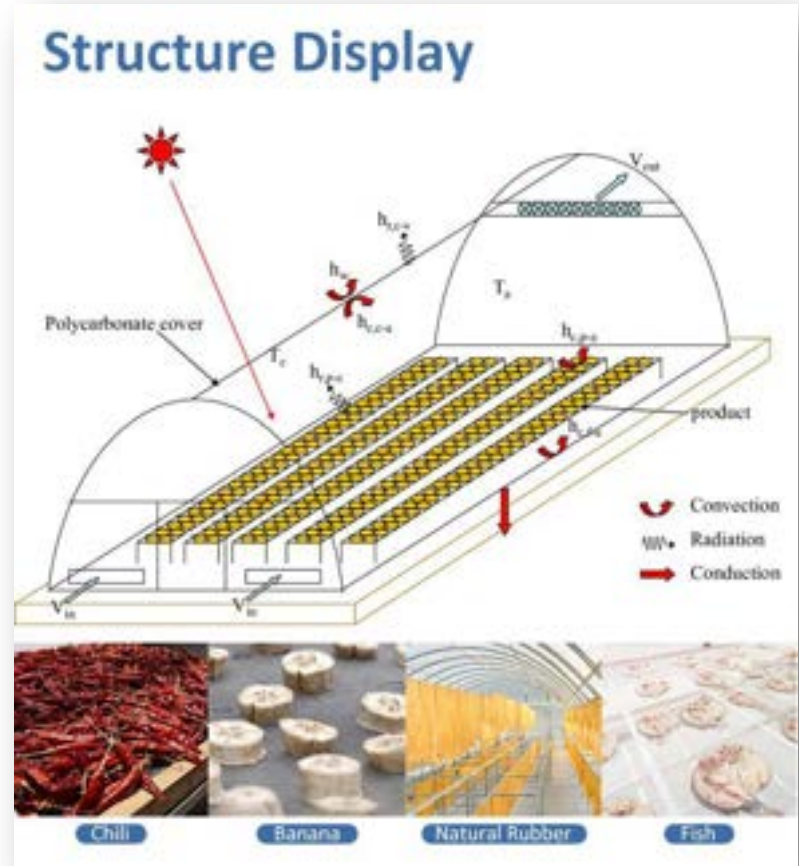
- 59% Post harvest loss of agriculture produces annually (source FAO 2022)



SOLUTION

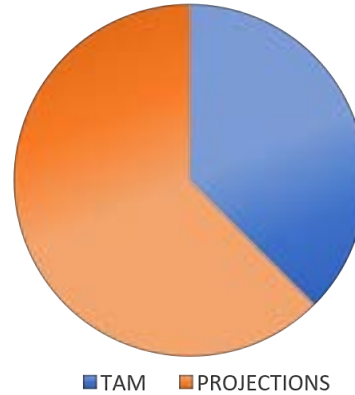
SMART SOLAR DRYER

The **efficient**,
affordable, reliable,
eco-friendly energy
source that **uses IOT** to
operate.



MARKET

Total **Market size** for solar Dryer was 2.41Billion USD in 2021. Expected to be **4.02 Billion USD** by 2030 At CAGR of 5.50 from 2023



- 4.5 Million Small Scale Farmers
- 7,898 Farmers Corporative

- PHL in Tomatoes USD 20Million
- 7280Tonns Imported

(Source FAO 2022 report)

Africa have a share of 49% (1.97Billion USD) and **MIRE AFRICA is targeting 12%** (236.38Million USD)



BUSINESS MODEL

- B2B
- Layaway model
- Maintenance Contracts



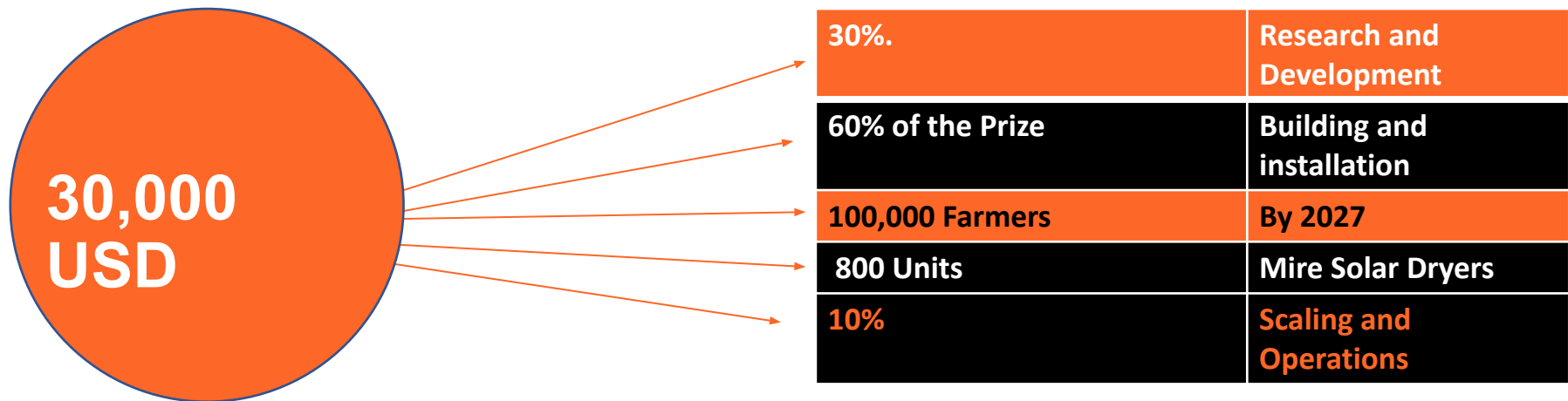
COMPETITION

	MIRE AFRICA	JUA TECHNOLOGIES	GREKKON
Green Business	✓ .	✓ .	✓ .
IOT Application	✓ .	x	x
Affordability	✓ .	x	X
Reliability	✓ .	x	✓ .
Easy to use	✓ .	x	✓ .



OUR ASK

**30,000
USD**



A large orange circle on the left contains the text '30,000 USD'. Five orange arrows point from the right side of this circle to the five rows of a table on the right. The table has two columns. The first column contains the following text: '30%', '60% of the Prize', '100,000 Farmers', '800 Units', and '10%'. The second column contains the following text: 'Research and Development', 'Building and installation', 'By 2027', 'Mire Solar Dryers', and 'Scaling and Operations'.

30%.

**Research and
Development**

60% of the Prize

**Building and
installation**

100,000 Farmers

By 2027

800 Units

Mire Solar Dryers

10%

**Scaling and
Operations**



IMPACT



Economic

Create Livelihood for
Women and Youth
earning between 100 –
250 USD/monthly

SOCIAL

Empowering 67% of
rural women

ENVIRONMENTAL

Reduce 960,000Metric
tons of CO₂ Emission

OUR TEAM



C.O.O **Bill Clinton**
BSc,
Biotechnology
engineering/
resources to
create excellent
products



C.M.O
Fanleck John
BSc, Marketing Has
5 years of
experience in sales
and marketing.



C.F.O Daniel
Manages finance,
and brings 6 year of
experience



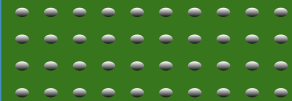
B.D.C Hamidu Ssonko
Studied Renewable
and Sustainable
Energy , Has 6 year
of experience in
waste management
and business

**In the heart of Africa, we're not just harnessing energy;
we're igniting opportunities, lighting dreams, and powering
progress.**

MIRE AFRICA - Illuminating the Future of a Continent



infomire@gmail.com



Safi Solar

Team 4

SAFI SOLA

Empowering Tomorrow's Energy

Today!
Vision

To be a leading provider of efficient, reliable, and economical clean energy in Africa

SECTOR: RENEWABLE
ENERGY



Problem

- High cost of current solar systems
- Inefficient solar systems to meet the needs of consumers
- Power outages and power rationing

There is a need for a more affordable, efficient, and reliable solar system.

Conversion rate for
Dual Axis Trackers

30%

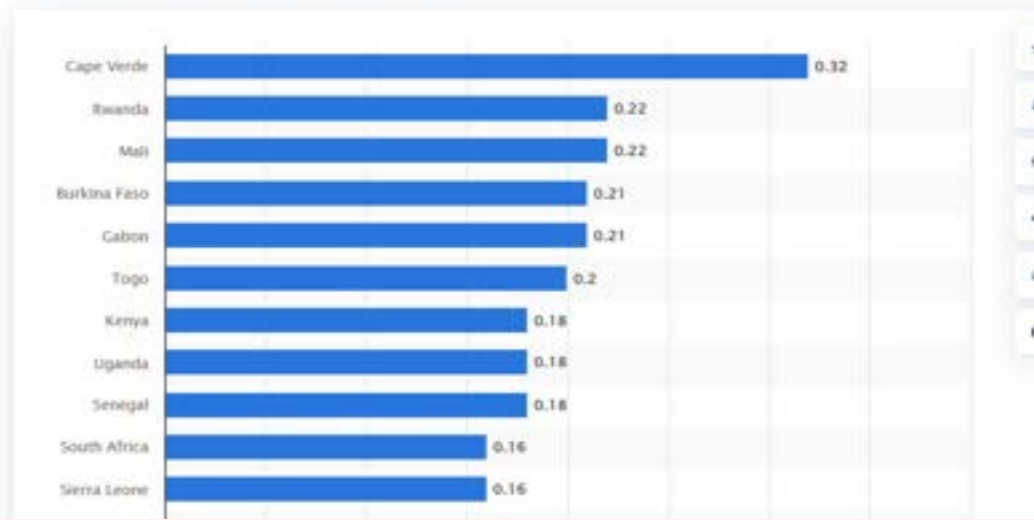
Energy conversion
Rate for Current
Panels (Output)

20%



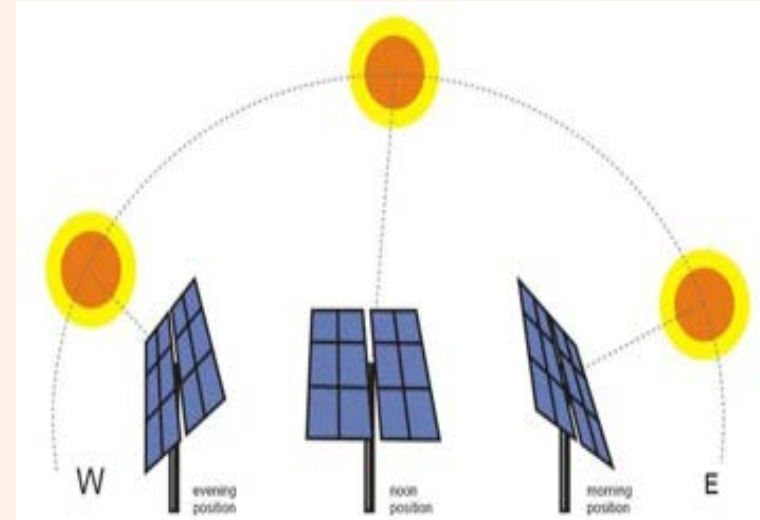
Household electricity prices in Africa as of December 2022

(in U.S. dollars per kilowatt hour)



Solution

- IoT based-solar panel efficiency Improvement system
- Dual axis Solar Tracking System
- Automated Solar Panel Cleaning System
- Access Control & Surveillance
- Remote monitoring of daily energy generated using Ms. Excel Spreadsheet
- Each appliance is connected to smart submeter to monitor energy usage for data analysis and decisions
- Solar savings & Power consumption calculators



Target Market

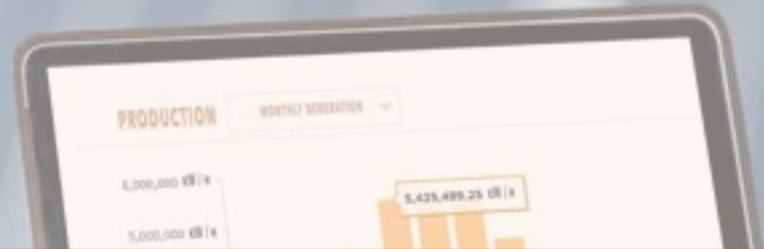
Households in urban and peri-urban settlements



Business Model



**Revenue generation through
product sales**



**Dedicated 24-hour customer
support service upon warranty
expiration**

IMPACT

By targeting and serving four out of every ten households, our mission is to deliver efficient and affordable solar energy solutions, positively impacting their lives while contributing to a sustainable and greener future.

GOAL

To be a leading provider of efficient, reliable and affordable clean energy in Africa





FUNDING

Our Ask: \$50,000

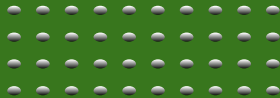
Cost of Production:

500W-5000W est. \$300 - \$600

Revenue: From \$600 per unit

Return on Investment: 160%





Electric Motor Boat Engine

Team 1

AFRISCENTA LIMITED

PITCH DECK PRESENTATION

Navigating Towards a Sustainable Future in
Marine Transport

@Afriscenta



Problem Statement

Reliance on carbon fuels for marine transport has various shortcomings in the industry.

The challenges encountered are:

- High operational costs and environmental pollution.
- Fuel Accessibility, transportation and storage challenge.

Over 25,000 Motorboats operate in Lake Victoria daily and are fully powered by diesel.

There is the urgent need for a clean and sustainable marine transport ecosystem, one that not only reduces transportation expenses but also actively promotes local grassroots businesses.



Innovative Solution



- Upgrade diesel-powered motorboat engines to customized rechargeable electric engines.



- Solar/Wind power plants



➤ Key Benefits

- Lower operational costs.
- Reduced environmental impact.
- Customizable engine options.



- Automated Charging stations



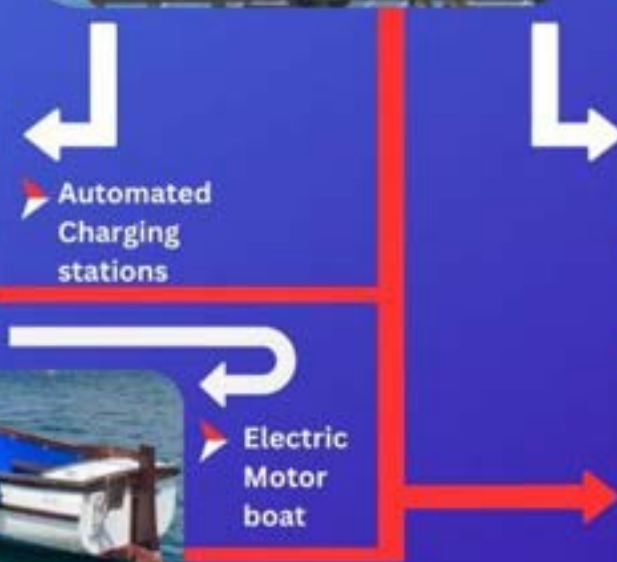
- Local Business center



- Electric Motor boat



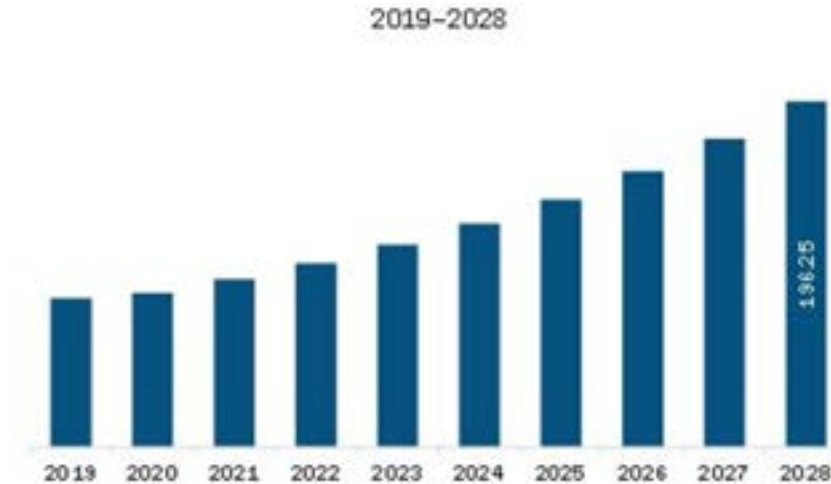
- Online monitoring



MARKET LANDSCAPE

The Middle East & Africa electric boat market is expected to grow from US\$ 104.49 million in 2022 to US\$ 196.25 million by 2028. It is estimated to grow at a CAGR of 11.1% from 2022 to 2028.

Middle East & Africa Electric Boat Market Revenue and Forecast to 2028 (US\$ Million)



Business model Expenses



The unit cost of implementing a unit solar power plant and charging station is about USD 7,500

The cost of implementing the communication and the online monitoring system is a one off cost of USD 3,000

The unit cost of modification engines is projected to be USD



Business model Revenue



Prepaid Token based power purchases by local businesses at the business centers.

A revenue projection of USD 270 per month is expected out of the sale of approximately 1,600kWh of excess power per month

Prepaid Token based or prepaid card charging of the electric motor boats. A projected revenue of USD 3,000 per month from the charging boats in a single charging station

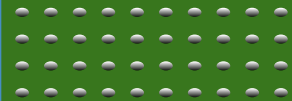
Unit electric motorboat engines shall be

FUNDRAISING



We need a total of USD 160,000 to roll out the project of which USD 20,000 shall be used at the pilot stage to produce a Minimum Viable Product (MVP) while, the balance USD 140,000 shall be used at the initial rollout stage.

The roll out stage shall involve implementation of 5 powerplants, charging stations and an initial production of 30 electric motorboat engines.



NISHATI-MIX MACHINES,

**“Bridging the Gap to clean & affordable
energy access”**

Team 3



NISHATI-MIX MACHINES, “Bridging the Gap to clean & affordable energy access”



Vision: To transform the way Africa harnesses energy and manages plastic waste, ensuring a cleaner and greener future for all

Problem

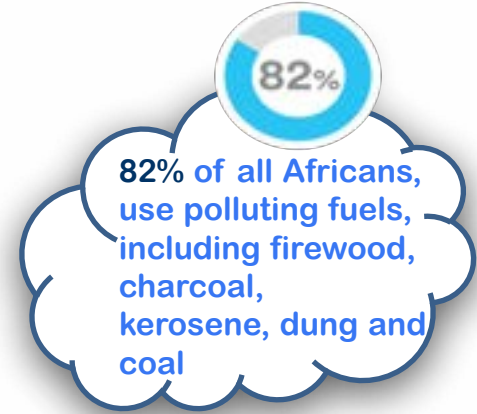
- **Limited access to clean energy**

Many communities in Africa lack reliable access to electricity and clean cooking solutions.

- World bank reports that **569million** Africans have insufficient electricity ,leading to poor social and economical services
- **50-60%** of East-Africans.



- **Overwhelming plastic waste:** Africa produces **over 85million** metric tons of plastic ending up in oceans and polluting the environment per year
3.8+ Million metric tones of plastic wastes produced in East-Africans countries per year.



Solution

Introducing NISHATI MIX

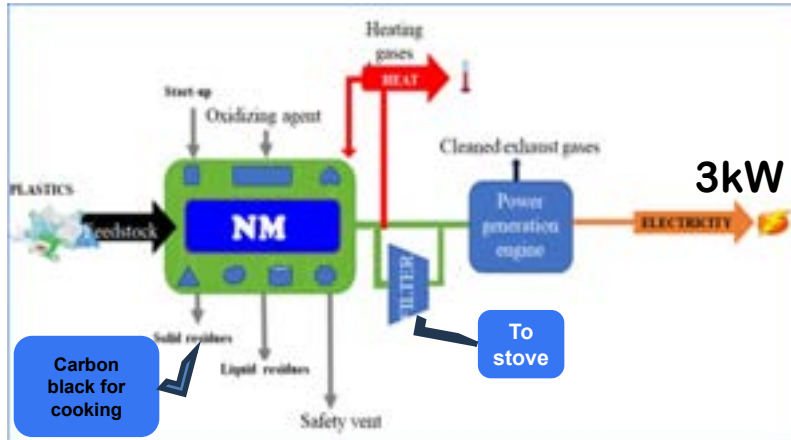
A Sustainable Energy Solution

NISHATI MIX machine ,uses 100% plastic wastes (PET,PC,HDPE,LDPE,PETE) through technologically employed pyrolysis, gasification and atomization processes to provide

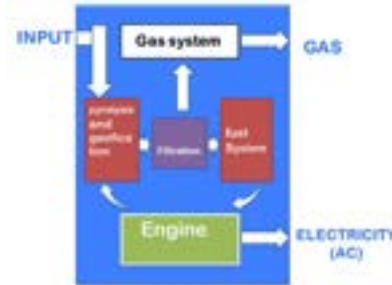
✓ Reliable electricity , Affordable and clean cooking gas



*view of
NISHATI MIX*



Nishati-mix working principle



Main parts



Size of the Market

195+ Million East Africans
Total Available Market(TAM)

97+ Million East Africans
Serviceable Available Market(SAM)

Market Potential

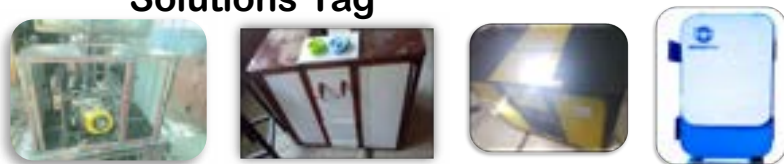
- ✓ **Enormous plastic waste reserves:** Africa generates over **174 million** tons of plastic waste annually. Represents a vast, untapped resource for renewable energy production.
- ✓ **Energy demand:** **569million** people in Africa lack access to electricity.**82%** of all African households rely on traditional cooking methods.
- ✓ **Market growth:** According to a report by Grand View Research, the global waste-to-energy market was valued at **\$35.1 billion** in 2020 and is projected to reach **\$50.4 billion** by 2028, with a compound annual growth rate (CAGR) of **4.6%**.

The Target Market is the SAM which is almost 97+ million East Africans

Traction

Several pilot projects have been successfully implemented in communities, demonstrating its viability and effectiveness in converting waste materials into useful energy resources

- ✓ We commenced R&D from 2021
- ✓ And our first prototype in March 2022
- ✓ Currently with the MVP(2023)
- ✓ Recognized by university of DSM, TAREA, Solutions Tag



Competitors



- ✓ Convenience and dual energy output
- ✓ Environmental friendly
- ✓ Low cost ~\$215
- ✓ Not affected by season



Business or Revenue Model



- ✓ Revenue generation from energy sales ensures long-term financial viability
- ✓ Machine Sales, Service Contracts, Energy Sales, Partnerships and Carbon Credits ,Research and Development



Impact and

Environmental impact	Reduces plastic waste pollution and landfill usage, Mitigates greenhouse gas emissions For every 1 tone of plastic recycled 2.9 tones of carbon dioxide reduced
Social impact	Empowering women and youth
Health impact	Reduced health hazards
Energy production	Provides electricity and clean cooking gas, replacing traditional, harmful cooking methods
Economic opportunities	Creates jobs in waste collection, operation, and maintenance of NISHATI MIX machines & Stimulates local economies through the production and sale of renewable energy



SDGs

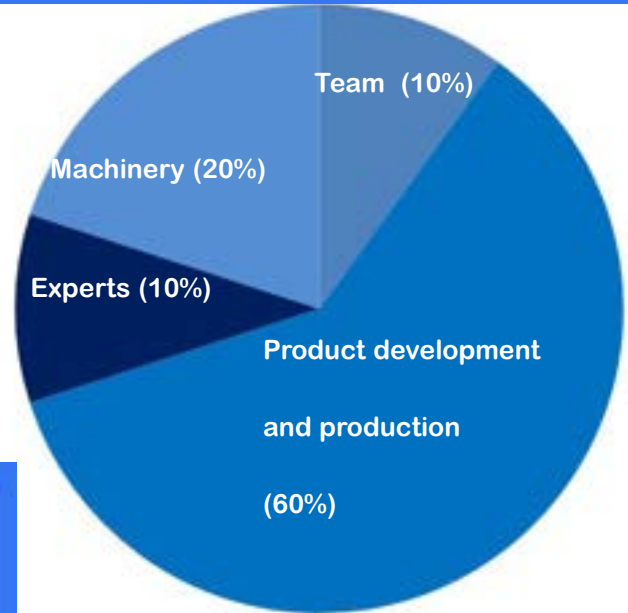


Funds

Join us in revolutionizing waste management and renewable energy in Africa.

We need to raise to approximately \$43,000 for a next stage

Go-to-market



Meet the PlastiCA team



**Augustine
Okoth**
Team leader
Website Designer
and Digital Marker
with a background in
Telecommunication
and Renewable
Energy



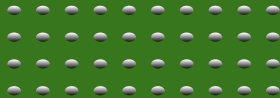
**Laetus
Buberwa**
Founder & Chief
operating officer
(COO) of nishati
mix with 3 years
of experience in
mechanical
engineering



**Gideon
Kipngetich**
Environmental
microbiologist.
Project
coordinator-CH
AGIKA
Self-study
enthusiast ,
diving into
technology's
forefront.



**Aloys
Munyembabazi**
Co-Founder &
CEO of
AGRI-ORGANIC
FARMING LTD
with 2 years of
experience in
conducting
smart biogas
projects

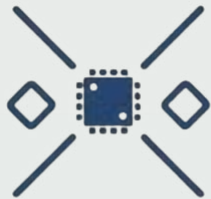


AUTOMATED SOLAR CLEANER

“Empowering Tomorrow”

Team 5





ReNewGen Tech Ltd **Pitch Deck**

Automated Solar Cleaner

Empowering Tomorrow



Problem



Current problems:

- Poor Utilization of solar energy
- 50% of energy losses due to dust accumulation, poor sizing and maintenance



Current solutions & Shortcomings:

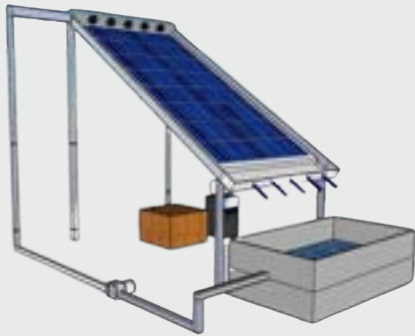
- Use of National Grid
- Use of Diesel Generators



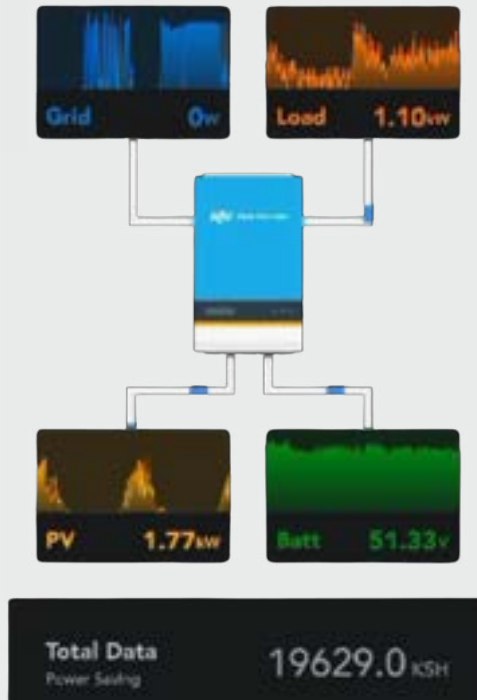
Customers Affected:

- | | |
|--------------|--------------|
| • Farmers | • Hospitals |
| • Apartments | • Industries |
| • Schools | |





Solution



- Automated Self Cleaning and PV tracking
 - 50% increase in performance
 - 20% more Battery lifespan due to full charging
- Smart energy monitoring and sizing.
 - Improve troubleshoot
 - Improve System Design



Market Size

Solar

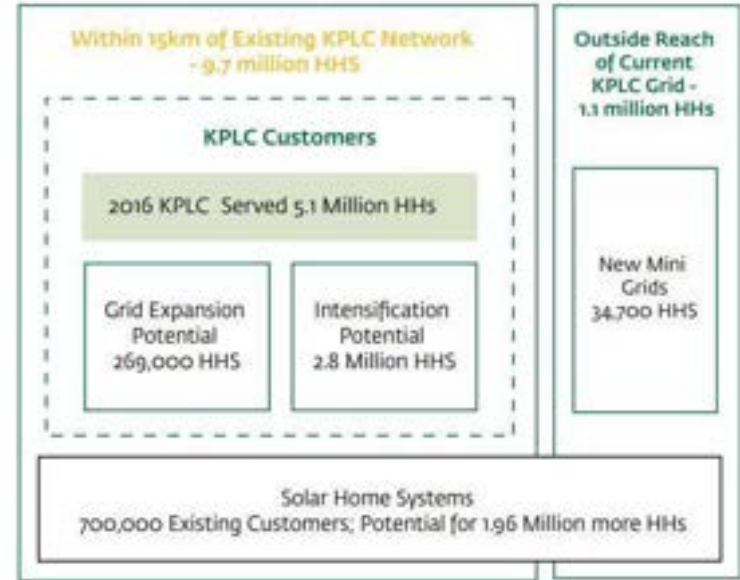
- 1.96 Million House-Holds – \$625 million
- 50,000 Solar Borehole Systems – \$500million

Energy Monitoring Systems

- 5,000,000 Farmers – \$50 million
- 50,000 Borehole Management Systems – \$50million
- 25,000 Apartments – \$25 million

Source:GET Invest

Total Households in Kenya - 10.8 Million HHs



Currently Raising

We are currently raising \$185,000 grant.

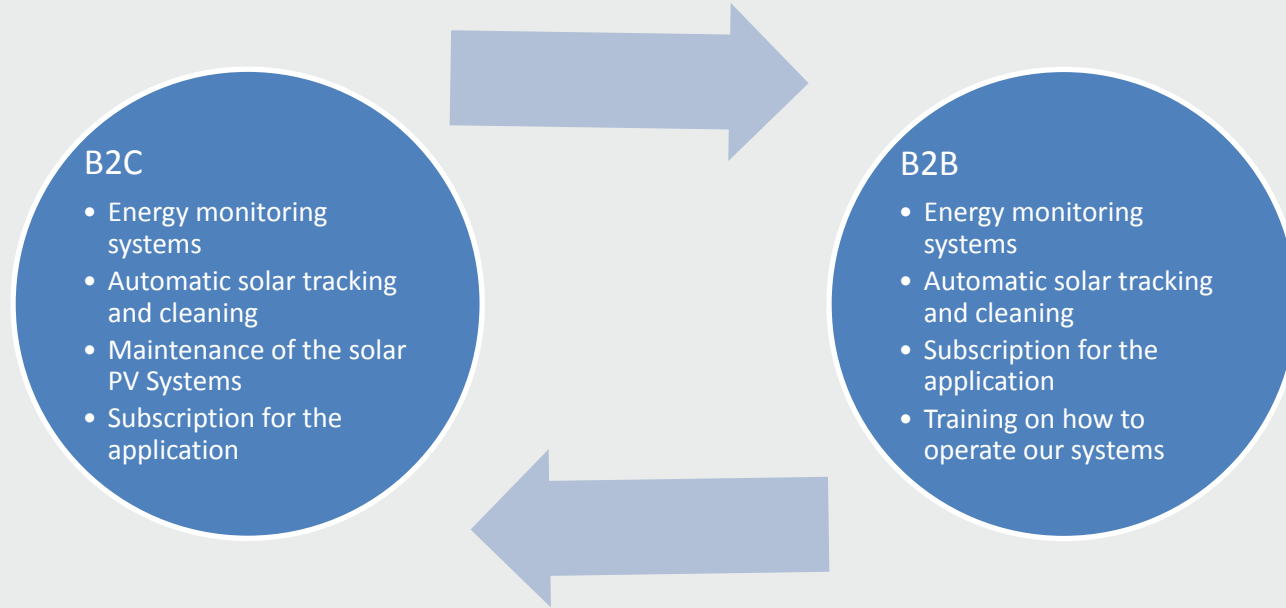
Our Distribution of expenses is as follows:

Description	Quantity	Amount
Engineering Development and Production of automated Cleaning and tracking hardware	1	\$ 15,000
Engineering Development and Testing of 3 phases of energy management hardware	1	\$15,000
Establishment of Pay As You Go Systems	200	\$150,000
Design of an interactive Dashboard for Energy management	1	\$5,000
	Total	\$185,000



Revenue Projections

Our Revenue Streams



	Year 1	Year 2	Year 3
Revenue	\$42,000	\$75,500	\$100,000

Team



Lewis Waiganjo

5 years of Experience in
Entrepreneurship, Solar PV
System Design and Installations



Steve Ochieng

Full Stack Software Developer
with 2 years of Experience in
developing smart systems



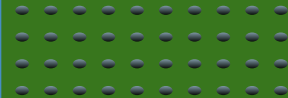
Philipo Gazika

2 years of experience
in Entrepreneurship and Business
Development



Gerald Muema

Renewable Energy and Machine
Operations Specialist



Agrisolar Innovations

Team A - Virtual

AGRISOLAR INNOVATIONS

Unlocking Prosperity Through Sustainable Agriculture

“We exist to revolutionize agriculture in Africa, ensuring food security, reducing waste, and promoting eco-friendly practices.”

The Problem

The critical problem of post-harvest losses and inadequate access to sustainable energy solutions in Agriculture across Africa



It's estimated that post-harvest losses for fruits and vegetables in Africa reach up to 40% - 50%.

-Source: Food and Agriculture Organization (FAO)



Lack of access to affordable cooling and storage facilities, which results in reduced quality and market value of crops.

-Source: International Journal of Engineering Science and Computing



Due to lack of access to electricity, farmers and agricultural traders rely on the use of fossil fuel generators for agricultural purposes.

◆ Our Solution (Our Innovation)



A unique and sustainable modular mobile solar cooling storage systems.



Innovative dual-axis solar tracking technology



An IOT platform for temperature monitoring and real-time data collection



Solar energy from the sun.



The system stores solar energy and converts it to power the storage cooling system



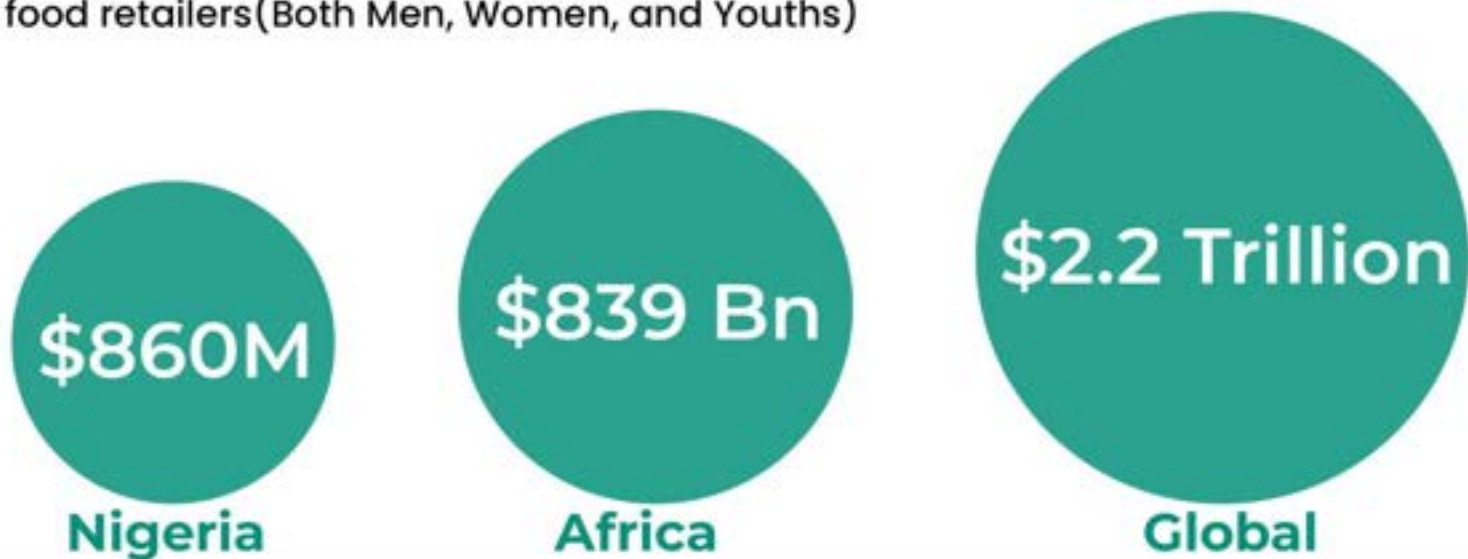
The platform monitors and controls the temperature in the cold storage room



Fresh produce for farmers and traders

Market Size

Our target customers are both small-scale and large scale farmers, including local food retailers (Both Men, Women, and Youths)



Market Validation

Around one-third of food produced globally is lost or wasted, resulting in economic losses of an estimated \$1 trillion a year. In sub-Saharan Africa, the estimate is roughly 37%* or 120-170 kg/year per capita

Nigerians trash at least 189 kilograms of food every year, amounting to a total of 37.9 million tons of food every 12 months

📈 Business Model

We take \$0.5 per day on each 20kg of agricultural produce stored in our storage unit;

\$86
Million

10% of Available market

\$0.5
Average Fee

\$0.5 daily/20kg

\$172
Million

Revenue Projected by 2027

The Team



Iwuoha Caleb

Team Lead & Product Architect

B.Eng in Agricultural & Bioresources Engineering. (Visionary leader with a passion for clean energy and deep industry knowledge in renewable energy manufacturing. Built, installed & managed several solar PVs).



Jubilee M. Sibanda

Product Mechanic

Jubilee M. Sibanda is a Projects Assistant at the Great Zimbabwe University Innovation Hub, where he actively contributes to innovative projects. He brings a diverse skill set to the team, combining his background in physics with his current studies in Mechatronics and Artificial Intelligence.



Kesete Takalgn Atalay

Product Electronics Engineer

Kesete Takalgn Atalay is an expert in the efficient utilization of solar power. With a focus on optimizing the harnessing of solar energy, Kesete has demonstrated a deep understanding of solar technologies and their applications.

▲ Funding

We are seeking
\$100k

Which would enable Agrisolar Innovations, conduct our pilot and beta testing to serve over 500,000 farmers and traders.

Breakeven Analysis;
We would breakeven in 1year,
at \$500/day

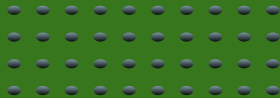
The funds would be used for;

1. Product Development (30%)
2. Scaling Operations (25%)
3. Market Expansion (20%)
4. Research and Development (10%)
5. Team Growth (10%)
6. Maintenance and Support (5%)
7. Miscellaneous and Contingency (5%)

AGRISOLAR INNOVATIONS

Unlocking Prosperity Through Sustainable Agriculture

Investor Deck by Team A



Empowering Rural Africa

Team B- Virtual

The background of the image is a vast field of solar panels stretching towards the horizon. The panels are dark blue with a grid pattern, and they are arranged in long, straight rows. The sky above is a vibrant blue, dotted with fluffy white clouds. The overall scene conveys a sense of clean, renewable energy in a rural setting.

Empowering Rural Africa

Renewable Energy Solutions

AFRI-SOLUTIONS TEAM

Nomathemba Ndlovu:(Group B)Team leader

ZIMBABWE

- ▶ *Nomathemba Ndlovu is a Female engineer, who is a contributing member of the Global Women in Energy Transition and Women in Renewable Energy Africa. She is currently serving as a teaching assistant at the National University of Science and Technology in Zimbabwe. Nomathemba has worked on several community projects in rural areas including the GreenEnterprize Innovation and Development Programme Implemented by the International Labor Organization. Her vision is to be the driver of the energy poverty solutions in Africa.*



Kamel

Ali:(Group B)

Algeria

Kamel Ali, a distinguished professional from Algeria, is a first-class graduate in Renewable Energy. With three years of leadership in the field, he has become a recognized entrepreneur, inventor, and innovator. As a member of the National Organization of Renewable Energy and Sustainable Development, He contributes to the national discourse. Currently pursuing a Master's degree at The Pan African Institute of Energy and Water Sciences, his journey exemplifies a commitment to excellence in sustainable practices and intellectual



Shadreck Shaba:(Group B)

Malawi

MBA – Unicaf University Zambia - MIS
BA- Human Resources Management- PLU
Certificate Business & Entrepreneurship
Development – YALI/UNISA
Certificate Agribusiness - THAIC
Certificate Capacity Building Mzuzu Ehub
Certificate Entrepreneurship and
Manufacturing – UMODZI consulting Group
3+ Years Lecturing at Malawi Assemblies of
God
University-Career Development Centre



Welcome to AfriPower

Vision: Dedicated to transforming rural Africa through sustainable energy.

Mission: To Overcome challenges with affordable, reliable, and green solutions.



Challenges in Rural Electrification

Access to electricity is crucial for human development. Still, in Sub-Saharan Africa 621 million people have no access to electricity. The total generation capacity in Sub-Saharan Africa is just 90 GW (GW), comparable to the total installed capacity of United Kingdom - a country with less than 7% of the population of Sub-Saharan Africa. Moreover, electricity systems often function poorly with an unstable and unreliable electricity supply, low generation capacity, and low efficiency and high costs(<https://www.sciencedirect.com/science/article/abs/pii/S0360544217313282>)

According to the World bank 83% of urban houses have access to electricity compared to 13% in rural areas in Africa. Rural communities meet 94% of their cooking energy requirements from traditional fuels, mainly firewood. The electrification rate in rural areas is approximately 10%. Connection to the electricity grid is highly unequal hence extreme poverty is much higher in rural areas.

Solar Power for Sustainable Energy

United Nations estimates show that most parts of the African continent are sparsely populated, with almost 60% living in non-urban areas. This fact, coupled with the low per capita energy consumption and the high rate of non-electrified rural areas, create a good opportunity for a sustainable energy development based on decentralized renewable energy sources (RES). (<https://iopscience.iop.org/article/10.1088/1748-9326/6/3/034002/meta>)

Setting up mini-grids solves the problem of limited access to reliable and sustainable energy for small businesses in rural communities in Africa. Versatile and adaptive, our mini-grids provide a cheap, reliable and sustainable power supply to small businesses, households, and farms which is key to inclusive growth. Our solution facilitates the increase of productivity, creation of jobs, and provision of better services to rural communities which ultimately leads to economic development and improved quality of life in rural areas.

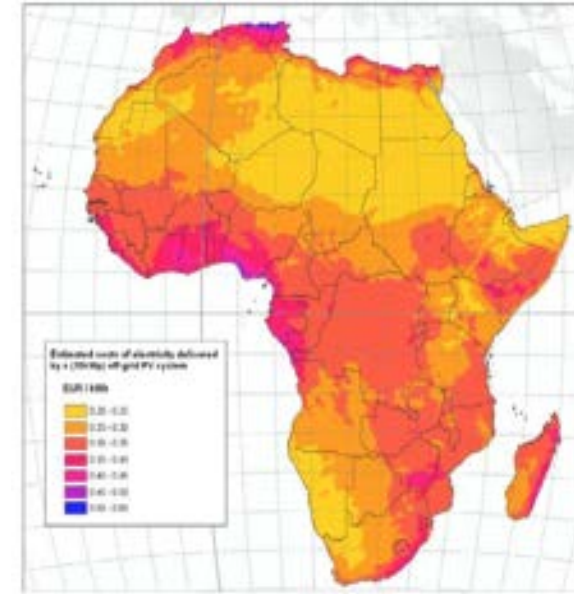


Figure 1. Estimated costs of electricity (€ kWh^{-1}) delivered by a (15 kWp) off-grid PV system. Source data based on [6].

Business Model Canvas

A case study of a typical village in Africa

Total population served: 1000-3000 people

Mini-grid power capacity: 100KW

Customer segments: Small businesses who require reliable source of energy for their operations(shops, grinding mill, small -scale agriculture, and light manufacturing) customer mix; productive, less consumptive and social customers.

Value Proposition: The value proposition for this business is to provide reliable and affordable energy to rural small businesses in Africa, which will result in improved economic development and improved quality of life for the communities.

Channels: The channels for this business would include direct sales, partnerships with rural business associations, and government programs.

Customer Relationships: The customer relationships for this business would include ongoing support and maintenance, as well as technical training for the businesses.

Revenue Streams: The revenue streams for this business would include the sale of energy, maintenance and repair services, and the sale of additional energy-related products.

Key Resources: The key resources for this business would include the solar panels, inverters, batteries, and the team of technicians for installation and maintenance.

Key Partners: The key partners for this business would include manufacturers and suppliers of solar components, government agencies responsible for rural energy development, and local rural business associations.

Key Activities: The key activities for this business would include the design and installation of the mini-grid systems, ongoing maintenance and repair, and the sale of energy and related products.

Cost Structure: The cost structure for this business would include the cost of solar panels, inverters,

Business Plan

► Executive Summary:

- The proposed business plan is aimed at developing a rural solar mini grid system for small businesses located in Africa. The goal of this project is to provide reliable and affordable electricity to rural communities, schools, clinics and create employment opportunities. The lack of access to electricity in rural areas has hindered the growth of small businesses and impacted the development of the rural communities.

► Market Analysis:

Africa has a vast potential for renewable energy sources, particularly solar energy. According to a recent survey, nearly 70% of Africa's rural population lacks access to electricity. This presents a huge market opportunity for the proposed rural solar mini grid system. The project will target small businesses in the rural areas such as grocery stores, restaurants, and small-scale manufacturing units. The target market for the project is characterized by low electricity consumption, lack of access to the grid, and a high willingness to pay for a reliable source of electricity.

► Product and Service Offering:

The proposed rural solar mini grid system will consist of solar panels, battery storage, and distribution infrastructure. The system will be designed to provide reliable and affordable electricity to small businesses and households in the rural areas. The project will also provide after-sales services such as maintenance and repair services to ensure the longevity of the system.

Marketing and Sales Strategy:

The marketing and sales strategy for the proposed rural solar mini grid system will involve building relationships with local small businesses, community leaders, and government institutions. The company will also collaborate with local non-profit organizations to create awareness about the benefits of renewable energy. In addition, the company will leverage social media

Benefits and Impact of our solar mini-grid

BENEFITS

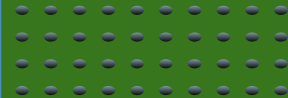
- ▶ Onsite generation of power for economic activities **Minimises' costs of transmission and distribution**
- ▶ By pulling home industries activities to local centers- easier and more cost effective to electrify
- ▶ Generates enough power for economic and business activities

▶ **IMPACT**

- ▶ Local revenue
- ▶ Local jobs
- ▶ Innovations, in products, processes and policies
- ▶ Capacity building and local empowerment
- ▶ Affordable and reliable energy

Prototype





EcoBest Burner

Team D - Virtual



ECOBEST BURNER

Transforming Cooking for a Sustainable Future

Our Mission

"To provide sustainable cooking energy solutions that are healthy , affordable and ecofriendly."

PROBLEM STATEMENT

Cooking with firewood has turned kitchens into death traps

Each year Indoor air pollution kills over 500 000 people, predominantly women and children

1370 people die premature deaths every single day from hazardous kitchen smoke translating to 57 people every hour



SOLUTION



Value proposition:

- **Cheap and Clean energy Stoves**
- **Production of Biomass Briquettes**

IMPACT:

- **Reduced health and environmental impact**
–Deforestation and Land Degradation
- **Cost-effectiveness and cheaper alternative**
- **Improved cooking efficiency – less fuel used**

PRODUCT PRESENTATION

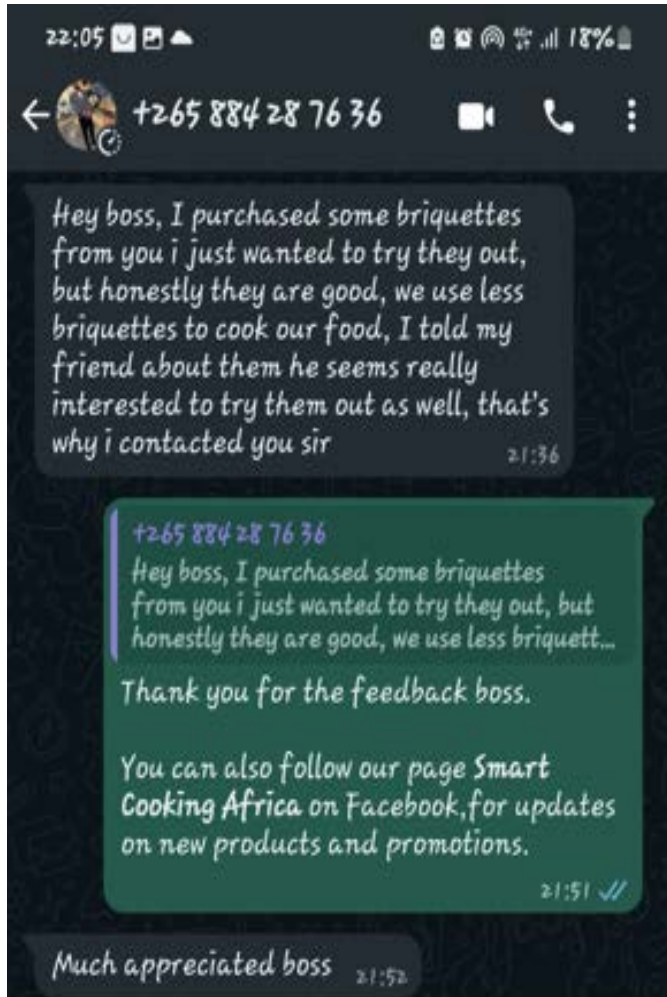


1. Clean, efficient, and cost-effective cooking solutions.

We plan to introduce an electrical component in the stove that will power a fan and produce additional power for lighting at night when cooking
We intend to do this using thermal energy from the stove

Traction

- In the last 6 months we have launched our MVP (minimal viable product)
- We have receive feedback from customers on what they found to be missing in the ergonomics of the stove
- Afrilab has further given us the opportunity to improve the stove by adding the thermal electric generator through t



BUSINESS MODEL

Revenue Streams • Sale of clean energy stove • biomass briquettes • Stove maintenance and repair	Pricing • \$20/stove • \$8/50kg	Value proposition • Affordable • durable • Effective and eco-friendly • Clean, sparkles, smokeless and odorless • Longer burn time • High temperature • Easy maintenance The logo for EcoBest Burners features a stylized flame icon composed of green and blue shapes, enclosed within a grey circular border. Below the icon, the word "ECOBEST" is written in green capital letters, and "BURNERS" is written in red capital letters below that.	Customer Relationships. • Regular customer discounts • Seasonal promotions • Convenient packaging to suit needs of different customers • Mobile deliveries and selling points • Modernized (technological) purchasing methods Channels • social media promotions • brand and product awareness campaigns in communities • partnership with retails and distributors • fliers and posters • word and direct advertisement	Customer segments • Individual households • Local retailers • schools • Restaurants • hotels • canteen
---	--	--	--	---

- **Malawi** : Approximately a total of 3,984,981 households

3,809,641 (95.6%) households use charcoal for cooking and heating

- High demand for CLEAN affordable and sustainable cooking solutions.
- We are targeting 2 000 000 households with alternatives solutions

MARKET / CUSTOMERS



Marketing

50 000 HHs - 2023

250 000 HHS - 2024

600,000 HHs - 2025

MARKETING STRATEGY

Pricing

- offer affordable and value-for-money products.

Promotion

- Fliers and posters
- multi-channel approach, including digital marketing campaigns, social media engagement

Distribution

- Collaboration with local retailers
- Establishes a wide distribution network, reaching urban and hard-to-reach communities

MAIN COMPETITORS



SUPAMOTO STOVE FROM ZAMBIA

- Stoves use pellets
- **Can not function without battery power**
- **Price \$80-\$100**
- **Imported New product**

OUR ADVANTAGE

- Cheap made from locally found materials
- Use sustainable briquettes from agricultural waste
- No carbon footprint
- Easy maintenance
- Long burning time 4hours of cooking
- Generates its own electricity for lighting when cooking at night



BURN STOVE FROM KENYA

- Sold over 4 million stoves
- **Most Stoves use firewood and charcoal**
- **Price over \$50**
- **Imported New product**



Jiko stove (malawi)

- Affordable
- Uses charcoal
- Locally made
- Price \$5-\$12

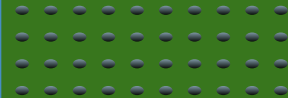
Team

At Clean Cooking energy Africa, our success is driven by a **dedicated team with a proven track record of turning opportunities into thriving ventures.**

We are poised to lead the way in our industry, setting us apart from the competition through our collective experience, extensive networks, and valuable skills

Francis chanyenga

Gedion ikpong



Renewable energies for Africa

Team F - Virtual



RENEWABLE ENERGIES FOR AFRICA

solar energy for all



Problem Statement

"In sub-Saharan Africa, millions of families face a daily struggle: lack of reliable electricity. This pervasive energy poverty obstructs education, stifles healthcare, and hampers economic growth. The need for a sustainable and accessible energy solution has never been more critical."



Proposed Solution

- "Our answer to this challenge is innovative: Minigrids with Virtual Power Plant (VPP) Integration. We've devised a smart, adaptable energy system that harnesses renewable sources efficiently. By combining Minigrids with advanced VPP technology, we ensure a constant, uninterrupted power supply for communities in need."



Market Size

"The market potential is enormous. With over 60 000, 000 households and 200, 000 businesses lacking consistent electricity, the demand for reliable energy solutions in sub-Saharan Africa is a driving force. Our solution addresses this massive market gap, transforming lives and communities."



Business Model

"Our business model is centered around sustainable impact. We deploy our Minigrids with VPP Integration in communities, ensuring affordable access to electricity. Revenue streams come from subscription-based services, community partnerships, and expansion projects. We've carefully designed our model for scalability and long-term success."



The Team



MOSES
KAPONDA. Renewable
Energy engineer and solar
Instructor



JUNAÏS ERASMUS .Renewable
energy specialist.



Engineer FUNGAI
MUBURURU a qualified
chemical engineer well
versed in the energy
sector.



ALICE NDAU. Renewable
energy engineer

Ask and Use of Funds Slide



We are asking for 200,000 USD that Will be used to plant solar mini grid system



THANK YOU FOR YOUR ATTENTION

*Thank
You*

LEAP-RE OPEN INNOVATION IDEATHON DATABASE								
REGION	S/N	FULL NAME	COUNTRY	GENDER	CATEGORISATION OF IDEA	NAME OF IDEA	IDEA-SOLUTION	EMAIL
EAST AFRICA	1	Winstone Nnko	Tanzania	Male	Generation	Solar Lamp for Night Fishing/ Solar-Powered Dryer for Agriculture and Seafood Products	Solar lamp for night fishing aimed at reducing the kerosene costs associated with traditional lamps and a solar-powered dryer for agriculture and seafood products to help reduce post-harvest losses and increase the market value of these products.	winstonennko95@gmail.com
	2	Aloo James Ogutu	Kenya	Male	Generation	Metered 5kVA Off-Grid Solar Power Plant	Development of a metered 5kVA off-grid solar power plant designed to provide clean energy to small-scale business owners in remote villages. The goal is to increase access to clean and reliable electricity for businesses in underserved areas	jimogutu@gmail.com
	3	Augustine Okoth	Kenya	Female	Generation	Solar Dryers for Fruits and Vegetables	Development of solar dryers, which can effectively dehydrate fruits and vegetables while retaining their nutritional content in order to extend the shelf life of these produce items to more than six months, enabling widespread distribution across the country even during off-peak seasons.	acholaagusto@gmail.com
	4	Emmanuel Mulengwa	Kenya	Male	Generation and Transmission	"HyHy Pump" Portable Hydroelectric Power Solution	The "HyHy Pump" is a portable hydroelectric power solution that addresses the limited access to electricity in remote areas with water resources. It converts small water flows into electricity, making it cost-effective and environmentally friendly. This innovation empowers remote communities and is suitable for mini-grid setups.	lumonamulengwa@gmail.com
	5	Reggie Okoko	Kenya	Male	Generation and Distribution	Glow Retrofit Solar Lanterns	Glow and Grow, a social venture aiming to improve the lives of people in rural and slum areas by providing low-cost solar lanterns with a product, named "Glow Retrofit," which is a sustainable lighting solution created by repurposing traditional hurricane lamps. It is rechargeable, portable, emits no carbon or pollutants, and is designed with students' health in mind. The Glow Retrofit lanterns offer a more environmentally friendly alternative to traditional lighting methods and are intended to address energy poverty in rural communities while promoting sustainability and environmental conservation. They are easy to use and maintain, making them suitable for a wide range of household activities, and they provide much brighter and more comfortable lighting than kerosene lamps, particularly for reading and studying.	r.okoko@alustudent.com
	6	Edna Wanjiru Kaguongo	Kenya	Female	Generation	Biomass Briquettes as Cooking Fuel	Develop biomass briquettes as a clean and economical substitute for conventional cooking fuels crafted from locally sourced agricultural waste materials, including crop residues, sawdust, and maize husks.	kaguongoedna@gmail.com
	7	Jones Oyugi	Kenya	Male	Generation	CelluBioClag Distillers Ltd's Bioethanol Fuel Production	CelluBioClag Distillers Ltd which is built around developing sustainable renewable advanced bioethanol fuel production from a nonfood tree with unique properties that can be used to produce clean-burning liquid fuel sustainably. This tree has never been utilized for food, construction, or firewood, and it solves the challenge of biofuel production raw material sustainability. Bioethanol fuel is considered a cleaner alternative derived from biomaterials and is gaining importance due to environmental concerns related to fossil fuel usage and rising fuel costs. It has various applications, including blending with gasoline to reduce environmental contamination and improve gasoline's octane ratings, as well as uses in the chemical industry, cosmetics, medicine, and food production. Additionally, it can be used as clean fuel for home cooking stoves.	info@cellubioclagdistillers.co.ke
	8	Emmanuel Oling'a Ojilong	Kenya	Male	Generation	Two-Axis Solar Tracking System	Developed a prototype of a two axis solar tracking system, with a solar tracking test bench. The system has four foldable solar cells and uses advanced computer software to display the solar output in real time throughout the day hence improving the solar efficiency.	olingamongemmanuel@gmail.com
	9	Gerald Muema	Kenya	Male	Generation	Rotating Solar Panel Using Arduino	Designing a Rotating Solar Panel Using Arduino to make the process of harnessing solar energy more efficient by tracking the sun to achieve the maximum sun light incident on the solar panel during anytime of the day.	gerahmuema@gmail.com
	10	Jeff Jannary Okoth	Kenya	Male	Generation	Hybrid Renewable Systems	Hybrid Renewable Systems: Combine different renewable sources, such as solar and wind, with complementary characteristics to provide a more stable and consistent energy output.	jeffjannaryokoth01@gmail.com
	11	Lewis Gitangu Waiganjo	Kenya	Male	Generation and Distribution	Ultrasonic Sensors for Solar Pumping System	Develop ultrasonic sensors to be used in tanks to monitor water levels and send data using GSM to a dashboard. This is to be incorporated with a solar pumping inverter and should turn on and off the solar pump based on the water level in the tanks. The sensor also has an ability to open and close valves in pipes letting water pass through.	lewisgitangu@gmail.com
	12	Alex Mugendi	Kenya	Male	Generation	Transformation of Solid Organic Waste into Fuel Briquettes	Transforming or converting solid organic waste into fuel Briquettes. The process involves converting solid organic waste into fuel briquettes. This transformation typically entails taking organic materials like agricultural residues, wood, or other biomass and compressing them into compact, energy-dense briquettes. These briquettes serve as a sustainable and eco-friendly fuel source that can be used for heating, cooking, or other energy needs. This practice helps reduce waste, provides an alternative to traditional fuels, and contributes to environmental sustainability.	alexmugendi.i@gmail.com
	13	Godfrey Katiambo	Kenya	Male	Generation and Distribution	Safisolar Solar-Powered Water Filtration System	The Safisolar innovation is a solar-powered water filtration system designed to provide clean and safe drinking water in off-grid and underserved communities. It addresses the problem of limited access to reliable and affordable water purification methods, which lead to waterborne diseases. Safisolar uses solar energy to power advanced water filtration, eliminating contaminants and making the water safe to drink. This eco-friendly and cost-effective solution ensures clean water access, reduces health risks, and promotes renewable energy use in these communities.	katiambo@innoneatenergy.com
	14	Āryā Jeipea Karijo	Kenya	Female	Generation	Carbon Credit Financing for Electric Vehicles	My innovation idea is focused on the intersection of Energy and Climate Change. This solution idea utilized technology to measure mobility and emission savings from electric motorcycles and vehicles. It aimed to bring carbon credit financing directly to individuals who use electric vehicles (EVs) or transition from internal combustion engine (ICE) vehicles to EVs. This solution recognized that the challenge in Africa was not the absence of alternatives but rather livelihoods and financing. Unlike the common practice of large emitters using carbon credits. It directed the financing to where it was needed most to support the transition to electric vehicles.	karijo.arya@gmail.com
	15	Ochieng Steven Otieno	Kenya	Male	Distribution	Real-time Power Consumption Monitoring Web App	Develop a responsive, and optimized web app for Tracking you electric device power consumption units(kWh) and shows the cost per min and hour of the device operations(in Kshs) in realtime in order to enable one monitor consumption/usage	stevengochieng6305@gmail.com
	16	Rodgers Ademba	Kenya	Male	Generation and Distribution	Solar-Powered Water Desalination Mini-Grids	Development of Solar-Powered Water Desalination Mini-Grids for Sustainable Energy and Clean Water in Africa to provide reliable electricity and access to clean, potable water to underserved communities across the continent. By harnessing solar energy to power desalination plants. We aim to create a sustainable, integrated system that transforms lives, drives economic growth, and mitigates environmental impact.	rodgersademba2@gmail.com
	17	Caesar Bahati Moscow	Kenya	Male	Generation and Distribution	Innovative Power Storage Technologies for Mini-Grids	The innovation idea aims to enhance the cost-effectiveness of mini-grid systems by developing innovative power storage technologies, ultimately enabling greater access to renewable and mini-grid solutions for local communities.	caesarbmocow@gmail.com

18	Cyrus Nduati Kimani	Kenya	Male	Generation	Biogas and Briquette Production	Biogas and briquette production by utilizing environmentally friendly and renewable energy sources, such as biogas, while also promoting the development and use of briquettes as an eco-friendly alternative to traditional fuels aimed at reducing carbon emissions, improving energy sustainability, and enhancing environmental conservation through these innovative approaches.	mosetyouthgroup@gmail.com
19	Hamidu Ssonko	Uganda	Male	Generation and Distribution	Solar-Powered Roofing Tiles with Energy Storage	Develop a dual purpose and cost effective solar-powered roofing tiles backed with an energy storage system called the "BiPodi cube" to build net zero homes for off grid communities using a pay-as-you go financing model and mobile payments.	sonkohamidbiha@gmail.com
20	Munyambabazi Daniel	Uganda	Male	Distribution	Solar-Powered Cold Rooms	Develop solar-powered cold rooms using locally sourced materials to store the produce in order to reduce post harvest losses by 50%. This improves food security and farmer's income.	dlee5909@gmail.com
21	Andruda Benjamin	Uganda	Male	Generation, Distribution	Solar Roofs, Windows, and Roads	Develop solar roofs, windows and roads, aimed at providing, house hold power, alternative power to the grid and also ease irrigation in dry areas	andruda.chrix@gmail.com
22	Simalike Musika	Tanzania		Generation, Distribution	Solar-Powered Mini-Grid for Eco-Products Manufacturing	A mini-grid system to power an eco-products manufacturing plant that turns plastic waste into eco-material such as furniture, building bricks, tiles etc this plant is to be powered by a solar- powered mini-grid since traditional electricity was inefficient for production, it was too costly to power the machinery through a traditional-grid and affected the quality and quantity of the product. The machinery would need a lot of power to run and also for maintenance, by reducing the cost of power generation we would be able to channel more funds towards maintenance and growth of the semi- industrial plant.	walter.musika@gmail.com
23	Rugamba Frank	Uganda	Male	Generation	Optimizing Construction Costs of Biogas Plants	Optimize the construction costs of biogas plants by determining the appropriate size for these systems. Biogas plants are typically used for converting organic waste into biogas and organic fertilizers. By finding the optimal size, the project sought to make biogas plant construction more cost-effective	frankrugamba3@gmail.com
24	Philipo Ezekiel Gazika	Tanzania	Male	Generation	Wind Energy Pump for Water Supply	A simple machine which uses wind energy to pump up water from well to the closed simtanks which simplifies availability of drinking water for the whole community to benefit.	philipogazika@gmail.com
25	Fanleck John Chaula	Tanzania	Male	Generation	Wind Energy Conversion for Rural Areas	Harness wind energy and converts its into electrical energy in order to address inaccessibility of energy in rural areas	Fanleckworldwide@gmail.com
26	Bakari Mangopo	Tanzania	Male	Generation, Distribution	Food Solar Dryer	Food Solar Dryer which is a technology solution aimed at addressing the issue of food spoilage among farmers and fishers in Zanzibar. This innovation is designed to prevent the rotting of food products and enhance food preservation methods.	bmasytmot@gmail.com
27	Laetus Buberwa	Tanzania	Male	Generation and Distribution	Nishati Mix Machine for Plastic Waste Conversion	Nishati Mix machine which converts plastic wastes and organic material into electricity and clean gas through an efficient and environmentally friendly process in order to solve the challenge of energy access in rural areas by utilizing plastic waste in the environment.	laetusbuberwa@gmail.com
28	Nicolaus Tadei Shukuru	Tanzania	Male	Generation and Distribution	Solar-Powered Mini-Grid System with Dynamic Solar Tracking	The innovation idea is to develop a solar-powered mini-grid system with dynamic solar tracking for optimized energy generation. This technology maximized solar panel efficiency by adjusting their orientation to the sun's position throughout the day. Key components included solar panels with dynamic tracking, advanced energy storage, smart metering, community ownership, and innovative financing to address rural electrification challenges in Tanzania. The primary issue is the lack of access to reliable electricity in remote, diesel-dependent communities. The innovation aims at enhancing reliability, reducing environmental impact, empowering the local economy, improving services in education and healthcare, and creating job opportunities, significantly benefiting the communities and promoting sustainability	nicolaussukuru2002@gmail.com
29	Suphian	Tanzania	Female	Generation	Biogas Production from Cow Dung	Biogas Production by utilizing renewable energy source from cow dung, to produce cooking gas and electricity for the community to address the main challenge of lack of electricity and clean cooking gas access in certain areas, especially rural ones where conventional grid connections are impractical and costly and also promote environmental sustainability by reducing greenhouse gas emissions and deforestation associated with traditional energy sources.	ndossibeatrice@156gmail.com
30	Elisha Kenny Olukeni	Tanzania	Male	Generation and Distribution	Green Solution for Clean Cooking Energy	Green Solution addresses the growing issue of over 200 million households in Sub-Saharan Africa lacking access to clean cooking energy by utilizing a circular economy model and biogas technology to offer an affordable, renewable alternative. By converting organic waste into compressed biogas cylinders, they provide a clean, convenient, and eco-friendly fuel source, leading to economic, health, and educational benefits in the region and reducing dependence on traditional biomass fuel.	elisha.olukeny@gmail.com
31	Nick Mondzila	Congo	Male	Generation and Distribution	Smart Battery Energy Storage System for Mini-Grids	Smart Battery Energy Storage System for mini-grids which involves integrating advanced algorithms and energy management systems to control and regulate the flow of energy between renewable energy sources and energy storage batteries. When there is excess production (e.g., during high sunlight or strong winds), the surplus energy is used to charge the energy storage system. Consequently, energy is stored for later use when renewable energy production is insufficient to meet the electrical demand of the mini-grid to address challenges faced related to power stability and continuity due to the intermittency of renewable energy sources like solar and wind energy. Variations in energy production caused by weather conditions can lead to voltage and frequency fluctuations, affecting network reliability	nkfoundation242@gmail.com
32	Fabrice	Congo	Male	Generation and Distribution	Automatic Energy Control System for Households	The innovation idea is an automatic energy control system for households that manages the use of energy from sources like photovoltaic or electrical. It adjusts itself based on available energy and the time needed, promoting efficient energy usage. The system is referred to as "counter power"	fabricen2014@gmail.com
33	Bisimwa Nyunda Gulain	Congo	Male	Generation and Distribution	Waste-to-Energy Solution by BING	To address multiple issues in the DRC, including limited access to clean energy, deforestation, and waste pollution, the company BING has developed a solution. They transform organic waste into ecological coal, which offers various environmental, economic, and social benefits. On the environmental front, ecological coal contributes to waste recycling and sanitation, reducing the adverse effects of waste accumulation. It also helps combat climate change by mitigating methane emissions, a potent greenhouse gas. Economically, this innovation aligns with sustainable development goals, particularly SDG No. 7, which promotes access to clean and affordable energy, and SDG No. 13, which focuses on measures to combat climate change. BING's approach addresses these challenges holistically by converting organic waste into a valuable energy source, contributing to environmental preservation and cleaner energy access.	bisimwanyunda@gmail.com

	34	Kesete Tekalgn	Ethiopia	Male	Generation	Solar Panel Orientation System	The innovation idea involves automating solar panels to continuously align with sunlight for optimal efficiency in energy generation by developing a system that constantly adjusts the orientation of the solar panels to ensure they are perpendicular to the incoming sunlight in order to maximize the efficiency of solar energy production. Solar panels are most effective when they are directly facing the sun, as this allows them to capture the maximum amount of sunlight and convert it into electricity	kesetetekalign@gmail.com
	35	Nzibonera Bonaventure	Rwanda	Male	Distribution	Smart Load Management System for Mini-Grids	The Smart Load Management System for Mini-Grids is a comprehensive software and hardware solution designed to optimize energy distribution and consumption in mini-grids, utilizing renewable energy sources. It leverages advanced AI algorithms, real-time data analytics, and smart IoT devices to ensure efficient utilization of available energy and minimize waste in order to overcome challenges faced in mini-grids, particularly in rural or remote areas, such as unpredictability of energy demand and the limited capacity of the grid to handle peak loads.	ainebonna@gmail.com
	36	Jawadi Masudi Mfyomole	Tanzania	Male	Generation	Wave-Powered Pump for Irrigation	Through Makonda Renewable Tech we developed the wave-powered pump designed for small, medium, and large-scale irrigation farms to harness the energy of Lake Victoria's waves. The pump aims to provide a sustainable, reliable, high-tech, cost-effective water pumping solution for farmers and agricultural communities, enhancing food security readiness and the availability of fresh produce year-round. The innovation addresses challenges in Tanzania and East Africa, where irrigation is essential but only partially met by solar and fuel-based irrigation pumps, covering just 36% of the demand. Many people still rely on manual methods, such as using donkeys and heads to transport water for various purposes.	5.0jawadi@gmail.com
South Africa	37	Matthews Mchenula	Malawi	Male	Generation and Distribution	Smart Irrigation System	A smart irrigation system which made of a 50W solar panel, moisture sensor, a battery and a submersible pump as to prevent over irrigating specific crops that requires a certain amount of water and also to reduce the amount of time being spent by farmers irrigating their farm crops as they can just leave the system to operate itself.	mateyu94@gmail.com
	38	Martin Masiya	Malawi	Male	Distribution	Solar Home Systems Distribution	Distribute solar home systems through a network of local sales agents and they get paid a commission and SolarPay which aims to solve this challenge by linking quality affordable and dependable energy to power new or existing agriculture productive assets. Smallholder farmers' cooperatives may obtain a solar installation to power a Productive Use Asset: Water Pump, Cold Store, Grain Mill, Oil Expeller machinery etc. and instead of having to pay upfront for the solar power or in pre-agreed instalments through a loan, SolarPay allows them to pay per kWh as they would if they were connected to a grid.	martinmasiya@gmail.com
	39	Lindani Vilakati	Eswatini	Male	Generation	Micro Hydro Power Solution	A micro hydro power solution which uses moving 3D printed Vortex turbines to produce energy, whereby water moving at a slow velocity hits the turbine as compared to building dams which require large amounts of money to construct and they also destroy the ecosystem. with the aim to solve the energy crisis currently happening in the African continent , whereby 400 million people have no access to energy in order to provide clean, accessible and affordable energy to off grid communities, small businesses near streams.	blackmogullindani@gmail.com
	40	Letlhogonolo Kebasitile	Botswana	Female	Generation	Solar Stirling Cryogenics and Gravity Siphon System	Application of solar Stirling cryogenics, a technology that utilizes solar power to drive a Stirling engine and generate cryogenic temperatures. The second idea centers around creating a gravity siphon system that can produce electricity by harnessing the principles of fluid mechanics and gravity mechanics. Both ideas aim to explore sustainable and alternative energy sources for various applications.	letlhogonolo103@gmail.com
	41	Bogadi Pako Letsile	Botswana	Female	Generation	Solar Tracker and Photocatalytic Water Purification System	Develop a solar tracker to improve efficiency of solar energy systems and a photocatalytic water purification system which would reduce energy consumption of water purification systems like reverse osmosis.	bletsile6@gmail.com
	42	Dludlu Nkosephako Ndabenhle	Eswatini	Male	Generation, Distribution	Landfill Gas to Electricity Power Station:	A landfill gas (methane) to electricity power station that could be plugged into the grid and reduce the strain caused by the number of high-power consuming factories.	ndabenhle4539@gmail.com
	43	Mathekiso	Lesotho	Male	Generation	Bioethanol and Bio-Methanol Production	Develop cleaner, sustainable and renewable bioethanol and bio-methanol from animal cellulosic feedstock with the aid of cellulose degrading microorganisms. Instead of using fuel from fossil fuels such as diesel which is not sustainable, renewable and leads to the release of carbon into the atmosphere.	ramohyfo@gmail.com
	44	Arnold Novak Jere	Malawi	Male	Generation	Biogas Cooking Stove from Agricultural Wastes	Development of a biogas cooking stove from locally available materials including scrap metals to provide a cheaper alternative to the cooking technologies available in Malawi so as to reduce also the dependance on unclean cooking technologies such firewood on three stone stoves.	ses-010-18@must.ac.mw
	45	Francis Chanyenga	Malawi	Male	Generation	Intelligent Biomass Residue Burning Stoves	Develop intelligent cooking stoves that utilize biomass residue as their primary fuel source. These stoves have a two-stage operation. First, they harness the gases generated from the biomass, simultaneously converting the biomass into charcoal. After efficiently using the gases, they proceed to burn the charcoal, effectively doubling the burning time. Our innovation directly addresses the critical issues of cooking energy availability and deforestation	fchanyenga@gmail.com
	46	Moses R. Kaponda	Malawi	Male	Generation, Distribution	Solar Water Pumping Systems for Irrigation	Introduce solar water pumping systems for irrigation to the community farmers in the TA Fukamalaza area. This initiative has a significant impact in a way that farmers can now cultivate crops twice a year, ensuring they have an ample supply of food. Additionally, the surplus farm produce can be sold in the market, providing them with income, improving their living standards, and contributing to rural electrification.	moseskaponda3@gmail.com
	47	Shadreck shaba	Malawi	Male	Generation	Biogas Stove Using Agricultural Wastes	Develop a gas stove that uses biogas from agricultural wastes for cooking to reduce dependency of fuelwood and charcoal which are causing a lot of indoor air pollution.	shabashadreck@gmail.com
	48	Junias Erasmus	Namibia	Male	Distribution	EV Charger with Dynamic Load Management System	Develop an EV charger with a Dynamic Load Management System to address an EV charging challenge by monitoring real-time grid capacity and adjusting EV charging speeds to prevent grid strain during peak demand. This innovation enhances grid stability, avoids blackouts, and optimizes charging efficiency for EV owners.	erasmusjunias@gmail.com
	49	John Muasya Kioko	South Africa	Male	Generation, Distribution	Solar-Powered Infrastructure for University	Design a solar-powered infrastructure for the University of Pretoria, with the overarching goal of reducing operating expenses, promoting sustainability, and mitigating the challenges posed by the unreliable national power supply in South Africa by Eskom.	muasyajohnn@gmail.com
	50	Junior Nkosi	South Africa	Male	Generation	Vertical Wind Turbine for Electricity Generation	Develop an innovative vertical wind turbine with transparent blades, capable of generating electricity and providing area lighting for communities. This invention addresses critical issues in rural and informal settlements by simultaneously tackling the challenges of electricity scarcity and public area lighting for safety, thus serving a dual purpose	nkosijunior912@gmail.com
	51	Chimfwembe Mutale	Zambia	Female	Generation, Distribution	Solar-Powered Mobile Booth	Create a solar-powered mobile booth or station designed to offer electricity to areas without reliable grid access. This station aims to provide charging for mobile devices like phones and laptops and to power various loads such as lights, fans, TVs, and refrigerators, addressing the energy needs of off-grid or underprivileged communities.	chimfw@gmail.com

	52	Nomathemba Ndlovu	Zimbabwe	Female	Generation	Solar PV Skills Development Program	Launch a solar PV skills development program in Bulawayo in collaboration with Arizmuth Energy and the Zimbabwe Electricity Distribution Company to equip participants with the necessary theoretical and practical skills and knowledge for the design, installation, maintenance, and regulatory compliance of solar PV systems. To ensure safe, effective, and affordable solar installations, contributing to sustainable energy goals and enhancing the technical proficiency of local solar specialists.	nomathem4@gmail.com
	53	Tanyaradzwa Sithole	Zimbabwe	Female	Distribution	Smart Grid Optimization Algorithm for Mini-Grids	Develop smart grid optimization algorithm designed for mini-grids in order to solve the issue of inefficient energy distribution and high operational costs that conventional mini-grid systems face due to failure to balance supply and demand resulting in wastage and high expenses. The algorithm uses real-time data on energy generation, consumption, and weather conditions to enhance the dispatch of renewable energy sources, minimize grid losses, and decrease operational expenses. This innovation greatly enhances the efficiency and financial sustainability of mini-grid systems.	tsmelohtis@gmail.com
	54	Fungai Ashley Mubururu	Zimbabwe	Male	Generation, Distribution	Thermoplastic Solar Roofing Tiles	The idea is to create thermoplastic solar roofing tiles that can be easily installed on various types of buildings, such as homes, offices, and industries. These tiles will generate clean and renewable off-grid electricity. The project aims to address the growing demand for sustainable and renewable energy sources globally and locally. It focuses on the residential sector as a key area to implement innovative energy solutions, offering an alternative to traditional solar farms and PV mountings	fmubururu@gmail.com
	55	Jubilee Sibanda	Zimbabwe	Male	Generation, Transmission	Solar Energy Forecasting System with AI	Develop a supply forecasting system using artificial neural networks that use historical weather data to predict solar energy generation to enhance the reliability, efficiency, and predictability of solar mini-grids that are usually unpredictable and this makes it hard to plan for and manage the supply of electricity from minigrids. The benefits include improved reliability, reduced financial losses, increased efficiency, and more predictable solar energy supply.	jsibanda@gzu.ac.zw
	56	Gosego Modise	Botswana	Female	Generation, Distribution	Landfill Gas to Biofuels Conversion	The idea is to convert landfills into energy sources by capturing methane gas emitted from the waste and transforming it into biofuels to address environmental concerns associated with landfills and generate clean energy from the methane gas, potentially contributing to both waste management and renewable energy production.	gosegomod29@gmail.com
	57	Joel Mwala	Malawi	Male	Distribution	Blockchain for Mini and Micro-Grids	The idea involves using blockchain technology to enhance the efficiency and distribution of electricity within mini and micro-grids, particularly those powered by renewable sources like solar or wind. The idea revolves around leveraging blockchain to incentivize small-scale energy producers to establish and operate such grids, potentially promoting renewable energy and more efficient electricity distribution	joelmwala7@gmail.com
	58	Adrian Friend Machingura	Zimbabwe	Male	Generation, Distribution	Smart IoT Free Energy Generator	Design and develop a portable, smart IoT free energy generator that operates without the need for fossil fuels or external intervention working wirelessly and employs electromagnetic principles to produce electrical energy. Key features include eco-friendliness, as it doesn't rely on fossil fuels, cost-effectiveness as it doesn't require tokens for recharging, portability due to its compact size, remote control capability through connections to voice assistants like Alexa or Google Assistant, reusability, high efficiency, emergency power source capabilities, and the ability to power multiple devices simultaneously thanks to its wattage output.	machinguraadrian02@gmail.com
	59	Admire Bosha	Botswana	Male	Generation, Distribution	Portable Biogas System	Design and develop a new, portable, and cost-effective biogas system designed to provide clean and affordable energy to households in peri-urban and rural areas of Zimbabwe using locally available material which makes it easy to install and maintain. This innovation addresses the challenge of clean and affordable energy in several ways such as sustainable alternative to traditional energy sources like firewood and LP gas commonly used for cooking in Zimbabwe, more affordable than conventional biogas systems, making it accessible to a broader range of households and ease of installation and maintenance makes it a practical solution for peri-urban and rural households. This system has the potential to significantly improve access to clean and affordable energy in Zimbabwe, contributing to the well-being of the local population by reducing exposure to harmful smoke from burning firewood and helping to protect the environment by curbing deforestation and greenhouse gas emissions.	boshaadmire3@gmail.com
	60	Blessing Tashinga Masawi	Zimbabwe	Female	Generation, Distribution	Solar-Powered Mobility Devices	Creation of solar-powered mobility devices, like wheelchairs or scooters, to address limited mobility and accessibility for individuals with disabilities, especially in areas with unreliable or no access to electricity. The problem these devices aim to solve is the dependence on grid electricity or limited battery life for traditional wheelchairs, which is particularly challenging in regions with unreliable or no electricity access. Solar-powered mobility devices tackle this issue by integrating solar panels onto the device, which collect sunlight and convert it into electricity. This solar-generated power is used to operate the mobility device's motors and recharge its onboard battery, providing a sustainable and independent solution for individuals with disabilities.	bleasingmasawiofficial@gmail.com
	61	Tawanda Ronald munyanyi	Zimbabwe	Male	Distribution	Smart Tower Light System with Auto Fault Detection	Develop a smart IoT-based Tower Light System with Auto Fault Detection, that uses electronic components, modern technologies, and green energy, specifically solar power to address the issue of electrical energy losses caused by malfunctioning tower lights in Zimbabwe, offering a more efficient and sustainable solution	ronaldrmnyanyi@gmail.com
WEST AFRICA	62	Abdullahi Muhammad Nyajo	Nigeria	Male	Distribution	Smart Microgrid Controller	Development of a smart microgrid controller to address the challenge of inefficiency in managing energy distribution in a local grid. The problem was optimizing power flow, ensuring stability, and incorporating fluctuating renewable sources. The innovation provided real-time monitoring, predictive algorithms, and load balancing, resulting in improved energy utilization, reduced waste, and enhanced grid resilience.	kapangani4051@gmail.com
	63	Akanimoh, Enobong Akanimoh	Nigeria	Female	Generation, Transmission, Distribution	Smart Grid System for Integrating Renewable Energy	Creation of a smart grid system designed to tackle the challenge of seamlessly integrating renewable energy sources into the existing power grid by utilizing advanced algorithms to optimize the distribution of electricity from sources like solar and wind aimed at ensuring an efficient and reliable power supply, effectively addressing the issue of balancing the intermittent nature of renewable energy generation and meeting electricity demand	enoakanimoh333@gmail.com
	64	Brian Egor Edul	Nigeria	Male	Generation, Distribution	Inverter Circuit for Sustainable Energy	Creating an inverter circuit that includes a 500VA inverter, a 200-watt solar panel, a 100AH battery, and a 30A charge controller for businesses, and a larger 2KVA variant for homes. a technology that shifts energy dependence from generators to a more sustainable source. The objective of this innovation is to end the reliance on fuel generators, eliminating the associated health risks from carbon monoxide inhalation providing sustainable energy independence and inspiring progress and improved lives. It not only saves on fuel costs but also fosters efficiency and growth for businesses.	edulbrian1@gmail.com
	65	Dauda Mustapha	Ghana	Male	Generation, Distribution	Mini Solar Power Stations for Rural Communities:	The idea involves creating mini solar power stations for rural communities in Ghana. The station could be run on a hybrid model to include wind energy. These stations are designed to generate solar electricity and provide a charging point for mobile phones. They include small solar generator units that can power a rural household for several hours when fully charged.	mustapha@nonihub.org
	66	Michael Osei Gyasi	Ghana	Male	Generation, Distribution	Smart Microgrid Solution for Off-Grid Communities	Develop a smart microgrid solution to address the issue of insufficient and unreliable electricity access in off-grid communities. This innovation integrates solar panels, battery storage, and intelligent load management algorithms to enhance power distribution. It effectively stores surplus energy during sunny periods (high temperature periods) for use on cloudy days or at night (low temperature periods).	michaelgyasi771@gmail.com

67	IDÉ SALIFOU Abdourahmane	Ivory Coast	Male	Generation, Transmission	AI Wind Power Forecasting Algorithm	The idea is focused on using artificial intelligence to develop an advanced wind power forecasting algorithm. By analyzing historical data from a wind farm, the algorithm would achieve highly accurate predictions, with a minimal Mean Absolute Error of 0.012. This innovation aids grid operators in better managing the balance between energy supply and demand, leading to improved energy management and reduced wastage.	abdourahmane.ide-salifou21@inphb.ci
68	Iwuoha Caleb	Nigeria	Male	Generation, Distribution	Solar Mini-Grid System for Underserved Rural Communities	The innovation involves the development of a solar-powered mini-grid solution to tackle the issue of unreliable electricity access in underserved rural communities, a common problem in Africa. The solution involves a customized solar mini-grid system that incorporate advanced solar panels, efficient battery storage, and smart load management technology. The aim of this innovation is a consistent and clean energy supply, while also allowing for tailored energy distribution to meet the specific needs of these communities.	calebiwuoha@gmail.com
69	Adekoyejo Kuye	Nigeria	Male	Generation, Distribution	Solar-Powered Cooling Solution for Agricultural Sector	Coldbox Store, an initiative utilizing a solar-powered cooling solution designed for implementation within farming communities, food aggregation centers, and markets aimed at addressing the energy gap in the agricultural sector, particularly targeting smallholder farmers in sub-Saharan Africa. One of the major issues these smallholder farmers face is significant post-harvest losses, reaching up to 55% of their produce. This is primarily due to the absence of reliable cold storage solutions, making them economically disadvantaged.	ifeoluwakuye5@gmail.com
70	Friday Emmanuel Okorie	Nigeria	Male	Generation, Transmission	Hybrid Energy Generation System with Hydrogen-Fueled Boiler	The innovation idea involves a hybrid system that generates electricity through electromagnetic induction, a unique approach compared to conventional generators. This system combines potential and kinetic energy to create induction and rotation, eliminating the need for fuel or an engine. Additionally, it explores using biomass to generate eco-friendly fuel with reduced carbon emissions to combat climate change. Lastly, the it aims to enhance the efficiency of PV solar cells to store energy longer and produce more power.	emmanuelokorie168@gmail.com
71	Atégbo Valère ZINSOU	Benin	Male	Generation, Distribution	Intelligent Management System for Mini-Grids	Develop an intelligent management system for mini-grids to tackle the inefficiency in distributing energy from renewable sources within mini-grids, often affected by weather-related fluctuations. The innovation idea involves developing an advanced management system that integrates sensors, weather forecasts, and optimization algorithms. This system continuously monitors real-time energy production and user demand, using weather forecasts to anticipate variations. It automatically adjusts energy distribution to maintain a stable supply. Additionally, optimization algorithms are used to manage load and energy distribution, minimizing disruptions and maximizing renewable source utilization. The outcome is improved system reliability, reduced service interruptions, and more efficient utilization of available renewable energy sources within mini-grid.	zavalere2@gmail.com
72	ABOUE Lydwine Rébecca	Benin	Female	Generation, Distribution	Solar-Powered Water Pumps for Farms	Develop a system that harnesses solar energy to power water pumps on farms for irrigation, leading to more efficient water usage and promoting sustainable agriculture practices	lydwineaboue@gmail.com
73	Steve Regis Koalaga	Burkina Faso	Male	Generation, Distribution	Smart Solar Container Solutions for Health Centers	Develop a pre-wired smart solar container solutions, comprising integrated solar arrays, battery storage, and intelligent inverters, to distribute to health centers without a reliable electricity source	steve.regis21@live.fr
74	Hamed Khayar	Chad	Male	Generation, Distribution	Mini Solar Power Stations for Rural Communities	Develop a solar mobile box energy to address the challenge of unreliable and inaccessible electricity in remote rural communities. It is a portable, multifunctional energy solution that harnesses solar power to provide clean and sustainable electricity, empowering communities by meeting various needs like lighting, phone charging, water pumping, and small business power. The Solar Mobile Box Energy offers a versatile, adaptable energy solution by combining solar panels, energy storage, and efficient distribution within a portable unit.	hamidkhayar@gmail.com
75	Takele Ferede Agajie	Cameroon	Male	Generation, Distribution	Smart Microgrid Solution for Off-Grid Communities	Develop a hybrid mini-grid and micro-grid renewable power generation system for both remote and unelectrified urban areas, standalone and connected grid provision while considering the optimal sizing of hybrid renewable power generation, considering financial, technical, and environmental factors. This innovation is aimed at integrating fast response energy storage systems with long sustain energy storage to improve equipment lifespan.	tferede19@gmail.com
76	David Nii Amu Djoletto	Ghana	Male	Generation	Manufacturing Biodiesel from Waste Cooking Oil (WCO)	Manufacturing biodiesel from waste cooking oil (WCO) collected from 100 restaurants in the Kumasi Metropolis aiming to address issues in the transportation sector, specifically fuel shortages and price hikes. This innovation's main objective is to supplement conventional diesel usage in cars and machines while avoiding food security threats associated with using fresh cooking oil.	djodave360@gmail.com
77	Acheampong Gideon Nimfour	Ghana	Male	Generation	Recycling Waste Plastics with Pyrolysis Plant	The innovation involves using an environmentally friendly pyrolysis plant to recycle waste plastics into useful products such as liquid fuel, oil fuel, and activated carbon. This addresses problems related to waste plastic pollution, the high cost of fuel for power generation, and the low calorific value of fuel for boilers. The contribution made includes the collection of waste plastics to reduce land degradation, providing an environmentally friendly and cost-effective method for managing waste plastics, and offering alternative fuel sources for energy generation at a lower cost	gideonacheampong212@gmail.com
78	Gidphil Mensah	Ghana	Male	Generation	AI Machine Learning Models for Identifying Redundant Energy:	Develop AI machine learning models that can identify and predict this redundant energy, allowing it to be utilized for clean and profitable activities like electric cooking based on a discovery that these grids generate redundant energy, which amounts to 57-120 kWh per day on average after having conducted a study on solar PV mini-grids in Ghana.	gidphilaca@gmail.com
79	Moses Aboliwen Aduboa	Ghana	Male	Generation, Distribution	PV System for Remote Farm Energy	Deploy a PV (photovoltaic) system to power water pumps and provide lighting on the farm to address the problem of no access to electrical energy at remote farms due to its distance from the national grid.	aduboomoses@gmail.com
80	Michael Tawiah Berko	Ghana	Male	Generation, Distribution	Solar Mini-Grid System for Underserved Rural Communities:	The innovation is the "Rural Power Plus" Agrivoltaic Mini-Grid which is designed to improve economic development and the well-being of residents in rural areas like Kanturo. , and it is aimed at addressing the challenges faced by rural communities, such as energy poverty, climate change impacts on agriculture, and unreliable power supply.	michaelberko@ahabanmo.no.org
81	Obin Jeffrey-Ogban Uffia	Nigeria	Male	Generation, Transmission	Hybrid Energy Generation System with Hydrogen-Fueled Boiler:	The "Hydrogen-fueled Boiler Power Generation Technology" is an innovative solution to address the challenges of clean electricity generation by utilizing hydrogen as a clean fuel for combustion and incorporating a Nitrogen Oxide capture system to prevent emissions into the atmosphere, making it an eco-friendly and sustainable approach to electricity generation. It aims to replace traditional methods, such as engine power generation through combustion, which emit significant greenhouse gases.	ojeffrey443@gmail.com

82	Nathan El - Nathan Ata	Nigeria	Male	Generation, Distribution	Smart Hydroponic System with Solar-Powered Mini-Grid	The innovation idea is a smart hydroponic system integrated with a solar-powered mini-grid which combines hydroponic cultivation with a mini-grid that utilizes solar energy to address challenges related to unreliable energy supply and inefficient agriculture in remote areas. The smart hydroponic system employs IoT sensors and AI algorithms to optimize nutrient delivery and growth conditions, while remote monitoring and automation enable data-driven decision-making. This empowers farmers with consistent electricity for irrigation and lighting, enhancing crop growth and yields. Overall, this innovation promotes sustainable agriculture, renewable energy adoption, and food security in off-grid communities.	elnathanata@gmail.com
83	Zainab Ishaq	Nigeria	Female	Generation, Distribution	Biotechnology for Organic Waste Conversion	The lack of access to clean cooking disproportionately affects women and children in impoverished communities, leading to health, social, and environmental problems. Indoor pollution from traditional cooking methods causes millions of premature deaths each year. Additionally, women and children spend significant time collecting fuel, contributing to deforestation. The solution idea involves biotechnology to convert organic waste into usable energy and organic fertilizer. Home biogas technology is cost-effective, provides smoke-free cooking, eliminates the risk of fire hazards, and has no odor. This innovation promotes healthier living, reduces environmental impact, and combats deforestation.	ishaqzainab72@gmail.com
84	AbdulBasit Bashir	Nigeria	Male	Generation, Distribution	E-Waste Recycling Integrated with Renewable Energy	The solution idea is Revnics Energy which was founded to address two significant challenges: improper electronic waste disposal and the reliance on non-renewable energy sources. The improper disposal of electronic waste poses environmental and health risks, while communities depend on non-renewable energy sources contributing to pollution and climate change. To tackle these issues, Revnics Energy integrates e-waste recycling with renewable energy generation. They collect e-waste, extract valuable components, and repurpose them for micro-scale solar power generators. These generators harness solar energy, providing a clean and renewable energy source. This innovative approach not only helps the environment but also empowers communities with reliable and sustainable energy sources, promoting sustainable development and environmental stewardship.	official.opeb4@gmail.com
85	Roger Akin Tahn	Liberia	Male	Distribution	AI-Based Energy Theft Detection	Developing a machine learning algorithm designed to detect energy theft by analyzing power consumption data. The algorithm identifies unusual patterns, such as sudden increases in power usage or power consumption during unauthorized times, to pinpoint potential theft. The problem addressed by this innovation is energy theft in mini-grids, which can result in financial losses for operators and unreliable power supply for customers	rogetahn94@gmail.com
86	D. Z Alex Wonyon	Liberia	Male	Generation, Distribution	Solar-Powered Mini-Grid for Fish Farming	Developing a solar-powered mini-grid system which utilizes solar panels to collect energy from the sun, which is stored in batteries for uninterrupted power supply day and night specifically designed for fish farming operations. The innovation aims to address the problem of the lack of reliable and affordable electricity infrastructure for fish farming in rural Liberia's Nimba County. To resolve this issue, fish farmers could then use this electricity to power aerators, water pumps, and lighting systems, improving fish health, growth rates, and overall farm efficiency.	dzaalexwonyon@gmail.com
87	Abdoulaye Sissoko	Mali	Male	Generation, Distribution	Domestic Biogas Production	The innovation involves developing a domestic biogas production system from local materials that can produce biogas from household waste. This biogas production system is connected to a smart meter for remote monitoring and intervention in case of issues. To expand the project, biogas plants that convert agricultural waste into biogas and fertilizers can be set up. The biogas is packaged for household cooking, and some of the organic fertilizer is returned to farmers. The startup plans to establish biogas plants operated by them, with a long-term goal of converting biogas into electricity for households directly from municipal waste using specially designed containers and tanks	biomass.glc@gmail.com
88	Jaiyeola Ilori	Nigeria	Male	Generation	Wind Turbine with LIDAR Technology	Developing a Wind Turbine generator that utilizes LIDAR technology to automatically reposition itself to face the direction of the incoming wind, optimizing energy generation strategically located on a hill to harness wind energy efficiently to supply electricity to three rural communities in the region	ilorijaiyeolaabel@gmail.com
89	Joseph Yealoe Sahn	Liberia	Male	Generation, Distribution	Solar-Powered Fishing Lights	The team developed solar-powered fishing lights that harnessed solar energy, offering an eco-friendly, cost-effective, and accessible solution for local fishermen. The project aimed to address the issue of inadequate lighting for fishermen during night fishing trips. The innovation significantly improved the safety of night fishing trips, extended fishing hours, increased catches, and enhanced the economic well-being of the fishing communities. It exemplified the positive impact of renewable energy solutions on local challenges and sustainable development	josephsahn489@gmail.com
90	Michael Osumune	Nigeria	Male	Distribution	IoT and AI-Based Energy Monitoring for Mini-Grids	Developed an IoT and AI-based energy monitoring solution to tackle inefficiencies in mini-grids to address the problem of inadequate insights into energy consumption, which led to wastage and high operational costs. The solution incorporated smart meters and sensors to collect real-time energy usage data. AI algorithms were used to analyze this data, identifying consumption patterns and anomalies. This innovation enabled mini-grid operators to optimize energy distribution, reduce waste, and enhance efficiency. Consequently, it lowered operational costs and promoted the sustainability of mini-grid systems, encouraging the adoption of renewable energy in off-grid areas.	michaelosumune@mooninnovations.io
91	Samuel Timothy Edet	Nigeria	Male	Generation, Distribution	Hybrid Energy Storage Solution	Developed an innovative energy storage solution that combined lithium-ion batteries with an advanced flywheel system aimed to address the issue of intermittent power supply in a rural mini-grid system, which hindered its reliability and consistency. This hybrid approach effectively reduced energy fluctuations in the mini-grid, ensuring a stable electricity supply for the community. Excess energy was stored in the batteries during peak generation, while the flywheel system handled load variations and fluctuations. This innovation not only resolved intermittency but also improved the mini-grid's efficiency and longevity, highlighting the importance of interdisciplinary collaboration and adaptive problem-solving	timothyjohn566@gmail.com
92	Umar Adam Ibrahim	Nigeria	Male	Generation, Distribution	Energy Analytics Platform for Renewable-Powered Mini-Grids	Developed an Energy Analytics platform to optimize energy generation and consumption in renewable-powered mini-grids to solve the issue of inefficient energy use due to renewables' intermittency, resulting in waste and unreliable supply. My solution integrated data sensors, machine learning, and predictive modeling to gather real-time data from solar panels, batteries, energy meters, and weather forecasts. Using machine learning, it predicted energy generation, consumption trends, and storage needs.	umarnur1@gmail.com
93	Sunday Olusheyi Falaye	Nigeria	Male	Generation, Distribution	Modular and Mobile Solar Power Plant:	The "Modular and Mobile Solar Power Plant Solution" developed by Ceneco Green Power offers rapid deployment, scalability, and portability for urgent energy needs, customized production, and dynamic applications. It harnesses solar energy, reducing reliance on fossil fuels and benefiting the environment. This off-grid solution empowers agriculture, construction, and remote communities. The aim is to address the challenge of inadequate electricity access and the lack of reliable electricity in remote and underdeveloped areas in Nigeria, hindering socio-economic growth and education.	seyi@econergco.com
94	Benneth Oyinna	Nigeria	Male	Distribution	Affordable Electricity Access Economic Model:	Developed an economic model that enhances the affordability of electricity generated by mini-grids in riverine communities through utilization of alternative energy storage technology.	bennethoyinna@gmail.com
95	Nonso Asuoha	Nigeria	Male	Generation, Distribution	Inverter-Less Solar Power Solution for Telecom Base Stations:	Developed an innovative "Inverter-less" solar power solution for off-grid telecom base stations in Nigeria which has been adopted by a major ISP and offers cost-friendly, energy-efficient, and reliable performance, reducing expenses and site visits for the telecom operator	nonso@afri.netng.com

	96	Jerry M Seepo Jr	Liberia	Male	Generation, Distribution	Floating Solar Plant	The innovation concept is a floating solar plant involving placing solar panels on rivers to generate electricity for communities. It targets issues like limited electricity access, low capacity for power generation near rivers, high transmission costs for small users, and expensive energy.	jseepo@gmail.com
	97	James M. Sumo Jr	Liberia	Male	Generation, Distribution	Solar Lamp Distribution in Liberia	Launched Co-Energy Liberia developed the H2G-38 solar lamp features 12 watts and 5V, complete with charging cables for smartphones and three household bulbs, offering extended usage, superior quality and user-friendly solar lamps to rural and off-grid communities in Liberia. In Liberia, approximately 3.6 million people lack access to electricity, with 2.3 million in rural areas experiencing 8-12 hour daily power outages. This energy deficit affects education, productivity, and health, with candles and kerosene lamps leading to respiratory diseases and premature deaths. Eco-Energy Liberia identified and mapped 50 communities and established a network of 60 young women who serve as agents for distributing these solar lamps. The initiative aims to empower underserved areas by providing clean and reliable energy solutions while also promoting entrepreneurship among the youth.	jsumo32@gmail.com
	98	Isaac S Whuling III	Togo	Male	Generation, Distribution	Pyrolysis for High-Quality Charcoal Production	The innovation idea aims to tackle the environmental challenges of accessing renewable energy in an eco-friendly way by converting solid waste into high-quality charcoal through a pyrolysis process that efficiently produce charcoal suitable for both household and industrial applications. The project's primary goal is to create a sustainable solution that reduces carbon emissions and incorporates renewable energy sources. The innovation's long-lasting and high-performance charcoal contributes to environmental preservation by reducing deforestation and enhancing energy efficiency for households and industries.	isaacs.whulingiii@yahoo.com
NORTH AFRICA	99	Ikram Bichbich	Algeria	Male	Generation, Distribution	Scalable Mini-Grid System for Rural Areas	Development of a scalable mini-grid system consisting of efficient solar panels, energy storage capacity, and a smart distribution network in order to address the issue of limited access to dependable and cost-effective electricity in rural areas. Key problem is the absence of electricity infrastructure in remote communities, which hinders their overall development and well-being.	ikram.bichbich@iau.edu
	100	Kamel Ali	Algeria	Male	Transmission	Photovoltaic Energy Grid Integration Test Bench	Creation of a test bench designed for injecting photovoltaic energy into the grid to address the challenge of scarcity of experts in the field of photovoltaic energy grid integration, which was impeding the growth of renewable energy technologies. The test bench serves as an educational tool, offering hands-on training to students in various educational institutions, from universities to private schools. This approach ensures that knowledge and expertise in photovoltaic energy and grid integration are widely accessible. A significant impact on the renewable energy sector by fostering the development of experts in the field and accelerating the adoption of renewable energy technologies.	kamel.ali@student.pauwes.dz
	101	Youness Zarrouk	Morocco	Male	Generation, Distribution	Hydrogen Production Prototype through Electrolysis	Development of a hydrogen production prototype using electrolysis aimed at creating an efficient and viable system for producing hydrogen. The approach emphasizes optimizing hydrogen production in terms of energy efficiency, material durability, and cost management. Simple materials like plumbing tubes can be used for the prototype's design, incorporating the Hoffmann cell configuration for separating oxygen and hydrogen gases and steel electrolyzers to enhance performance. The inclusion of sensors for detecting hydrogen in both the anode and cathode sections ensures safety and practicality in the prototype's design.	younesszarrouk61@gmail.com
	102	Ahmed Boufahja	Tunisia	Male	Generation, Distribution	Organic Waste Transformation Acceleration System	The innovation idea involves a system that transforms organic waste into high-quality compost within a maximum of 60 days, significantly faster than the traditional 7-month process to address the problem of inefficient management of organic waste, which has environmental implications and costly disposal solutions. The solution idea optimizes the compost fermentation process through specific microorganisms and controlled conditions, reducing fermentation time and improving compost quality. This innovation not only accelerates organic waste transformation but also promotes the use of compost over chemical fertilizers, reducing the environmental impact of agriculture.	ahmedboufahja8@gmail.com
	103	Nizar JEBALI	Tunisia	Male	Generation, Transmission	AI Models for Improved Renewable Energy Forecasting	Develop artificial intelligence models aimed at enhancing the accuracy of forecasts for variable renewable energy (VRE), particularly solar and wind energy. hence Improved forecasting which can yield various advantages, including easier integration of VRE, enhanced stability for mini-grids, and cost savings.	Nizar-JEBALI@hotmail.com