



Mobility for Africa Introduction

August 2024



Lack of Electricity

Over 55% of the population without access to electricity limiting productivity in all sectors



Lack of Mobility

Millions in rural Africa lack access to reliable transportation, limiting access to:

 MARKETS, HEALTHCARE, EDUCATION, SOCIAL




Energy Poverty

African small-scale farmers are in low productivity. In Zimbabwe, 1.5 million small-scale farmers are at low levels of mechanization.



Infrastructure Challenges

Poor road conditions and limited infrastructure make travel slow, difficult, and dangerous





High Energy Cost

Zimbabwe's power shortages are estimated to cost a total of 6.1% of GDP per year. Energy-consuming retailers & Manufacturers lose profits to diesel generators



Limited Options

Current options are often inefficient and physically demanding:

 Reliance on bicycles/ animals/ head restricts travel distance and economic activity & is time consuming




Pain point

- **Rural Areas are isolated**

70% Zimbabwean roads are unsurfaced¹



- **Lack of Mobility**

~**96** vehicles per **1000**²

Majority of Drivers are Urban Men



- **Options available are flawed**

2.4 million tons of CO₂ produced annually³



Our solution & 2023 Metrics*



Hamba: off-road first & last mile mobility service

< 480,000km Travelled



Shared Mobility

18 500 Passengers Transported



Powered by clean, renewable solar-energy

19.2 Mwhr Clean Energy Produced

*Fleet of 100 Hambas

Sources: ¹DLCA (2022)

<https://dlca.logcluster.org/23-zimbabwe-road-network> Zimbabwe

²Zimbabwe National Statistics Agency (2023)

³ <https://ourworldindata.org/co2/country/zimbabwe>

Market Snapshot

9.4 million

Rural population
(68% of total popn)

1.4 million

Small-holder farmers

60 – 70%

Working in agricultural
activities in Zimbabwe¹

10km

walking distance to growth
points (markets & service
providers)

Target population: 2.4 million

- Rural Zimbabwean households located away from main roads and lacking reliable public transport.
- Currently 20% of income is spent on transport.²

Penetration rate: 70%

MFA provides a service for those who don't have transport, cannot afford and currently lose harvest before market.



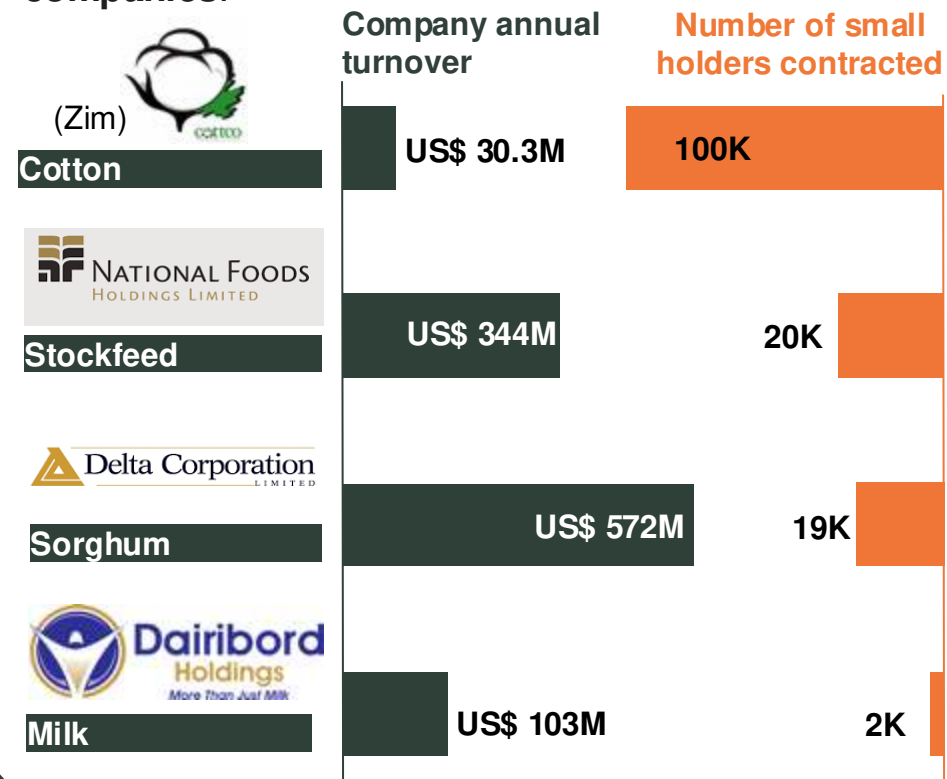
Customer value: USD\$ 10,875

Tricycle, battery swaps and maintenance over 10 years

Contract Farming Schemes

Where small holders are provided inputs which they will offset after they have sold the product back to the providing company

Our target market is connected to established companies:



¹FAO in Zimbabwe. Zimbabwe at a Glance. 2024 <https://www.fao.org/zimbabwe/fao-in-zimbabwe/zimbabwe-at-a-glance/en/#:~:text=Agricultural%20activities%20provide%20employment%20and,percent%20of%20total%20export%20earnings>

²MFA Transport Surveys 2020, 2023

MFA Tricycle ('Hamba')

Robust off-road standard build

- 1** Carries goods or people of **400kg**
- 2** Bench-seat is designed for women – no straddling required.
- 3** **12 Inch wheels**, tread and suspension to cope with tough off-road conditions.
- 4** **48V, 100AmpHr LFP battery pack.** Specifically for MFA, plugs directly into the vehicle and is easily swappable.



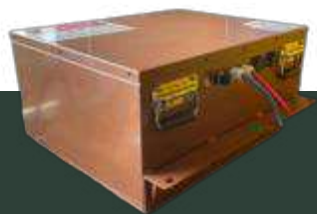
Range of **100km** on a single charge



Low regulatory requirements
25km/h top speed



Rechargeable up to **10,000 cycles**.
4-5 years in Hamba before use as **energy storage** battery to realize gradual utilization.



Integrated charging and energy storage system (battery rack)

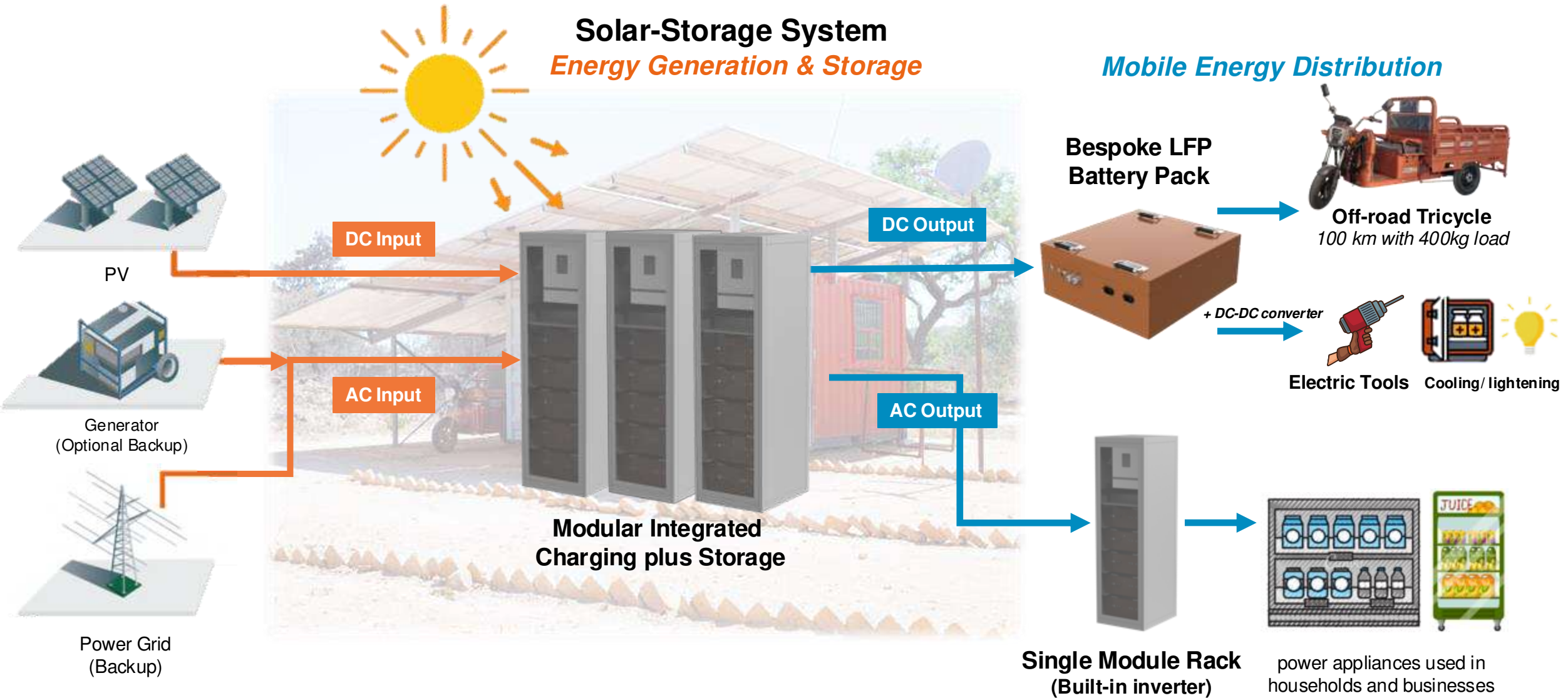
- Built-in uninterruptible UPS
- Rechargeable via solar or grid
- **25 kWh** of energy storage
- Fully encapsulated enclosure designed for rural areas



Mini-Grid Solar Station



Power tools charged by bespoke battery technology to increase productivity





Customers:



Women-led small business working in horticulture or trade

70% women



Groups of young people who use it to provide transport as a service.



Small scale farmers already linked to the agricultural sector through contract farming.



Business Model:

SHARED MOBILITY

Mobility for Africa's core business is to provide a fully serviced fleet of three-wheeled electric vehicles (Hambas), complete with purpose-built batteries, powered by clean energy, servicing the greater mobility needs in rural communities through shared transport solutions.

Mobility for Africa install a purpose-built charging station to enable battery swapping. The standardised nature of this model is highly beneficial as it is easy to scale and replicate throughout peri-urban and rural areas in Africa.



Transport & Logistics

We have set up a rural transport and logistics service where drivers work in a team and earn commission on the rides they do. The network is managed through a central dispatch centre.



Fleet Rental

For the small-scale farmer, who needs regular transport to get their produce to market on time and in season, we offer a lease to purchase model.



Service Delivery

For the local nurse, police, health, or agricultural extension worker. We work with local governments to offer a tailored Fleet Management System that enables better delivery of social services.



Market - Buyers & Sellers

For women who need to increase household income, we rent to women's groups. As climate change affects rain patterns, women are diversifying their income streams into non-rain dependent enterprises such as buying and selling. These customers work collectively on farming, trading, or producing new goods to sell.

MFA's impact can be felt across the UN's SDGs

In 2023 with a fleet of >100:

7 AFFORDABLE AND CLEAN ENERGY



19.2MWhr CLEAN ENERGY PRODUCED

Providing affordable, clean energy and converting it to productive use energy in transportation.

8 DECENT WORK AND ECONOMIC GROWTH



73 DIRECT JOBS CREATED

66 new Transport & Logistics drivers trained and operating.
7 new local hires trained in EV maintenance & operations.

13 CLIMATE ACTION



998.4T CO2 EMISSIONS AVOIDED

In comparison to petrol-powered motor-tricycle using 15km / litre and emitting 2.3kg of CO2 per litre.

5 GENDER EQUALITY



83% WOMEN DRIVERS

Equipping communities with affordable skills, particularly women.

Testimonials




“

“My farming has improved because I can save money when I get my commission and use that to buy my farming inputs which I store until I need them. I farm with the help of my husband; he can manage while I am using the Hamba for transport and logistics” - Regina Marekesa


”

Life before was challenging. I had to carry everything to market (12km away) by head. I could only carry one bucket of tomatoes which would lose its freshness on the hot journey. Now I can grow an acre of tomatoes because there is no threat that they will go bad, and I can carry ten buckets to market which has obviously increased my income” - Adefi Mtambo




Small-scale farmers at low levels of mechanization and productivity, with strong demand for using productive tools
(Tiller, Drill, Water Pump, Welder, Grinder Machine, etc.)

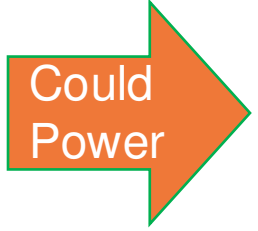
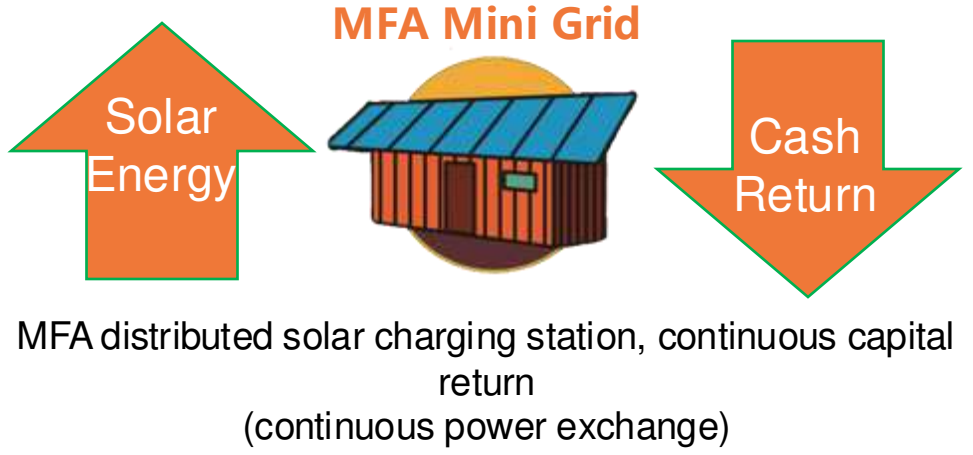
Mobile Power for Small Farmers



Swappable 48V, 100AmpHr LFP battery
Reliable, Rechargeable, Recyclable



A tricycle to drive **100km** with a max **400 kg** load. Tested in mobility scenario for 5 years under 



A 1.5kw max output driller for **3.3 hours**



Power cold chain for community public health

MFA: We are Unique, pioneer in rural e-mobility



Rural Transport

1st and Last mile,
Agriculture / Gender / business enabler,
SDGs / remote charge / flexible power.

Overcoming one of Africa's biggest development obstacles, mobility.

Better than a bike:

Load carrying & Powered
Accessible for women
Profitable / Sustainable enterprise
Continuous improvement

Zimbabwe

Regional centre, model proofing, measurable impact.

MFA is



Hamba tricycle; for rural Africa
Battery; integrated, adaptable, safety, life, useability, 2nd life
Ecosystem of mobile power as a service
Mobility as a service,
Testing and research,
Impact assessments / Sustainability / Profitability
Stakeholder, community engagement / EV policy
Partnerships, government, local assembly
Supply chain and integrated engineering
Full lifecycle considerations

Mobility for Africa is building a **sustainable social enterprise** to reach **rural communities** through **green mobility** solutions with **responsible battery** management.

Demonstrated impact with rural women in Wedza District of Zimbabwe.

Shown how **solar powered electric transport** solutions for women and their families, are **affordable and adapted** to rural areas in Sub-Saharan Africa.

Individuals Bankable enabler.

Local skills, empathetic, professional advisors.

Hamba is the accessible and cost effective livelihood

Al-Jazeera News Feature

<https://www.youtube.com/watch?v=dlpJAC1aQ0E>

PV Magazine Feature – Planning a Hamba-lution

<https://www.pv-magazine.com/2023/09/02/weekend-read-planning-a-hamba-lution/>

Top 10 EV Manufacturers in Middle East and Africa

<https://manufacturingdigital.com/production-operations/top-10-ev-manufacturers-in-the-middle-east-africa>

Duette Welle Feature

<https://www.dw.com/en/africa-boosts-homegrown-e-mobility-in-bid-to-curb-emissions/a-64538737>

CNN Inside Africa

<https://edition.cnn.com/videos/tv/2022/10/25/ia-ebikes.cnn>



2020 **Dubai Expo Innovation Grant**, securing a grant from the Africa Energy Competition fund and EEP

2021 **Energy Access Booster for Sustainable Mobility prize** from Sustainable Energy for All, Bluonomy & Total Energies

2nd runner up for the 2022 **Sankalp Awards for innovative social entrepreneurship**

2023 **Sustainability Award in Automotive** (startup category) from Springer Fachmedien ATZ/MTZ (automotive publication) and Arthur D. Little

2024 **AFSIA**: Winner of Productive Use Application of the Year

2024 **EEP** Project of the Year Award Winners

2024 **ASHDEN AWARDS**: Runner-Up in Powering Agriculture Category

2024 Corporate Shared Value Award - ICS Zimbabwe

2024 Nominated for the **Earth Shot Prize**.