**Concept Note: DEVELOPMENT OF SOLAR HUBS. Project Title: Mchinji Solar Hub**

**Context**

Renewable energy is fast being accepted by many Malawians both in town and in villages. It has become a convergence agenda for governments, the global community and the diplomatic elite. UNDP, United Nations, World Bank, African Development Bank, European Union and many other international organizations and corporations are talking about it every day. There is a lot of evidence to emphasize this truth. We have obviously seen an increase in the number of market players and initiatives in the sector. Such trends are expected to continue to happen as there is still a huge gap in access to clean and affordable energy.

In Malawi only about 13% of the population has access to electricity, about 4% has access to clean cooking. The rural masses are mostly neglected as development takes a slow pace. Rural families resort to firewood for cooking, candles, paraffin and cheap battery torches for lighting. Water is another major problem. Most villagers drink unsafe water and rely on rain fed agriculture for crop and animal production. This results in shortages of food, in turn affecting health, education and economic progress.

The International Energy Agency and its associated agencies in SDG tracking also reports that the world is not on track to meet the global energy targets for 2030 despite real progress in certain areas. It is obvious that we need cohesive efforts if we are to win this war against climate change sooner. Such efforts can be achieved by creating deliberate platforms that enforce consolidation of efforts.

**Rationale**

The motivation for this project is to develop centralized solar hubs in villages whose population is dense with households close by. The idea is that we can have a centralized solar system that can help to bring electricity and water all at the same time. With such efforts we can increase access to renewable energy and services. We are looking at identifying potential areas that are not connected to grid, luck water and have households close by for ease of use of the system.

Each household will buy a rechargeable solar lantern, and they will recharge for a small fee at the hub. Water at the hub will be tanked with tap and sterilized for drinking. A small fee will be charged per gallon. A community farm will be identified for irrigation to enhance group farming for subsistence food. A fee will be charged for the irrigation and payment will be from sale of part of produce.

**Project Goals and Objectives**

The main goal of this project is to enhance cohesive access to quality and affordable energy for lighting, water and subsistence irrigation farming. Specifically, the project aims at;

1. Enhancing access to renewable energy, equipment and services by bringing solar services under one roof where lanterns can be accessed, recharged, repaired and information provided.
2. Promote irrigation agriculture by bringing a community into unity with a centralized irrigation farm.
3. Supporting the community to enhance education, economic progress, health and sanitation and food security through the system and encouraging community participation.

**Project Strategy/ Listing of Project Activities**

1. Installation of a solar charging station where devices will be recharged. This systems will be integrated with other services to ensure patronage.
2. Selling of solar lanterns at the hub for household use for lighting and phone charging.
3. Installation of a water pump system, and irrigation system to enable farming
4. Development of a payments management process. A local team will be established to undertake management of the structure and effect payments through mobile money services.

**Expected Results**

The main outcome of this project will be the development of a solar hub that will cater for more than 250 households with electricity for lighting and phone charging and water for home and irrigation agriculture. With this system in use it is envisaged that the community will save more than 80% of their income. The average Malawian spends about MWK 1760 per month on paraffin, MWK 1720 per month on candles and MWK 2400 per month on torches just for lighting. With a solar light, a Malawian will save an average of 25,000 MWK/year. This is huge.

**Innovation**

This project is very unique in that it comes as a package of interrelated support services. It is wholly renewable with smart friendly technology that can easily be managed by a local person once installed. It uses recharge fees, instead of connections to avoid safety and ease of management.

It will support community growth through savings, business development, community unity, and can be replicated.

**Budget Estimate**

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| **Item** | **Amount in MWK** | **Comment** |
| Project feasibility review costs-transport and consumables | 150, 000 | Project feasibility review (partly done for ongoing solar hub installation with funds from SEED grant |
| Equipment costs  -solar hub system for lighting and battery charging | 1, 120, 000 | Equipment for solar hub include solar panels, batteries, inverter and accessories |
| Equipment costs  -solar water pump system | 2, 187, 000 | Equipment for solar water pump include panels, submersible water pump with MPPT controller, water reservoir and accessories. |
| Casual labour-design & installation | 1, 269, 360 | Casual labour include subcontract for temporally labour and stipend for technicians. |
| Communication-airtime & data for project coordinating team | 120, 000 | Phone and data for project coordination for 6 month period |
| Staff stipends- project coordinating staff | 430, 000 | Project coordination-  call centre staff-management of cash receipts and phone communications-customer queries, and information |
| Commissioning and training costs | 250, 000 | Training for agent/ partner on usage and management-safety, cash collections, faults and maintenances |
| Marketing & advertisements | 120, 000 | Information dissemination-social media, information sessions with village leaders. |
| Monitoring & Evaluation-Profitability analysis | 150, 000 | Ongoing cost benefit/profitability analysis for cash collections and faults costs |
| **Total Estimated Budget in MWK** | 5,796, 360 |  |