



CALL FOR INNOVATIONS HACKATHON CHALLENGE ON DEVELOPMENT OF SUSTAINABLE RENEWABLE ENERGY TECHNOLOGIES (RETS)

1.0 BACKGROUND

The National Commission for Science and Technology (NCST) is a parastatal organisation established by the Science and Technology (S&T) Act number 16 of 2003. Its mission is to promote, support, co-ordinate and regulate the development and application of research, science, technology and innovation for wealth creation and improvement of the quality of life. The S&T Act established a Science and Technology Fund under Section 24 whose main objective is to advance Science and Technology in Malawi. To achieve this objective, NCST using the Grand Challenges Scheme, under the S&T Fund is financing innovative solutions for local manufacturing of Renewable Energy Technologies (RETs) components.

The Government of Malawi, aligning with the National Energy Policy 2018 and the Sustainable Energy for All Agenda (SE4LL), increasingly considers renewable energy sources as an important means to ensure energy security. In addition, it advocates for diversifying energy sources and creation of employment as well as income generating opportunities to its growing population, which is estimated to be over 20 million by end of year 2024.

Therefore, NCST in collaboration with Malawi University of Business and Applied Sciences (MUBAS) as well as the University Innovation Pod (UniPod) have organised a Hackathon Challenge on innovations in local manufacturing of RET components in order to promote import substitution with locally manufactured RET components. The innovative solution will also address the problem of overflow of sub-standard RET components on the market by ensuring that local technologies are of high quality. This Collaboration is therefore calling upon interested eligible applicants to respond to this call in accordance with these guidelines.

2.0 THE PROBLEM

The Government of Malawi aims to achieve universal access to affordable, reliable, sustainable, efficient, and modern energy by 2030 (National Energy Policy, 2003). However,

the country's primary energy source remains predominantly biomass—such as firewood, charcoal, agricultural and industrial wastes—accounting for nearly 84% of the total primary energy supply (Ministry of Energy, 2024). In stark contrast, only about 15% of the population has access to electricity, reflecting a significant gap in clean energy access and utilization. This is in spite of the Government, development partners, and non-governmental organizations efforts to improve access to sustainable energy sources/RETs. The lack of such reliable RETs remains a significant constraint for attaining economic growth and Small and Medium Enterprises (SMEs) in Malawi.

3.0 THE RATIONALE

RETs especially **gas and solar**, either as standalone systems or as mini grids play a major role in increasing access to clean energy components in Malawi. RET components are an important and relatively inexpensive source of electric energy where grid power is problematic. As such, there is an emergent need to develop sustainable RETs components in Malawi. This Hackathon Challenge will therefore support innovative local manufacturing of RETs components for supporting industrialization.

4.0 THEMATIC FOCUS AREA

The Hackathon Challenge will support projects in the fields of renewable energy with demonstrable innovativeness, contribution to import-substitution, value addition, scalability, and societal benefit. The focus areas include the following:

- i. **Solar Technologies** (powered pump; mini-grids vending machines; monitoring system (generation & consumer side); charge controllers; inverters; batteries; homestead technologies; chargers; lantern; solar radios; clean cooking technologies; cold storage facilities; amplifiers and incubators)
- ii. **Gas Technologies** (stoves; cylinders; storage technologies; heavy duty lanterns; room heaters; clean cooking technologies)

5.0 SCOPE

This Hackathon Challenge will include the following activities:

- i. Innovative solutions within the field of renewable energy showcasing a rigorous application of scientific principles.
- ii. Prototypes demonstrating scalability and commercial viability to solve real life challenges.

6.0 ELIGIBLE APPLICANTS

For this Hackathon Challenge, the following conditions must be met:

- i. A team of three collaborators (Technologists/Innovators) that includes a business specialist.
- ii. The team leader, serving as the main applicant, must be a Malawian and locally based.

6.1 ELIGIBLE PROJECTS

- i. Projects that demonstrate ability to use locally available raw materials or minimal use of imported raw materials
- ii. Projects that demonstrate a minimum viable product (MVP)
- iii. Projects that demonstrate a viable business model (VBM)
- iv. Projects that demonstrate application of scientific principles
- v. Projects that are innovative (new or significantly improved).

6.2 INELIGIBLE PROJECTS

Funding will not be provided to *any* of the following:

- i. Projects purely focused on basic research.
- ii. Replication of a technology in a new geography in the absence of added innovation.
- iii. Projects with unsustainable financial plan.
- iv. Solutions that do not have a demonstrated proof of concept.
- v. Projects that cannot demonstrate a clear development plan for their project to attain scale and be sustainable beyond the project phase.
- vi. Ideas that present ethical or safety risks.

7.0 FUNDING LEVELS AND BUDGET GUIDELINES

The maximum funding level for each successful proposal will be forty million Malawi Kwacha (MK40,000,000). The budget components that will guide the Principal Investigator (PI) in developing a financial proposal are as follows:

- i. Equipment costs.
- ii. Personnel costs.
- iii. Travel costs.
- iv. Workshop and Operational costs.
- v. Other Goods and Services and
- vi. Indirect Cost (*not to be evaluated*)

7.1 PROPOSED PROJECT TIMELINE (WORKPLAN)

Applicants are expected to provide a chart of key activities, timelines, key milestones and expected outputs

8.0 PROJECT COLLABORATORS

Applicants are encouraged to leverage on existing or new collaborations i.e. they should clearly indicate the partners they intend to engage in implementing the project and the reasons.

8.1 DURATION

The maximum project duration is strictly 12 months including the incubation period in the UniPod during the Hackathon Challenge.

9.0 SUBMISSION AND PROCESSING OF APPLICATIONS

Use this Googleform link: <https://forms.gle/A15kEpbzKRCSCQXPA> to submit the application package.

All applicants are also encouraged to refer to the UniPod, MUBAS and NCST websites for further details on the project.

For any inquiry applicants are requested to send an email to: hackathon@ncst.mw.

9.1 DEADLINE FOR RECEIVING APPLICATIONS

The deadline for submission is 11:59PM, 6th December, 2024 Central Africa Time.

10.0 APPLICATION DOCUMENTS

- i. Application documents uploaded online must include an application form submitted through Googleforms link <https://forms.gle/A15kEpbzKRCSCQXPA>; team leader's CV; work plan; and budget. All attachments must be in PDF.
- ii. All incomplete applications will not be processed.