GLOBAL LEAP OFF-GRID COLD CHAIN CHALLENGE

FIELD EVALUATION SUMMARY

The Global LEAP Off-Grid Cold Chain Challenge (OGCCC) is a global competition that encourages innovation by identifying the most energy-efficient, sustainable, and affordable technologies that can meet the diverse cold storage requirements for agricultural products in first mile markets across the Global South.

The OGCCC is organized in two parts: 1) nominations, and 2) field evaluation. Companies shortlisted as preliminary finalists based on a review of their nominations will be invited to participate in the field evaluation.

Field evaluation will take place from September 2021 through July 2022, during which each preliminary finalist must deploy a cold storage solution for field evaluation in one of the following eligible countries: Kenya, Tanzania, Uganda, Rwanda, Nigeria, and India. Participants must generate at least six months of continuous data between the September 2021 and July 2022, and are encouraged to initiate the field evaluation process no later than November 2021.

This document provides a summary of the OGCCC's field evaluation process. Note that a detailed Field Evaluation Protocol will be available in early August 2021, prior to the close of the Nomination period.

Methods for the Field Evaluation Process

There are two components of the field evaluation:
  a) Technical performance monitoring through Remote Monitoring Systems (RMS)
  b) End-user impact analysis through consumer surveys

The technical performance monitoring (TPM) will involve measurement of parameters on energy supply and consumption, temperature, humidity, and number of door openings. These parameters are listed and described in the table below.

Parameter	Description
Internal dry bulb temperature (^{0}C)	Average Temperature of the air inside the unit
Internal relative humidity (%)	Amount of water vapor present in the air inside the unit
Ambient dry bulb temperature (^{0}C)	Temperature of the air surrounding the unit
Ambient relative humidity (%)	Amount of water vapor present in the air surrounding the unit
Number of door openings per day	How many times a day the unit's door opened

Voltage applied to walk-in unit (Volts)	Maximum, average, and minimum voltage applied to the system over 24 hr period.
Current drawn by walk-in unit (Amperes)	Current drawn by all the components that are necessary for the operation of the unit
Daily energy consumption (kWh)	Cumulative energy consumption at the end of each 24-hour period
Daily RE energy supply (kWh)	Cumulative energy supplied by the renewable energy system

The end user surveys will involve data gathering on user profile, usage of the walk-in cold room technologies and associated costs, derived impacts on health, social and economic aspects among other things.

The OGCCC team will engage a contractor to support TPM activities and will develop survey tools and share with participants before the start of field evaluation activities.

Field Evaluation Timeline

The table below provides a summary of the activities during the data collection process and the responsibilities that different teams will have. The main parties will be the OGCCC Team, Preliminary Finalists, and a contractor engaged to support RMS installation and operation.

Period	Activities / Parties responsible or involved
Pre-Data collection (Aug-Nov 2021)	- Preliminary finalists (PF) announced and start deployment of Walk-in cold units (**OGCCC Team)** - Field deployment support grants disbursed for qualified preliminary finalists (**OGCCC Team)** - Remote monitoring systems procured and couriered to field sites (**OGCCC Team)** - Training on use and installation of Remote Monitoring Units (RMS) (**RMS contractor, PF technical representatives & OGCCC team**) - Installation of RMS units, testing for functionality and connectivity with the Cloud platform (**RMS contractor, PF technical representatives & OGCCC team)** - Identify and provide contact for end-users (**PFs**) - Conduct safety and quality inspection of each field site (**OGCCC Team**) - Conduct baseline survey among end-users (**OGCCC Team**)
During Data Collection (Dec 2021-July 2022)	- Start TPM data collection (**OGCCC Team**) - Weekly surveys on system usage (**OGCCC Team & PF via selected end users**) - Ongoing technical support and troubleshooting as needed (**OGCCC Team & RMS contractor**)
Post Data Collection (Aug-Sep 2022)	- Consolidate and analyze TPM and survey data (**OGCCC Team**) - Coordination of expert judge evaluation (OGCCC Team) - Announcement of Winners and Finalists (**OGCCC Team**)