INTERIM REPORT
DEVELOPING CARBON CREDITS THROUGH RENEWABLES AMONG GER DISTRICT HOUSEHOLDS

Purpose of the Grant: This pilot project aims to provide universal access to the carbon credit incentive mechanisms to individual renewable energy producers, especially from developing countries, that do not currently have access to such incentive programs due to prohibitive upfront and reoccurring costs required to monitor and verify carbon emission reductions. The technology would allow for a more equitable and fair distribution of capital to incentivize, educate and empower people at the grassroots levels to integrate more renewable energy-based solutions into their day-to-day energy consumption habits.

Grant period: March 7, 2022 – July 20, 2023

Reporting period: May 11, 2022 – June 13, 2022

Activity 1. Purchase and installation of solar panels and meters

The project partners, GerHub and URECA, kicked off the project in March 2022 following an initial meeting and The Asia Foundation (TAF) discuss the project activities and grant requirements.

URECA and GerHub developed beneficiary household selection requirements (shown in Annex 1) to identify potential households that fit characteristics that are outlined in the proposal; grid connected households that live in a ger and combust coal briquet for heating purpose, the off-grid household that has already installed a solar panel and has a mixed heating system of electric heater and fossil fuel combustion, and a grid connected household that lives in a house and has both solar panel and electric heater. As seen in Annex 1, household selection criteria were developed to ensure households with numerous co-benefits and vulnerable were selected for the project.

Given GerHub's existing presence and strong relationship with the community, grid-connected households that live in a ger were chosen from the ger district households in Khoroo 31 and 43 of Songinokhairkhan district, Ulaanbaatar, Mongolia.

Khoroo kheseg leaders showed enormous support in selecting ger households and project team members together with them visited over 10 households to select three. Several visits to these ger households took place in March to ensure selected households fully understand the project objective, associated benefits as well as their roles and responsibilities, and are voluntarily participating in the project. Furthermore, the project team contracted energy specialists on a short-term basis to visit selected households and examine their electric equipment, which is critical in identifying suitable solar panels, inverters, batteries, and other accessories that suit in needs of each household. The project team prepared an analysis report on the needs for energy and equipment for each household and made their selection based on the analysis.

For the off-grid household that uses a combined mix of fuel for heating and has a solar panel, the project team selected a family that resides in Erdene soum, Tuv province, Mongolia after visiting several different families. Since this family does not require additional solar system-associated support, we plan to visit them in the next reporting period to get their signature on

the project cooperation and responsibility agreement and provide them with training on climate change, carbon credit trading, and effective use of energy and household appliances.

Selecting a household that lives in a house, has solar panels, as well as electric heating, has been a real challenge. While we several houses that identified through Mongolian Sustainable Finance Initiative (ToC), XacBank, and others, none of them was selected as a project beneficiary household. We will complete this task in the next reporting period.

As part of project activity 1, URECA's smart meter building process has been actively taking place. While this process encountered some challenges such as technical materials that are required for smart meter shipment getting delayed due to covid-19 and border restrictions in China, the URECA team has been aiming to partially address them by producing some parts of the meter, namely the outer case in-house using a 3D printer. While the smart meter cases are now not made of steel material as initially planned, it is made of household application-proof material that is stiff, sturdy, and heat/cold resistant. URECA has been trying to receive smart meter building required other materials from China since March this year and continue to encounter additional challenges, which we are working hard to resolve or overcome in the next reporting period within the newly extended timeline. Of 10, five smart meters are built and ready to be tested. This activity will take place in early July 2022.

As mentioned earlier, energy use and household location examination of selected households took place with the assistance of an energy engineer, the next steps would be to purchase suitable devices such as solar panels, inverters, and heaters before September 30, 2022. For this purpose, the project team has already identified potential vendors that supply such equipment and price comparison has been taking place in consultation with our energy engineer.

Another milestone of this reporting period was to identify appropriate UNFCCC Clean Development Mechanism (CDM) tools and methods that would enable accurate baseline emissions calculation of project households. This activity comprises numerous daunting sub-tasks such as identifying the most suitable CDM tools and methods for the project, understanding household energy use as well as heating methods, identifying data or input needs, and obtaining them, which is quite scarce both at the household and national level. Based on the results of this foundational work, households' emission calculations will take place in the next reporting period.

Activity 2. Preparation of pilot gers and houses – this activity will take place in the next reporting period or in July.

What has been achieved:

- Household selection criteria were developed
- 4 (out of 5) households were selected
- 5 (out of 10) smart meters were built
- Energy examination of households took place
- Solar panel, accessories, and household heater vendors were identified
- Household emissions calculation foundational works have been conducted
- Training materials for households have been prepared
- Draft agreement with households was developed

Next steps/goals:

- Carry out **Activity 2** tasks as outlined in the proposal and grantee agreement with the funder
- Organize project inception workshop/climate change and energy efficiency training to selected households at the khoroo with attendance of khoroo officials and project funder
- Purchase equipment such as solar panels and heaters
- Measure selected gers to identify insulation material needs
- Complete emission calculations of project households

Project Timeline: Please see status of each activity below:

Activities	Start Date	End Date	Responsible Party	Status
Activity 1: Purchase and Installation of Solar Panels and meters				
Identify beneficiary households	April 3, 2022	April 11, 2022	GerHub	Completed
Engage selected household (receive their consent, make an agreement)	May 9, 2022	June 8, 2022	GerHub	Completed
Order and Delivery components of the smart meter	March 11, 2022	May 20, 2022	URECA	In Progress
Build and test 10 URECA smart meters	May 20, 2022	July 20, 2022	URECA	In Progress
Purchase Solar Energy system for five households	June 20, 2022	July 20, 2022	URECA	In Progress
Install Solar Energy Systems along with URECA smart meter for the five households	July 22, 2022	August 5, 2022	URECA	Not Started
Activity 2: Preparation of Pilot Gers and Household				
Connect five households to URECA platform by the smart meter	August 1, 2022	August 5, 2022	URECA	Not Started
Install Ger insulations for the households	October 1, 2022	October 11, 2022	GerHub	Not Started
Test monitoring and verification of energy production throughout the day	October 11, 2022	November 1, 2022	URECA	Not Started
Calculate and agree upon appropriate Emission Factor for each of the households to ensure fair and appropriate emission reduction accounting practice	November 1, 2022	April 29, 2023	URECA	Not Started
Survey usage of the income from the carbon credit along with Energy production	April 25, 2023	July 1, 2023	GerHub & URECA	Not Started
Prepare project report and deliver to TAF	June 6, 2023	July 20, 2023	GerHub & URECA	Not Started

Annex 1. Household Selection Criteria

- Lives in a ger or a house in the ger areas or outside Ulaanbaatar;
- Connected to the grid or off-grid;
- Uses coal or coal briquette or electric heater for heating;
- Economically and/or socially vulnerable or disadvantaged;
- Has up to four children;
- Has at least one adult member with a full-time job;
- Single-parent households or families with disabled members will be given an advantage.

Annex 2. Project progress photos

1. Household visits and engagement

Photo 1. URECA team visiting households together with khoroo officials to select beneficiary households


Photo 2. Side view of beneficiary households in Songinokhairkhan District, Ulaanbaatar

2. URECA smart meter building

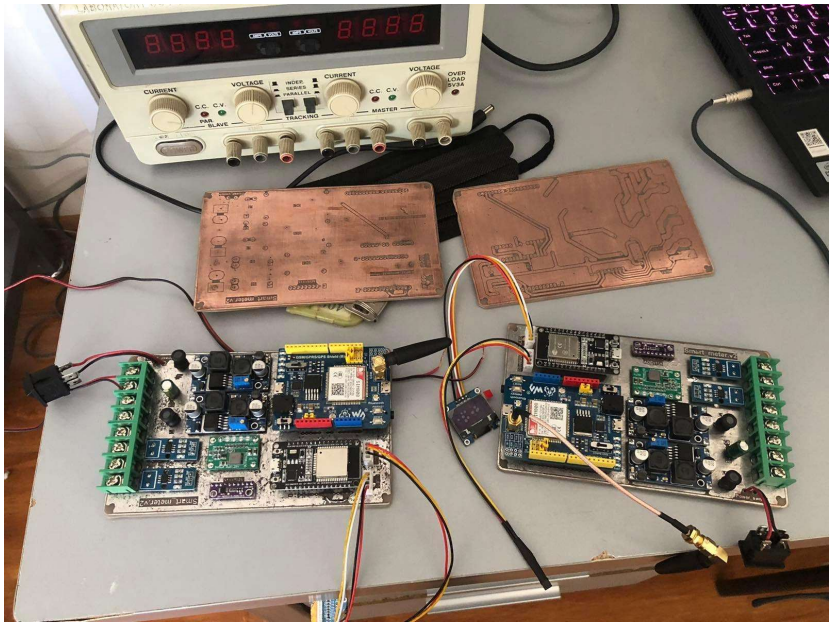

Photo 4. URECA smart meter assembly process

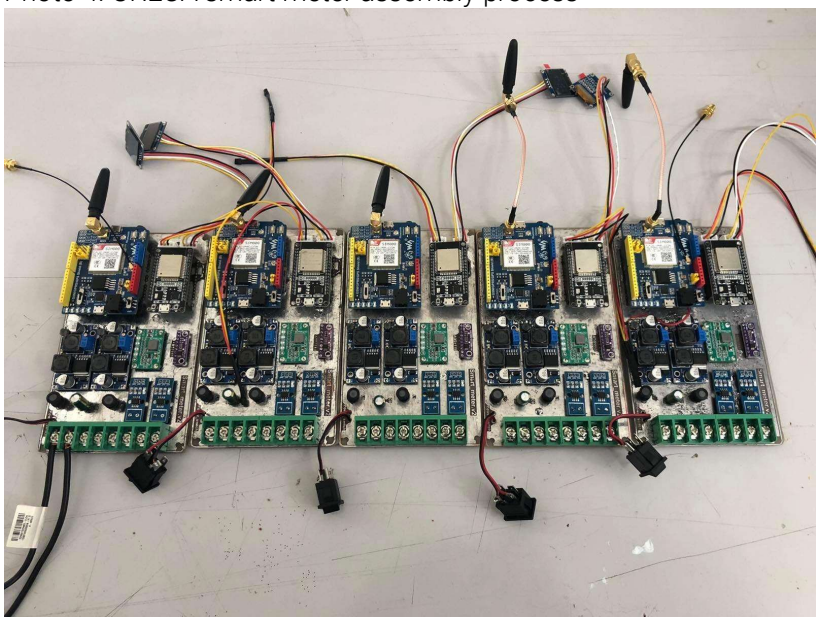

Photo 5. Assembled URECA meter with a-3D printed case