UPENERGY-SOCIAL AND CLIMATE IMPACT PROGRAMME- NIGERIA-1

Project title	UpEnergy - Social and Climate Impact Programme- Nigeria-1
Project ID	2673
Monitoring period	01-November-2022 to 31-October-2024 (inclusive of both dates)
Original date of issue	25-April-2025
Most recent date of issue	27-January-2026
Version	5.4
VCS Standard Version	4.7
Prepared by	UpEnergy Group

CONTENTS

PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

A summary description of the technologies/ measures to be implemented by the project.

The project activity involves promotion and distribution of Improved Cook Stoves (ICS) in Nigeria. The purpose of the project is to support clean cooking interventions that moves end-user to reduce greenhouse gas (GHG) emissions from the burning of non-renewable biomass-based charcoal for cooking in Nigeria.

Through this project, the distribution and installation of approximately 500,000 ICS will be undertaken for households in Nigeria. The annual average emission reductions per year are estimated to be 542,663 tCO_2e and over a 7-years period of are approximately 3,798,640 tCO_2e.

The end users will be informed in advance through the sales receipt cum warranty card that the use of ICS generates carbon credits, the ownership of which lies with the project proponent, and that the resulting carbon finance is used to subsidize the ICS price and recover project implementation costs.

The first ICS was installed on 07 May 2022, and as of 31 October 2024, a total of 29,614 ICS units had been distributed, with 1,648 distributed during monitoring period 1 and 27,966 during monitoring period 2.

Technical Specification of cookstoves during current monitoring period

The ICS deployed under this project (Figure 1) is energy efficient, significantly lowering fuel use and emissions for cooking and water heating by enhancing combustion and heat transfer compared to traditional stoves.

Figure 1: UpEnergy Smart Home Pro ICS

Technical Specification of Smart Home Pro

Brand	**UpEnergy**
Model	**SmartHome Pro (SHS Pro)**
Type of Stove	**Domestic**
Dimension	**(ø 28 * 26 H) cms**
Average Unit Weight, Kg	**12**
Rated Thermal Efficiency, %	**37.90**
Pot Type pot	**Flat Bottom**
Fuel Type	**Charcoal**
Estimated Life Span	**7 Years**
Average time to boil 5 liters of water	**33.8 minutes**

A brief description of the project activity instances implemented at the time of validation.

The first project activity was implemented on 07-05-2022 under this grouped project activity. 29,614 project activity instances (ICS) as a part of project activity have been implemented till 31-October-2024.

Total emission reductions achieved in this monitoring period:

During the Current Monitoring Period from 01-November-2022 to 31-October-2024 (First and last date included) the project activity has contributed 40,188 tCO_2e GHG reductions.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation/ verification	07-May-2022 to 31-October - 2022	Verified Carbon Standard (VCS) /Sustainable Development Verified Impact Standard (SD VISta)	Earthood Services Private Limited	~0.5 year
Verification	01-November-2022 to 31-October-2024	Verified Carbon Standard (VCS) /Sustainable Development Verified Impact Standard (SD VISta)	SustainCert	2 years

1.3 Sectoral Scope and Project Type

Sectoral scope[1]	03 Energy Demand
Project activity type	Type II Energy Efficiency Improved cookstoves Projects

The project is a grouped project.

1.4 Project Proponent

Organization name	UpEnergy Group
Contact person	Anantha Karthik Rajagopalan
Title	Vice President of Carbon Programme
Address	19 Cybercity, 10th Floor, Raffles Tower Ebene, Mauritius
Telephone	T: +230-404-6000
Email	anantha@upenergygroup.com

1.5 Other Entities Involved in the Project

Organization name	Climate Catalyst Limited, Nigeria
Role in the project	Project Representative
Contact person	Mitch Sauers
Title	CEO
Address	Climate Catalyst Limited, Nigeria, Close 48, H167, VGC, Lagos, Nigeria.
Telephone	+234 706 512 8533
Email	mitch@upenergygroup.com

[1] *Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes*

1.6 Project Start Date

Project start date	07-May-2022
Justification	The earliest date of commissioning date of a batch distributed for first project activity instance.

1.7 Project Crediting Period

Crediting period	☒ *Seven years, twice renewable* ☐ *Ten years, fixed* ☐ *Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)*
Start and end date of first or fixed crediting period	07-May-2022 to 06-May-2029

1.8 Project Location

The geographical boundary for projects located in Nigeria (figure 2), which is part of Africa and the northern hemisphere is delineated in the form of extreme geographic coordinates[2] of Nigeria as follows:

Latitude – 9°4'55.2''

Longitude – 8°40'31''

Figure 2: Nigeria Map[3]

[2] https://www.geodatos.net/en/coordinates/nigeria

[3] https://dhsprogram.com/pubs/pdf/MIS31/MIS31.pdf (last accessed on 15-April-2025)

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VM0050	VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves, v1.0	1.0[4]
Corrections & Clarifications	-	Correction and Clarifications to VM0050 Energy Efficiency and Fuel-Switch Measures in Cookstoves, v1.0	1.0[5]
CDM Tool	Tool 30	TOOL 30 Calculation of the fraction of non-renewable biomass EB 108 Annex 11 v4.0	4.0[6]
CDM Tool	CDM TOOL33	CDM TOOL33 Methodological tool Default values for common parameters Version 03.0	3.0[7]
CDM Guideline	-	Sampling and surveys for CDM project activities and programmes of activities	9.0[8]
Tool	Tool VT0008	Tool VT0008 Additionality Assessment	1.0[9]

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

[4] https://verra.org/wp-content/uploads/2024/10/VM0050-EE-and-Fuel-Switch-Measures-in-Cookstoves-v1.0.pdf (last accessed on 15-April-2025)

[5] https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf (last accessed on 15-April-2025)

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf

[7] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-33-v3.pdf (last accessed on 17-July-2025)

[8] https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf (last accessed on 15-April-2025)

[9] https://verra.org/wp-content/uploads/2024/10/VT0008-Additionality-Assessment-v1.0.pdf (last accessed on 15-April-2025)

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes ☒ No

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities].”

☐ Yes ☒ No

1.12 Sustainable Development Contributions

Project's contribution to Sustainable Development: The contributions of proposed project activity towards sustainable development are explained with indicators viz. social, economic, environmental, technological well-being and legislative as follows:

Environmental well-being: The project activity will result in the reduction of firewood consumption and emission of greenhouse gases and thus conserve forest and biodiversity.

Social well-being: The project improves living standards, empowers nearby communities, and reduces women's drudgery, allowing time for other productive tasks. It also creates local employment for skilled and unskilled workers.

Economic well-being: The project supports local businesses during construction and creates jobs, enhancing social status and reducing health expenses through improved indoor air quality.

Technological well-being: The project promotes improved cookstoves that reduce fuel use and emissions during cooking and water heating.

Legislative: The Project Proponent has obtained all necessary approvals for the project's establishment and operation, ensuring full regulatory compliance.

SD contributions outlined in Table 1 of this MR align with Nigeria's nationally stated sustainable development priorities as outlined in its Voluntary National Review (VNR), 2025 and the National Development Plan (2021–2025). Specifically, the project supports, SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality) and SDG 8 (Decent Work and Economic Growth), which were identified as key priority areas in the 2025 VNR based on Nigeria's development agenda and the cardinal objectives of the government. In addition, the project contributes to SDG 13 (Climate Action), which is considered a cross-cutting issue in the National Development Plan alongside SDG 12 (Responsible Consumption and Production).

The Nigeria SDGs Implementation Plan (2020–2030) provides the framework for mainstreaming all 17 SDGs into national and subnational development plans and ensures alignment with sectoral policies and budgetary processes. The project's SD contributions are therefore in line with this national roadmap.

The project also incorporates a various monitoring framework, including periodic usage and SDG monitoring surveys including kitchen performance test, to assess and report on progress towards these SDG contributions. These monitoring provisions ensure transparency and provide valuable inputs that can support national SDG reporting and policy evaluation efforts.

Table 1: Sustainable Development Contributions

Goal No	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current project contributions	Contribution over project lifetime[10]
1	*1.1*	*Average household savings i.e., decrease in expenditure on basic services such as cooking*	*Implemented activities to increase*	*The distribution of energy efficient stoves helped save 0.21 $ per day per household for the given project activity*	*The distribution of energy efficient stoves helps save 0.21 $ per day per HH for the given project activity*
	1.4	*Number of households having access to improved cooking technology due to project activity*	*Implemented activities to increase*	*The distribution of 26,564 energy efficient stoves under this project activity helps in providing basic service access to household*	*The distribution of 26,564 energy efficient stoves till end of this MP under the project helps in providing basic service access to household*
5	*5.1*	*% of Female employees*	*Implemented activities to increase*	*This project activity promotes employment to women, thus helps eradicating gender-based discrimination and provides socio-economic parity. 36% of the total employees working as a part of the project activity are females. This value is expected to go up in subsequent monitoring periods*	*This project activity promotes employment to women, thus helps eradicating gender-based discrimination and provides socio-economic parity. Around 34% of the total employees working as a part of the project activity are females*
	5.4	*Average time saving associated with cooking time*	*Implemented activities to decrease*	*By reducing cooking time by 0.90 /household/day, the program provides women in project households with more time to invest in other productive economic development activities*	*In the poorest communities, the burden of collecting and / or purchasing fuel often falls on women and children. By reducing cooking time, approximately 0.88 hour/household/day, the program provides women in project households with more time to invest in other productive economic development activities*

[10] Values presented are calculated as the weighted average of MP1 and MP2 values, based on the duration of each monitoring period. In cases where summation is applicable, values are provided as the total sum of MP1 and MP2.

Goal No	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current project contributions	Contribution over project lifetime[10]
	5.5	*Proportion of women serving in managerial/ leadership /ownership role*	*Implemented activities to increase*	*This project activity encourages participation of women in leadership / managerial role. 2 out of the 6 individuals operating at managerial positions for the given project activity are women. This comes out to 33%*	*This leadership of the project activity to an extent 38% is held by women employees*
7	*7.1*	*Number of households having access to improved cooking technology due to project activity*	*Implemented activities to increase*	*The project activity involves promotion and distribution of 26,564 improved cooking stoves (ICS) in the households in Nigeria*	*The distribution of 26,564 energy efficient stoves under the project helps in providing basic service access to household*
8	*8.b*	*Number of Trainings conducted in a year*	*Implemented activities to increase*	*The project activity provides training and skill development program for the youth population, thus increasing their employability. A total of 8 trainings were held for the employees as a part of this monitoring period.*	*The project activity provides a total of 11 training and skill development program for youth population, thus increasing their employability*
	8.5	*Number of jobs created*	*Implemented activities to increase*	*111 jobs for marketing / sales and distribution / technical employees have been created due to this project activity till this particular monitoring period.*	*The project activity generates employment for marketing / sales and distribution / technical employees. This project activity has created 111 direct jobs in total*
12	*12.2*	*Decrease in specific fuel consumption*	*Implemented activities to decrease*	*Project activity reduced the consumption of non-renewable biomass by 1.99 tonnes of eq. firewood/household/annum in the project area*	*Reduce the consumption of non-renewable biomass in participant households by as much as 55%, depending on stove model. The distribution of energy efficient stoves helped households to save 2.06 tonnes of non-renewable biomass per year per household*
13	*13.0*	*Tonnes of greenhouse gas emissions avoided or removed*	*Implemented activities to decrease*	*40,188 tCO_2e greenhouse gas emissions were removed in this monitoring period*	*41,647 tCO_2e greenhouse gas emissions has been avoided till end of this MP.*

Goal No	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current project contributions	Contribution over project lifetime[10]
15	*15.1*	*Amount of Non-renewable biomass saved*	*Implemented activities to decrease*	*The Project reduced 52,729 tonnes of Non-renewable biomass over the course of the monitoring period in participant households which contributed towards reducing deforestation.*	*The Project will reduce 53,521 tonnes of Non-renewable biomass till end of this MP time in participant households and will contribute towards reducing deforestation*

1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder's make up has not changed since validation, nor did the new set of stakeholders were identified in the current monitoring period. The Project Proponent identified the primary stakeholders as individuals or groups that are potentially affected by the project. Also, these stakeholders were evaluated based on how deeply affected they may be by the Project, and those most impacted have been included in the stakeholder engagement. The Stakeholder Consultation meeting was held on 23rd-June-2022 with the participation of different stakeholder categories. There were participants from various categories participated in the LSC meeting.

Stakeholder Identification	Stakeholders have been identified based on the criteria outlined in Section 3.18 of the VCS Standard. The stakeholders have been identified as individuals or groups that are potentially affected by the project. Stakeholders can be defined as: Direct Stakeholders- these are group of people who are directly impacted by the project, such as current and potential beneficiaries implementing partners, etc. Indirect Stakeholders- group of people who are indirectly involved such as NGOs and business, academia, media, local vendors, women, young girls, children, government authorities etc. The project activity involves distribution of improved cookstoves to individual households in rural/urban areas of various territories in Nigeria. These stakeholders were further evaluated based on how

	deeply affected they may be by the Project, and those most impacted have been included in the stakeholder engagement.
Legal or customary tenure/access rights	UpEnergy Group operates entirely out of a private office space with installation/distribution of the ICS activities taking place in project beneficiary residence. The Sales team of UpEnergy Group enters private property only with the explicit permission of the owner. The project activity also does not require/involve any land acquisition.
Stakeholder diversity and changes over time	There is no change in the make-up of stakeholders for the current MP
Expected changes in well-being	The expected changes in stakeholder well-being over time may include: • Reduced indoor air pollution from energy-efficient improved cookstoves (ICS), leading to health benefits for beneficiaries. • Time savings in cooking and fuel procurement, allowing beneficiaries to engage in other productive or income-generating activities. • Cost savings due to lower fuel consumption required by the project ICS. Increased local employment opportunities in operations, management, implementation, and logistics related to the ICS project.
Location of stakeholders	The geographical boundary of the project is located in urban/rural regions of Nigeria. The project activity has no impact outside the project boundary.
Location of resources	The project involves the installation and distribution of new improved cookstoves (ICS) to participating households and does not utilize resources owned by the stakeholders.

2.1.2 Stakeholder Consultation and Ongoing Communication

Not applicable as the stakeholder's make up has not changed since validation, nor new set of stakeholders were identified in MP2. For ongoing communication with the stakeholders, PP has established a Grievance Expression book at Climate Catalyst Limited's office (A subsidiary of

UpEnergy Group) in Lagos, Nigeria, to facilitate the recording of feedback or complaints from stakeholders and end users regarding the project device. The register also documents the resolutions provided for each complaint. Additionally, PP also maintains a toll-free communication channel (+234-07041007012 / 07011111384), for the end-users or other stakeholders to contact the project proponent for any support.

Additionally, to claim capped usage rate of 90% for survey-based monitoring the following measures are undertaken by PP,

1. The project activity involves the distribution of efficient improved charcoal cookstoves that will replace inefficient traditional charcoal stoves across the project boundary. A detailed baseline study was conducted which included surveys and field investigations to understand the cooking practices, fuel usage patterns, and preferences of the target population in Nigeria. The study helped identify local cooking habits, types of fuel used, types of foods prepared, and stove usage behaviors. The proposed project activity promotes ICS as a practical and culturally accepted solution to replace traditional stoves. The stove "Smart Home Pro" model have been shown through field research and pilot studies to significantly reduce charcoal consumption, lower cooking times, and improve household air quality. With features like insulated combustion chambers and better airflow control, they meet the cooking needs of Nigerian families preparing staples. User feedback from various on-field activities indicates strong acceptance and willingness to continue use, citing cost savings and ease of use. Locally manufactured and widely available, these stoves not only support health and environmental goals by reducing emissions and deforestation but also create local jobs and align with Nigeria's climate commitments. In addition to primary data collection, relevant secondary sources, including studies conducted by the World Bank and other reputable institutions on Nigeria's household energy use, were referred to ensure that the selected ICS fully meet the cooking needs of the target communities.

2. The project activity has implemented support activities to assist the target population in effectively operating and maintaining their Improved Cookstoves (ICS). Awareness campaigns and training sessions are conducted to provide guidance on operating the cookstoves for preparing common local foods, troubleshooting commonly faced operational issues, and performing minor repairs. Materials, including printed guides and in-person demonstrations are distributed in local language, to ensure accessibility and understanding. In addition, community cooking sessions are held to demonstrate proper stove use, share tips, address user issues, and gather feedback helping reinforce good practices and build a sense of ownership among users. These combined efforts demonstrate that customer support is actively extended to the entire target population and maintained throughout the project

duration. These combined efforts are ongoing to support sustained ICS adoption and maintenance throughout the project duration.

3. The project has implemented a toll-free communications channel (+234-07041007012 / 07011111384) to support the target population in accessing assistance for their Improved Cookstoves (ICS). A dedicated toll-free number has been established and widely communicated to households, enabling them to contact the project proponent for maintenance, repair services, and other support needs. This channel is operational and accessible, ensuring effective communication and ongoing support throughout the project duration.

Ongoing consultation	PP has established a Grievance Expression book at Climate Catalyst Limited's office (A subsidiary of UpEnergy Group) in Lagos, Nigeria, to facilitate the recording of feedback or complaints from stakeholders and end users regarding the project device. The register also documents the resolutions provided for each complaint. Additionally, PP also maintains a toll-free communication channel (+234-07041007012 / 07011111384), for the end-users or other stakeholders to contact the project proponent for any support.
Date(s) of stakeholder consultation	Not applicable as the stakeholder's make up has not changed since validation, nor new set of stakeholders were identified in MP2, hence no separate stakeholder consultation is conducted. However, the grievances from the existing stakeholders are recorded and resolved.
Communication of monitored results	In total 102 grievances have been received regarding broken or malfunctioning stoves during the current MP from the stakeholders. PP has provided appropriate solutions such as repairs / replacement of the respective stoves; Additionally, PP has discounted the stove breakdown days sourced from the grievance's records for the conservative ER calculation.
Consultation records	Grievance registers for current monitoring period have been shared for VVB's reference.

2.1.3 Free, Prior, and Informed Consent

Consent	

Outcome of FPIC	Not applicable as the stakeholder's make up has not changed since validation, nor new set of stakeholders were identified in MP2. The details are mentioned above.

2.1.4 Grievance Redress Procedure

UpEnergy's Feedback and Grievance Redress Procedure ensures that project-affected communities and individual grievances are properly prioritized and addressed. These measures are taken by UpEnergy to enhance accountability and transparency and to support the project initiatives that can help the communities to identify adverse effects to them, their communities, or their environment which had not previously been identified and mitigated by UpEnergy. The full grievance redress procedure is available upon request and detailed in short below:

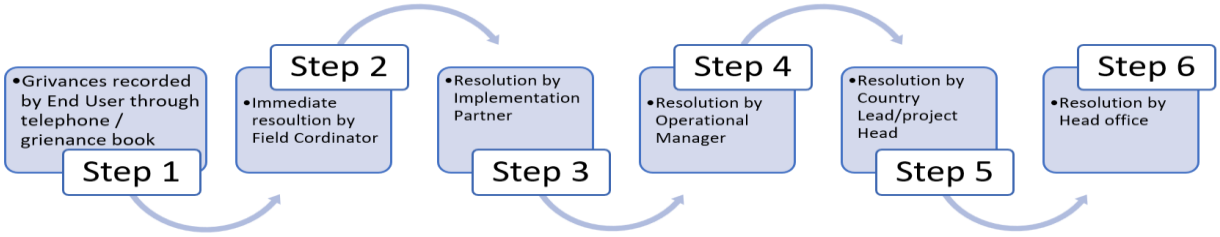

Figure 2: Grievance Redress procedure

The first step of a complaint is typically applied to the informal procedure, where the affected person discussed the identified issue or provides feedback with the Field Coordinator.

The Field Coordinator attempts to resolve the grievance immediately through the traditional conflict resolvents ways like one-to-one informal discussions, The Field Coordinator and affected person work together as immediately as possible, to solve the identified issue.

Grievance Expression book is placed at Climate Catalyst Limited's office (A subsidiary of UpEnergy Group) in Lagos, Nigeria. Stakeholders are free to voice their concerns via the Grievance Expression Book. By maintaining feedback book at the local office, it is ensured that stakeholders that don't have access to electronic media for expression concerns / grievances are also able to share their concerns / feedback. Additionally, the end users always have an option to revert the salesperson (representative distribution/retail partners etc.) in case of a feedback / complaints with the product post distribution.

Additionally, UpEnergy group has a dedicated toll-free customer care numbers (+234-07041007012/ 07011111384) mentioned in the ICS distribution receipts and flyers, which is used for any complaints or maintenance if needed during the project activity and the same has been also explained to the stakeholders.

All grievances are assessed and updates are provided to the grievant.

Two options for procedure guide

(a) resolution is offered immediately according to the request made by the grievant;

(b) resolution is more complex and requires additional consideration or extraordinary resources will lead to the grievant invited to a meeting to discuss options.

Grievances received	Resolution and outcome
No Grievances from stakeholders received during this MP. However, there were minor complaints raised by the project end users, related to issues in ICS liner, clay, burners etc.	All complaints were resolved.

2.1.5 Public Comments

There are no comments received during 30 days public comment period. Hence no further explanation required in this section.

Link to the project: https://registry.verra.org/app/projectDetail/VCS/2673

Summary of comments received	Actions taken
Not applicable	Not applicable

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

UpEnergy management has vast experience in developing the carbon projects across several Sub-Saharan African countries under both Gold Standard and VERRA registries.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	The adoption of improved cookstoves (ICS) will enable households to reduce their fuel consumption, contributing to the

	Risk identified	Mitigation or preventative measure(s) taken
		mitigation of deforestation and soil erosion, thereby decreasing the risk of natural disasters. Additionally, these stoves will save cooking time and enhance health conditions by reducing indoor air pollution, ultimately improving the well-being of stakeholders.
Risks to stakeholder participation	No risk identified	The project activity involves distributing improved cookstoves within the project boundary at a subsidized rate, making them more affordable than the usual market price. This ensures that all stakeholders can participate without facing financial constraints.
Working conditions	No risk identified	The adoption of improved cookstoves (ICS) will enable households to reduce their fuel consumption, save their cooking time, and improve their health conditions by reducing indoor air pollution. This will enable the community members to engage in other productive and income-generating activities, thereby improving overall working conditions.
Safety of women and girls	No risk identified	The project activity focuses on distributing improved cookstoves to households within the project boundary and does not pose any risk to the safety of women and girls.
Safety of minority and marginalized groups, including children	No risk identified	The project activity focuses on distributing improved cookstoves to households within the project boundary and does not pose any

	Risk identified	Mitigation or preventative measure(s) taken
		risk to the safety of minority and marginalised groups, including children.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	The project activity focuses on distributing improved cookstoves within the project boundary, which will thereby reduce indoor air pollution. Hence, no risk is identified.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified[11]	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	UpEnergy is committed to providing the best possible climate for maximum development and goal achievement for all its employees and contractors. UpEnergy believes that discrimination in all its forms (gender, race, religion, sexual orientation, or other habits) and sexual harassment and assault have no place within the development sector and more specifically at UpEnergy, our employees, contractors, and third-party individuals, and within the projects we design and execute. Specifically, our project activities are designed to reduce or

[11] The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

	Risks identified[11]	Mitigation or preventative measure(s) taken
		eliminate, where culturally possible, discrimination, sexual harassment, and sexual assault where it exists within the societies where we work.
Sexual harassment	No risk identified	UpEnergy is committed to providing the best possible climate for maximum development and goal achievement for all its employees and contractors. UpEnergy believes that discrimination in all its forms (gender, race, religion, sexual orientation, or other habits) and sexual harassment and assault have no place within the development sector and more specifically at UpEnergy, our employees, contractors, and third-party individuals, and within the projects we design and execute. UpEnergy prohibits any form of discrimination, harassment, or assault, all being grounds for dismissal of employment, termination of the contract, an immediate discreet investigation of the reported incident, and where warranted, reports to the applicable authorities.
Gender equity in labor and work	No risk identified	The project proponent ensures fair and non-discriminatory compensation by providing equal pay for equal work. Additionally, UpEnergy seeks to mirror the percentage of women/men in the country in its in-country workforce, making all efforts to hire women

	Risks identified[11]	Mitigation or preventative measure(s) taken
		candidates for all levels of positions.
Forced labor	No risk identified	The Project activity has equal opportunity for women, men, or any vulnerable/ marginalized community by taking inconsideration of the country law and regulations to contribute both in volunteer and working positions. UpEnergy also has a stipulated HR policy that takes into account participation by all forms of demographic. Further, the projects designed are implemented for equal participation by any gender, nationality, ethnicity, religion, and race.
Child labor	No risk identified	The project is carried out with the full consent of participating households, ensuring it is voluntary and free from forced labour. UpEnergy prioritizes hiring local community members that is locals residing in area of project implementation and offers new opportunities to project beneficiaries as UpEnergy expands operations and job openings arise.
Human trafficking	No risk identified	All individuals involved in the project, whether in volunteer or employment roles, are engaged in compliance with labour regulations, ensuring no involvement of child labour.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The project activity focuses on distributing improved cookstoves within the project boundary. The Project activity has equal opportunity for women, men, or any vulnerable/ marginalized community by taking inconsideration of the country law and regulations to contribute both in volunteer and working positions. UpEnergy also has a stipulated HR policy that takes into account participation by all forms of demographic. Further, the projects designed are implemented for equal participation by any gender, nationality, ethnicity, religion, and race. The host country Nigeria is also a member of the ILO convention and has been implementing various programs, in collaboration with the ILO tripartite constituents (government, workers' and employers' organizations). In order to ensure that all employees are aware of the prevailing work and employment rights, all employees are required to sign the policy handbook available on our human resources portal.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	The project activity focuses on distributing improved cookstoves within the project boundary. It does not cause any harm to Indigenous people or cultural heritage in the project area.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken

No risk identified	The project activity only involves distribution of Improved Cookstoves to the household. So, the activity does not require any property right or concerned land rights. UpEnergy Sales team will distribute/install the ICS only at the property owner's invitation. After the delivery and payment, the distributed is the sole property of the owner. We will confirm that all property rights are recognized, respected, and supported.
No risk identified	The project is not located on a land/territory claimed by any indigenous people, vulnerable people and the project activity does not lead to removal or relocation of property rights holders from their lands or territories, and do not force rights holders to relocate activities important to their culture or livelihood.

2.3.5 Benefit Sharing

Not applicable, as the project activity focusses on distribution of improved charcoal stove to the end users thereby improving the end-user's health with reduced fuel consumption and reduced smoke/emissions. The end users have been informed at the time of ICS installation/distribution that the ICS are discounted on account of them generating carbon credits and also the fact that these credits belong to the project proponent. The end users are required to sign the carbon waiver form cum warranty card as required by the project proponent to surrender their rights to carbon credits generated by the project.

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	Not applicable, as the project activity is distribution of improved charcoal stove to the end users thereby improving the end user's health with reduced fuel consumption (reduced smoke) and reduced emissions.
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	

2.4.1 Rare, Threatened, and Endangered species

Not applicable, as the project activity is distribution of improved charcoal stove to the end users thereby improving the end user's health with reduced fuel consumption (reduced smoke) and reduced emissions.

2.4.2 Introduction of species

Not applicable, as the project activity is distribution of improved charcoal stove to the end users thereby improving the end user's health with reduced fuel consumption (reduced smoke) and reduced emissions.

2.4.3 Ecosystem conversion

Not applicable, as the project activity is distribution of improved charcoal stove to the end users thereby improving the end user's health with reduced fuel consumption (reduced smoke) and reduced emissions.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring.

Till the end of the monitoring period, the project installed a total of 29,614 stoves. The stove model – Smart Home Pro a.k.a SHS Pro was distributed in the project. The stove model & Vintage wise distribution of stoves for the current monitoring period is as follows:

Stove Distribution (Year wise)	
Year	**SmartHome Pro**
2022	3,360
2023	13,489
2024 (till 31-October-2024)	12,765
Grand Total	**29,614**

Distribution monitoring period wise: -

Year	SmartHome Pro
MP1 (07-May-2022 to 31-October-2022)	1,648
MP2 (01-November-2022 to 31-October-2024)	27,966
Grand Total	**29,614**

VCS methodology VM0050, version 1.0 allows the use of a correction factor of 0.95 applied to the overall emissions reductions to account for any possible leakage. This factor has been applied to the emissions reductions presented in this report.

During the current monitoring period, no incident or event occurred, that could affect GHG emissions reduction and approved monitoring plan.

The model of stoves sold during this monitoring period were Smarthome Pro with a technical specification rated efficiency of 37.90%. As a part of stove maintenance and after sales services, UpEnergy has a dedicated toll-free number (+234-07041007012 / 07011111384) / site office no which can be used for any complaints or maintenance needed.

The relevant implementation dates (e.g., dates of construction, commissioning, and continued operation periods).

Monitoring Period

1st Monitoring Period	07-May-2022 to 31-October-2022
2nd Monitoring Period	01-November-2022 to 31-October-2024

Installation of ICS

Date of first ICS installed	7-May-2022
Date of last ICS installed	31-October-2024
No. of instances added/ICS installed during 2nd MP	27,966
Proportion of operational stoves in this monitoring period	89.7 % (Capped weighted average value)
Total number of stoves operational in this monitoring period	26,565
Monitoring Survey Date	December-2024 to February 2025

The approach followed by the PP ensures that the information collected post MP duration through the survey is representative as well as accurate for the MP under consideration. For example- if the stoves are reported as operational during the survey, then it is more representative of the functionality of the stoves throughout the MP for which ERs are being claimed. To support the definitiveness in this claim, PP has also implemented grievance redressal measures (please refer section 2.1 of the MR) to gather information on any negative feedback from end user, for example regarding non-operational status of the stoves during the MP.

3.2 Deviations

3.2.1 Methodology Deviations

The project did not apply any methodology deviations.

3.2.2 Project Description Deviations

PP has updated the applied methodology for this project activity from the "VMR0006: Methodology for installation of high efficiency firewood cookstove; Version: 1.1" to "VM0050: Energy Efficiency and Fuel-Switch Measures in Cookstoves, v1.0[12]". PP has followed the procedures for the methodology change in line with the "Procedure to Change Methodology through a Project Description Deviation, version 4.0".

3.3 Grouped Projects

The project is a grouped project.

New project activity instances included under this grouped project ensure that it meets the eligibility criteria below. A total of 29,614 new project activity instances were included under current monitoring period.

The below table provides explanation on how the new instances comply with the "Eligibility criteria for the inclusion of new project activity instances.

No.	Eligibility Criterion	How the project activity instances to comply
1	Meet the applicability conditions set out in the methodology applied to the project	The project activity instances (ICS) added to this grouped project will meet the applicability conditions set out in Section 3.2 of this document, where the target end-users are households, and the thermal efficiency of the stoves deployed is at least 25%.
2	Use the technologies or measures specified in the project description.	The project activity instances added to this grouped project are efficient improved cookstoves (ICS) being distributed within the project's pre-defined geographical boundary.
3	Apply the technologies or measures in the same manner as specified in the project description.	The project activity instances added to this grouped project are Improved Cookstove being distributed in the project scenario to replace traditional cookstoves in households. All the project technologies distributed under the project will have a unique identification

[12] https://verra.org/wp-content/uploads/2024/10/VM0050-EE-and-Fuel-Switch-Measures-in-Cookstoves-v1.0.pdf (last accessed on 10-March-2025)

No.	Eligibility Criterion	How the project activity instances to comply
		serial number in order to curb double counting of the stoves under the project.
4	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The project activity instances added to this grouped project will take place within Nigeria only and subject to the same baseline scenario determined in Section 3.4.
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area	This project activity instances added to this grouped project will be distributed at subsidized value and more details on additionality and NPV have been added in the section 3.5 below.

The table below enumerates the inclusion criteria for the new project activity instances in accordance to the section 3.6.17 of VCS standard Version 4.7

No.	Criterion to include new project instances	How the new project activity instances to comply
1	Occur within one of the designated geographic areas specified in the project description	The new project instances to be added to this grouped project will be only within Nigeria
2	Conform with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial conformance with multiple sets of eligibility criteria is insufficient.	The new project activity instances (ICS) added to this grouped project will comply with all the eligibility criteria as outlined in the previous table
3	Be included in the monitoring report with sufficient technical, financial, geographic, and other relevant information to demonstrate conformance with the applicable set of eligibility criteria and enable evidence gathering by the validation/verification body.	The monitoring report for this grouped project activity includes details of the new project activity instances added i.e., new ICS added to this grouped project. This includes Name of ICS user, Address/Village/ Geographical coordinates of ICS household, Contact Details, Stove model Distributed, Date of distribution/installation, Unique ICS serial, technical specification etc. Further the monitoring report demonstrates conformance of the new project instances to the applicable set eligibility criteria such as applied

No.	Criterion to include new project instances	How the new project activity instances to comply
		technology, ICS minimum efficiency level, geography of implementation, baseline scenario and additionality criteria, thus providing requisite evidence to VVB
4	Be included in an updated project description, with updated project location information (as set out in Section 3.11), which shall be validated at the time of verification against the applicable set of eligibility criteria.	The new project instances to be added to this grouped project will be only within Nigeria as highlighted in section 1.12. Further the geographical coordinates of new project instances will be furnished in the project distribution database.
5	Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	The distribution receipts for the new project activity instances will be made available for verification wherein the project ownership (carbon waiver) and start date of crediting period (ICS distribution / installation date) are recorded
6	Have a start date that is the same as or later than the grouped project start date	The new project activity instances have been started on the start date of this grouped project i.e., 07-05-2022 or later.
7	Be eligible for crediting from the start date of the project activity instance through to the end of the project crediting period (only).	The crediting period for the new project activity instances will only be eligible to start on 07-05-2022 and end till 06-05-2029 in the first crediting cycle. (Crediting period will be renewed maximum for 2 times) – Please refer section 1.9 for further details
8	Only eligible for crediting from the start of the verification period in which they were added to the grouped project.	The VER crediting for the added new project instances will be only on or after the start date of verification period depending on the date of distribution
9	Not be or have been enrolled in another VCS project.	The new project instances added to this grouped project will have unique identification serial number and shall not be enrolled in any VCS or other Carbon Standards, thus avoiding double counting of credits generated. No double counting declaration has been duly provided by the project proponent

No.	Criterion to include new project instances	How the new project activity instances to comply
10	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified. 2) Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.	Not applicable, since it is a large-scale project.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

The project activity shall comply with the revised baseline survey requirements outlined in the third paragraph on page 14 of the methodology and its subsequent Correction 1[13]. An initial baseline survey was conducted prior to validation, and follow-up baseline surveys shall be performed at most every five years from the date of the last survey in control households that - are identified during the initial baseline KPT study - do not participate in the project. Additional surveys may be conducted as needed, including at crediting period renewal.

[13] https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf (last accessed on 23/SEP/2025)

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$BC_{ex\text{-}ante,b,j}$
Data unit	Tonnes
Description	Ex-ante annual average quantity of fuel used per baseline device type i
Source of data	Calculated through Baseline survey assessment (conducted in November 2021) & KPTs (conducted in February 2022)
Value applied	Option1 as per the methodology has been used to estimate this parameter. Charcoal – 3.64 tonnes/year/HH (Fuelwood equivalent) based on CF as "4" as per methodology default and for CCP compliance
Justification of choice of data or description of measurement methods and procedures applied	KPTs have been used to calculate this value, as per the KPT protocol under typical household and stove usage conditions, thereby capturing the typical HH fuel consumption. KPTs were done for 3 consecutive normal days (as in no weekend, festivals, gatherings, etc), thereby representing the typical / normal cooking pattern. For the Baseline KPTs, 45 Households which used charcoal has been selected from the different districts of Nigeria. The No of KPTs Samples is in line with CDM Standard "Sampling and surveys for CDM project activities and programmes of activities" Version 9.0. The Sampling approach adopted by the PP has met the reliability requirement of 95/10 as per the CDM Standard "Sampling and surveys for CDM project activities and programmes of activities" Version 9.0.
Purpose of data	Calculation of baseline emissions
Comments	Parameter BCex-ante,b,j once determined shall remain fixed ex-ante for the entire crediting period. Follow-up baseline surveys will be conducted at most every five years from the date of the last survey in control households that do not participate in the project. This has been determined in line with the Correction 1 provided in the "Correction and Clarifications to VM0050 Energy Efficiency and Fuel Switch Measures in Cookstoves, v1.0. Where charcoal is used by baseline devices, a default wood to charcoal conversion factor (CF) of 4 Kg of firewood per kg of charcoal will be used. The baseline KPT conducted is in accordance with the KPT Protocol.

	PP has opted to use the CF as "4" (methodology / CDM tool 33 v3.0 default value) for the current monitoring period to fulfil the CCP eligibility criteria and obtain the CCP labelling for the claimed ERs.

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass that is established to be non-renewable used by baseline device in year y
Source of data	Value obtained from the CDM tool 33 version 3.0
Value applied	0.38
Justification of choice of data or description of measurement methods and procedures applied	This parameter is fixed ex-ante.
Purpose of data	Calculation of baseline and project emissions
Comments	The country specific study based on CDM tool 33, v3.0 has been used for this parameter PP has opted to use the default fNRB value for Nigeria as "0.38" sourced from the CDM tool 33 v3.0 for the current monitoring period to fulfil the CCP eligibility criteria and obtain the CCP labelling for the claimed ERs

Data / Parameter	$EF_{b,i,CO2}$ $EF_{p,j,CO2}$
Data unit	t CO_2/TJ
Description	CO_2 emission factor for fuel used by baseline device type i in the baseline scenario CO_2 emission factor for fuel used by project device type j in the project scenario
Source of data	Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	112
Justification of choice of data or description of	IPCC Default Value

measurement methods and procedures applied	
Purpose of data	Calculation of baseline and project emissions
Comments	N/A

Data / Parameter	$EF_{b,i,nonCO2}$ $EF_{p,j,nonCO2}$
Data unit	t CO_2e/TJ
Description	Non-CO_2 emission factor for fuel used by baseline device type i in the baseline scenario Non-CO_2 emission factor for fuel used by project device type j in the project scenario
Source of data	Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	9.46
Justification of choice of data or description of measurement methods and procedures applied	IPCC Default Value
Purpose of data	Calculation of baseline and project emissions
Comments	-

Data / Parameter	CF
Data unit	Unitless
Description	Wood-to-charcoal conversion factor
Source of data	CDM TOOL33 Methodological tool Default values for common parameters Version 03.0 Wood to charcoal conversion factor of 4 kg of firewood per kg of charcoal is used in line with the applied methodology
Value applied	4 tonnes of dry wood input per tonne of charcoal output
Justification of choice of data or description of measurement methods and procedures applied	• CDM TOOL33 Methodological tool (Default values for common parameters Version 03.0)

Purpose of data	Calculation of baseline and project emissions
Comments	PP has opted to use the CF as "4" (methodology / CDM tool 33 v3.0 default value) for the current monitoring period to fulfil the CCP eligibility criteria to obtain the CCP labelling for the claimed ERs.

Data / Parameter	$NCV_{b,l}$ $NCV_{p,j}$
Data unit	TJ/tonne
Description	Net calorific value of baseline fuel for baseline device type l Net calorific value of project fuel for project device type j
Source of data	Use of default values from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	IPCC Default value
Purpose of data	Calculation of baseline and project emissions
Comments	-

Data / Parameter	$\eta_{old,avg}$
Data unit	Fraction
Description	Weighted average efficiency of baseline devices that are replaced by project devices
Source of data	Calculated based on Baseline Water Boiling Test (conducted in December 2021)
Value applied	0.165
Justification of choice of data or description of measurement methods and procedures applied	Water Boiling Test surveys in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities.
Purpose of data	Calculation of baseline emissions

Comments	The Baseline WBTs have been conducted to determine the parameter, and the same will be shared with the VVB.

Data / Parameter	H_{hi}
Data unit	Equivalent standard male adults
Description	Average household size of the target population using device type i
Source of data	Baseline survey (conducted in November 2021)
Value applied	4.64
Justification of choice of data or description of measurement methods and procedures applied	This parameter has been determined ex ante via the baseline survey based on the adult equivalent method in line with the Clarification 6 provided in the "Correction and Clarifications to VM0050 Energy Efficiency and Fuel Switch Measures in Cookstoves, v1.0[14].
Purpose of data	Estimation of average energy consumption when applying Option 1: Measurement campaign (Section 8.1.1)
Comments	-

Gender and age	Fraction of standard adult
Child 0–14 years	0.5
Female over 14 years	0.8
Male 15–59 years	1.0
Male over 59 years	0.8

4.2 Data and Parameters Monitored

Data / Parameter	$N_{j,k,y}$
Data unit	Number
Description	Number of commissioned project devices of type j from batch k in year y
Source of data	Sales Database
Description of measurement methods and procedures to be applied	-

[14] https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf (last accessed on 10-March-2025)

Frequency of monitoring/recording	Continuous
Value applied	29,614
Monitoring equipment	Distribution Records
QA/QC procedures to be applied	N/A
Purpose of data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	The number of project devices has been recorded in the database, distribution record, or similar to ensure transparency.

Data / Parameter	$n_{j,k,y}$
Data unit	Fraction
Description	Proportion of commissioned project devices of type j from batch k thatare still being used regularly in year y
Source of data	Monitoring survey[15]
Description of measurement methods and procedures to be applied	Option 2 (surveys) has been applied to determine this parameter. Sampling standard has been used for determining the sample size to achieve 95/10 confidence precision, according to the latest version of CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities.
Frequency of monitoring/recording	Option 2 (surveys): Annually
Value applied	0.897
Monitoring equipment	Not applicable as the usage rate has been determined through monitoring survey
QA/QC procedures to be applied	Thorough data analysis and Compliance with the Standard for sampling and surveys for project activities and programme of activities.
Purpose of data	Calculation of baseline and project emissions

[15] Monitoring surveys for the current monitoring period were conducted from December 2024 to January 2025.

Calculation method	N/A
Comments	To determine the proportion of commissioned project devices, PP has established specific criteria. During the monitoring survey, if any household provides a negative response to the following questions: 1. Is the project cookstove in good condition? 2. Are you using project stove daily? 3. Is the stove warm to touch, ashes or embers inside, well-used for its vintage, etc.? Then the stove is considered non-operational and is not accounted for the ER computation. Column 'CH' of the "Monitoring Results" tab of ER calculation spreadsheet indicates the usage of the stoves. For the current MP, the proportion of commissioned project devices has been obtained as 0.932. However, the usage rate is capped at 0.90 for the individual vintage and yielded a conservative usage rate of 0.897, in line with the Clarification 2 provided in the "Correction and Clarifications to VM0050 Energy Efficiency and Fuel Switch Measures in Cookstoves, v1.0[16]. Refer to the tab "Sample Size Cal and Results" of ER calculation spreadsheet for calculation of $n_{j,k,y}$ parameter.

Data / Parameter	$\eta_{new,avg,y}$
Data unit	Fraction
Description	Weighted average efficiency of project devices in year y
Source of data	Monitoring WBTs were conducted in December 2023 and January 2025)
Description of measurement methods and procedures to be applied	The efficiency has been established using the following methods, and the corresponding documentation will be presented: 1. Water Boiling Test was conducted by ECOLAB NIG. LTD with campaigns achieving 95/10 confidence and precision levels as per the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities
Frequency of monitoring/recording	Annually

[16] https://verra.org/wp-content/uploads/2025/02/CC_VM0050_v1.0_Feb2025.pdf (last accessed on 15-April -2025)

Value applied	35.90%
Monitoring equipment	The WBT test has been conducted by third party laboratory.
QA/QC procedures to be applied	N/A
Purpose of data	Calculation of baseline and project emissions
Calculation method	WBT Tests have been conducted as per the latest available WBT protocol v4.2.3.
Comments	PP has conducted WBTs for vintage 2022-23[17] and 2023-24 separately and an average value is applied in the ER calculation.

Data / Parameter	$BC_{p,j,k,y}$
Data unit	Tonnes
Description	Average quantity of fuel used by project device type j from batch k during year y
Source of data	Monitoring survey (conducted from December 2024 to January 2025) & KPT Assessment (conducted in February 2025)
Description of measurement methods and procedures to be applied	Option 1, i.e., Kitchen Performance Test (KPT) have been conducted to determine the average quantity of fuel used by project device. Sampling standard is used, following the Kitchen Performance Test Protocol, for determining the sample size to achieve 95/10 confidence precision, according to the latest version of CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities. The values are scaled appropriately using the average household size to obtain the value of BCp,j,k,y.
Frequency of monitoring/recording	Biennial or annual for Option 1
Value applied	1.655
Monitoring equipment	N/A
QA/QC procedures to be applied	-

[17] WBTs were conducted for Vintage 2022-23 in accordance to the previously applied methodology

Purpose of data	Calculation of baseline and project emissions
Calculation method	N/A
Comments	The kitchen performance test (KPT) has been used to calculate this value, as per the KPT protocol under typical household and stove usage conditions, thereby capturing the typical HH fuel consumption. KPTs are done for 3 consecutive normal days (as in no weekend, festivals, gatherings, etc), thereby representing the typical / normal cooking pattern. PP has opted to use the CF as "4" (methodology / CDM tool 33 v3.0 default value) to calculate the average quantity of fuel used by project device for the current monitoring period in line with the applied methodology and to fulfil the CCP eligibility criteria and obtain the CCP labelling for the claimed ERs. The Sampling calculations are demonstrated in "Sample Size Cal and Results" tab of ER Calculation Spreadsheet.

4.3 Monitoring Plan

The methods used for generating/measuring, recording, storing, aggregating, collating and reporting data and parameters set out in the above section 5.2 are detailed here:

1. **Total Distribution Record**: The total distribution record documents the information listed below for the technologies implemented. A carbon waiver including a warranty card will be distributed with each stove distributed. PP shall be having two copies of the warranty card cum carbon waiver receipt, while one of the copies shall be handed over to the End User and the other copy is kept in the records of CME either in physical or electronic format. Further from 2023 onwards CME has moved the distribution process completely digital, and the carbon waiver and warranty shall be recorded digitally rather than in physical format. Also, physical copy of warranty card cum carbon waiver receipt will be handover to End User for their reference. The total distribution record will be kept electronically and with supporting evidence from paper records and/or electronic records and will be provided to the VVB at verification.

The Total Distribution Record contains:

a) Project / Project Instance ID

b) Unique identification of stove using stove serial number

c) Address, GPS coordinates and telephone (as available)

d) Date of distribution and model/type of project technology distributed

e) Cooking technology and fuel used in baseline scenario

f) Quantity of project technology distributed as evidenced by invoices

Frequency: Ongoing

2) **Project Database**: Each project will have a specific Project Database that records each ICS crediting in that project instance. Every ICS listed in the Total Distribution Record will be transferred into the Project Database of the respective project instance as needed to expand the number of ICS deployed, until the maximum threshold for the project instance is reached. In addition to the information provided in the Total Distribution Record, the project instance specific Project Database will record user details (enough for end-user identification and follow-up) for all, or a subset of all, appliances deployed.

End-user details recorded are:

a) Name

b) Telephone, or address (as available)

c) Type of stove (stove model & serial number) and fuel the ICS is replacing: Example – traditional or improved baseline stoves, or wood or charcoal fuel.

3) **Sampling Design**: Due to the large number of ICS envisioned to be distributed as part of the project to be included in the grouped project, it was not economically feasible to monitor each individual ICS unit distributed. Therefore, representative sampling will be undertaken as part of a project-wide Sampling Plan. The Sampling shall be conducted biennially by meeting 95/10 confidence/precision.

Objectives and Reliability Requirements: The objective is to obtain an unbiased and reliable estimate of the proportion or mean value of the following parameters over the course of the monitoring period, with 95/10 for annual / biennial sampling.

1. Proportion of commissioned project devices of type j from batch k that are still being used regularly in year y ($n_{j,k,y}$)
2. Average quantity of fuel used by project device type j from batch k during year y ($BC_{p,j,k,y}$)
3. Weighted average efficiency of project devices in year y ($\eta_{new,avg,y}$)

Target Population: The target population for the three parameters stated above are all ICS recorded in the project database.

Sampling Frame: For the parameters Stove Efficiency ($\eta_{new,y,i}$), Average quantity of fuel ($BC_{p,j,k,y}$) and proportion of operational stoves ($n_{j,k,y}$), the ICS population will be stratified based on the stove models and vintage, which are part of the project. It is expected that the geographical locations do not have influence on the parameters of interest that are $n_{j,k,y}$, $BC_{p,j,k,y}$ and $\eta_{new,y,i}$. Therefore, these parameters can be assumed to be homogeneous regardless of how the end user group and distribution/installation location is defined since the end users shall always be households and geographical location is restricted to the project boundary. Since all stoves are of the same type, all stoves can be grouped into a homogeneous sampling frame.

Sampling Method: The sampling was conducted using stratified random sampling technique over the aforesaid sampling frames created. The ICS population in each stratum was arranged by date of distribution, assigning them a sampling serial number. Random numbers were generated using the online random number generator ranging from 1 to total number of ICS in a given stratum and the samples corresponding to the random numbers obtained, were picked for sampling. This approach ensured that each ICS listed in the database has an equal chance of being selected. A slightly higher number of samples were picked than that needed to be monitored to cover for non-responses.

Sampling Size: The required sample sizes were derived using equation (1), (2), (3), (4) and (9) of Appendix 3 of the Guideline: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0 for monitoring parameter as follows:

$$n \geq \frac{z^2 * N * V}{(N-1) * precision^2 + z^2 * V}$$

Where:

n = number of ICS to be sampled

N = Total number of ICS in the population

z = Constant referring to level of confidence (1.95 for 95% confidence)

Precision = Required precision (e.g., 10% = 0.1)

$$V = \frac{SD^2}{\overline{p}^2}$$

Where (for proportion parameters):

$$SD^2 = \frac{\sum_{i=1}^{k} g_i * p_i * (1-p_i)}{N}$$

$$\bar{p} = \frac{\sum_{i=1}^{k} g_i * p_i}{N}$$

Where:

gi = weight of strata i in the population

pi = expected proportion of strata i in the population

k = total number of strata in the population

and Where (for mean parameters):

$$SD^2 = \frac{\sum_{i=1}^{k} g_i * SD_i^{\,2}}{N}$$

$$Mean = \frac{\sum_{i=1}^{k} g_i * m_i}{N}$$

Where:

SDi = expected standard deviation of strata i in the population.

mi = expected mean of strata i in the population.

Stratified Random Sampling was applied by dividing the population into various strata with application of targeted confidence precision level (95%/10%). The expected parameter values were determined based on project developer's knowledge and experience as per para 13(b) and 13(c) of the "Standard: Sampling and surveys for CDM project activities and Programmes of activities".4.

Stove vintage (Sampling Frame)	Sampling frame size	Minimum (calculated) sample size for usage survey	Monitored Sample Size for usage survey	Minimum (calculated) sample size for KPT	Monitored Sample Size for KPT
0 - 1	14,124	15	81	3	28
1 - 2	13,835	15	78	3	21
2 - 3	1,656	2	13	1	6
Total	**29,614**	**32**	**172**	**7**	**55**

As demonstrated in the ER sheet, all the monitored parameters have achieved the targeted confidence precision level (95%/10%).

The organizational structure, responsibilities and competencies of the personnel that carried out monitoring activities.

Person	Role
Project implementer database administrator	The database administrator is responsible for updating and maintaining all electronic databases. Required competencies include experience with data management systems (eg. Excel, STATA, or SPSS), minimum 2 years working experience in a similar field, and at minimum a bachelor's degree from an institution of higher education.
Monitoring team	The monitoring team will be assigned by the project proponent to conduct the user interviews and appliance tests during the periodic sampling and reports the results to the database administrator. The skills and experience required for the data collection activities include: • Experience conducting surveys/tests • Experience conducting door-to-door surveys of biomass consumption • Local language skills (especially important for input to questionnaire design and interviewing of end users) • English language skills • Cultural awareness • Numerical proficiency • Data entry skills

The procedures used for Quality Assurance

1. Ensuring end user awareness.

At the time of distribution, the ICS customer is made aware that they are required to participate in monitoring activities. This will be via training distribution personnel to explain the importance of monitoring to each customer.

2. Questionnaire design

The design of the questionnaire will ensure that the questions are non-intrusive and easy to understand for both the interviewee and interviewer. For example, when conducting sampling to estimate the parameter μy a simplified approach has been designed to avoid the need for asking customers how much money they spend on fuel.

3. Drawing on local knowledge

The local contractors to be hired by the project proponent in the country will play an important role in tailoring the approach to suit local circumstances. For example, in some instances, it may be essential for a local person to conduct the interview in order to obtain accurate results, e.g., to explain to the end user that their old stove will not be removed if they admit to its continued use.

4. Quality of contractors

Any third parties hired by the project proponent to carry out sampling will be required to demonstrate a high level of cultural awareness, local language skills and appropriate experience with data entry and data management. The project proponent will ensure that contractors are adequately trained for the tasks they are contracted for (e.g. carrying out of WBTs in line with a methodology supported by an appropriate international body/standards). Training will also be provided on how to deal with non-responses, refusals and other problems should these occur.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Baseline emissions are calculated by applying equations 1 and 2 as per the methodology:

$BE_y = \sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO2} \times f_{NRB,y} + EF_{b,i,nonCO2})$ (1)

Where:

BE_y = Baseline emissions during year y (t CO_2e)

$EC_{i,y}$ = Average energy consumption of baseline device type i in year y (TJ)

$N_{j,k,y}$ = Number of commissioned project devices of type j from batch k in year y

$n_{j,k,y}$ = Proportion of commissioned project devices of type j from batch k that remain operating in year y (fraction)

$EF_{b,i,CO2}$ = CO_2 emission factor for fuel used by baseline device type i in the baseline scenario (t CO_2/TJ)

$f_{NRB,y}$ = Fraction of woody biomass that is established to be non-renewable used by baseline device in year y; this variable is not considered for fossil fuels (fraction)

$EF_{b,i,nonCO2}$ = Non-CO_2 emission factor for fuel used by baseline device type i in the baseline scenario (t CO_2e/TJ)

i = Baseline device type and its respective fuel type

j = Project device type and its respective fuel type

Average Energy Consumption of Baseline Device (ECi,y)

The average energy consumption of baseline device type i is calculated as follows:[18]

$EC_{i,y}$ = $BC_{b,i,y} \times NCV_{b,i}$ (2)

Where:

$BC_{b,i,y}$ = Fuel used per baseline device type i during year y (tonnes)[19]

$NCV_{b,i}$ = Net calorific value of baseline fuel for baseline device type i (TJ/tonne)

The quantity of fuel that would be used in the baseline scenario will be determined by using Option 1: Measurement campaign as specified in section 8.1.1 of the applied methodology.

Cross-check of $EC_{i,y}$ to address stove stacking

Project proponents must address stove stacking (continued use of pre-project devices in project households) by comparing the quantity of baseline energy consumption determined by both options above ($EC_{i,y}$) to energy used in the project scenario ($EC_{p,y}$) using back-calculation. Where the results indicate that baseline consumption ($EC_{i,y}$) is higher than that indicated by back calculation from the project scenario ($EC_{est,y}$) then stove stacking is occurring (as $EC_{p,y}$ is unable to completely capture household energy consumption from cooking due to the presence/use of pre-project devices). The back-calculation results ($EC_{est,y}$) must be applied in Equation (1) as a conservative cap, except where project devices are electric cooking devices with an efficiency of 70% or higher.

$$EC_{est,y} = EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}} \quad (3)$$

Where:

$EC_{est,y}$ = Back-calculated energy consumption of the potential mix of devices and fuels in the baseline in year y (TJ)

$EC_{p,y}$ = Energy used in project scenario by project devices during year y (TJ)

$\eta_{new,avg,y}$ = Weighted average efficiency of project devices in year y (fraction)

[18] Where charcoal is used as the fuel by baseline and/or project devices, the average energy consumption (derived from the average quantity of charcoal fuel used) in the baseline and/or project scenario may be determined by suing a wood to charcoal conversion factor (CF) instead of the fuel emission factor.

[19] This parameter corresponds to $BC_{ex\text{-}ante,b,i}$ for the first five years and where the follow-up baseline survey campaign shows that there are no significant changes in baseline fuel consumption. Otherwise, it corresponds to $BC_{b,i,y}$.

$\eta_{old,avg}$ = Weighted average efficiency of baseline devices that are replaced by project devices (fraction)

$EC_{p,y}$ must be determined as follows, using the parameters determined as per Section 8.2.

$EC_{p,y} = \sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j}$ (4)

Where:

$BC_{p,j,k,y}$ = Average quantity of fuel used by project device type j from batch k during year y (tonnes or m3)

NCVp,j = Net calorific value of project fuel used in project device type j (TJ/tonne or TJ/m3)

Baseline Emission calculations for the Project activity instances is given below:

Vintage 2022-24:

$BC_{b,i,y}$ = 3.64 tonnes wood eq/year/HH

$EC_{i,y}$ = $BC_{b,i,y} \times NCV_{b,i}$

$EC_{i,y}$ = 3.64 * 0.0156

= 0.0562 TJ/year/HH

Cross-check of $EC_{i,y}$ to address stove stacking

BCp,j,k,y = 1.655 tonnes wood eq/year/HH

$EC_{p,y}$ = $\sum_{j,k} BC_{p,j,k,y} \times NCV_{p,j}$

ECp,y = 1.655* 0.0156

= 0.0258 TJ/year/HH

ηnew,avg,y = 35.90%

ηold,avg = 16.5%

$EC_{est,y}$ = $EC_{p,y} \times \frac{\eta_{new,avg,y}}{\eta_{old,avg}}$

ECest,y = $0.0258 \times \frac{35.90\%}{16.50\%}$

ECest,y = 0.0562 TJ/year/HH

Since Eci,y is greater than ECest,y, the applicable value for Eci,y in the equation (1) is 0.0568 TJ/year/HH.

BE_y = $\sum_{i,j,k} EC_{i,y} \times N_{j,k,y} \times n_{j,k,y} \times (EF_{b,i,CO2} \times f_{NRB,y} + EF_{b,i,nonCO2})$

BE_y = 0.0562 *29,614 * 0.897 * (112 * 0.38 + 9.46) * 1.01 (Year equivalent fraction)

= 78,279 tCO_2e

5.2 Project Emissions

Project emissions are calculated as follows:

PE_y = $PE_{energy,y} + PE_{others,y}$ (5)

Where:

PE_y = Project emissions during year y (t CO_2e)

$PE_{energy,y}$ = Project emissions from energy consumption of project devices in year y (t CO_2e)

$PE_{others,y}$ = Project emissions from other sources in year y (t CO_2e)

$PE_{energy,y}$ from Biomass, Fossil Fuels, or Bioethanol

Project emissions from energy consumption of project devices using biomass, fossil fuels, or bioethanol in year y are calculated as follows:

$$PE_{energy,y} = \sum_j \sum_k BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO2} \times f_{NRB,y} + EF_{p,j,nonCO2}) \quad (6)$$

Where:

$EF_{p,j,CO2}$ = CO_2 emission factor for fuel used by project device type j in the project scenario (t CO_2/TJ)

$EF_{p,j,nonCO2}$ = non-CO2 emission factor for fuel used by project device type j (t CO_2e/TJ)

$BC_{p,j,k,y}$ for Project Devices

Option 1: Kitchen Performance Test as mentioned in section 8.2.1.1 will be used to determine this parameter. The sampling calculation and the KPT tests were performed, following the Kitchen Performance Test Protocol and in compliance with the most recent version of the CDM Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities.

For this project activity, during the current monitoring period, the project proponent has conducted random sampling and selected 173 units from a population of 29,614 ICS/Household for the usage monitoring surveys, and 55 units for KPT surveys which are a subset of the 173 usage monitoring surveys.

Project Emission calculation for the Project activity instances is given below:
Vintage 2022-24:

$BC_{p,j,k,y}$ = 1.655tonnes wood eq/year/HH

nj,k,y = 0.897

PEothers,y = 0 (Since there is no other project emissions associated with this project activity)

PE_y = $PE_{energy,y} + PE_{others,y}$

PE_y = $\sum_{i,j,k} BC_{p,j,k,y} \times N_{j,k,y} \times NCV_{p,j} \times n_{j,k,y} \times (EF_{p,j,CO2} \times f_{NRB,y} + EF_{p,j,nonCO2})$

PE_y = 1.655* 29,614 * 0.0156* 0.897 * (112 * 0.38 + 9.46) *1.01 (year equivalent fraction)

= 35,976 tCO_2e

5.3 Leakage Emissions

The project activity involves distribution of high efficiency improved cookstoves for thermal application, which will replace inefficient traditional charcoal cookstove leading to saving of non-renewable biomass. So, only option 1 applies for this project activity, thereby, applying an adjustment factor of 0.95 to the GHG emission reductions in Equation (7) below.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Net GHG emission reductions are calculated as follows:

ER_y = $(BE_y - PE_y) \times 0.95 - LE_{RB,y}$ (7)

Where:

ER_y = Emission reductions during year y (t CO_2e)

$LE_{RB,y}$ = Leakage emissions associated with use of renewable biomass during year y (t CO_2e)

$LE_{RB,y}$ = 0 for this project activity (Since, this project focusses on distribution of improved cookstoves within the project boundary, which will replace inefficient traditional charcoal stoves in the Nigerian households.

The net GHG emission reduction calculations for the Project activity instances is given below:

Vintage 2022-24:

ERy = (78,279– 35,976) * 0.95

= 40,188 tCO_2e (Round down values)

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Reduction VCUs (tCO_2e)	Removal VCUs (tCO_2e)	Total VCUs (tCO_2e)
01-Nov-2022 to 31-Dec-2022	6,532	3,002	-	3,353	-	3,353
01-Jan-2023 to 31-Dec-2023	39,086	17,963	-	20,067	-	20,067
01-Jan-2024 to 31-Oct-2024	32,661	15,010		16,768		16,768
Total	**78,279**	**35,976**	-	**40,188**	-	**40,188**

Vintage period	Ex-ante estimated reductions/ removals[20]	Achieved reductions/ removals	Percent difference	Explanation for the difference
01-Nov-2022 to 31-Dec-2022	5,700	3,353	-41.2%	Only ~5.9% of the envisaged distribution happened till end of MP2.
01-Jan-2023 to 31-Dec-2023	225,724	20,067	-91.1%	
01-Jan-2024 to 31-Oct-2024	435,275	16,768	-96.1%	
Total	**666,699**	**40,188**	**-94.0%**	

[20] Sourced from the estimated total VCUs in Ex-Ante ER Sheet v4.0 and prorated to the current monitoring period.