TUIK RUCH LEW IMPROVED COOKSTOVE PROJECT FOR LAKE ATITLAN

Document Prepared by AENOR INTERNACIONAL S.A.U.

www.aenor.com

Project Title	Tuik Ruch Lew Improved Cookstove Project For Lake Atitlan
Report Title	Joint Validation and Verification Report of "Tuik Ruch Lew Improved Cookstove Project For Lake Atitlan"
Version	2.0
Report ID	Validation & Verification Report 20200821
Verification Period	1-September-2018 to 9 March-2020
Client	Tuik Ruch Lew/Helping the Earth (TRL)
Pages	74
Date of Issue	21-August-2020
Prepared By	AENOR INTERNACIONAL S.A.U.
Contact	Génova, 6. 28004 Madrid – Spain

	Telephone +34 914326000 medioambiente@aenor.com www.aenor.com
Approved By	Jose Luis Fuentes
Work Carried Out By	Lead auditor: Luis Javier Arribas Alonso Technical reviewer: Juan Carlos Gómez

Summary:

The project " Tuik Ruch Lew Improved Cookstove Project For Lake Atitlan" (TRL ICS project from now on) plans to give access to the indigenous communities in the Sololá Department to sustainable energy technology by providing, installing, and maintaining energy efficient cookstoves, reducing demand for wood fuel, slowing local deforestation and empowering the Tz'utujil Maya people of Lake Atitlán.

The purpose of the validation and verification was the independent evaluation of the project's compliance with the VCS Standard v4.0 and the assessment of the ex-post monitored anthropogenic GHG emissions reductions and/or removals that have occurred as a result of the project's activities. The process was performed through a combination of desk review, interviews and communications with relevant personnel and on-site inspections.

During the validation and verification 5 CLs and 7 CAR were reported. All these issues where appropriately closed by means of corrections, more clear explanations and other supported documents. No FAR was raised for the next verification event.

AENOR carried out a final Validation & Verification Report and deems with reasonable level of assurance that the project complies with all of the validation and verification criteria for VCS. The assessment team has no restrictions or uncertainties with respect to the compliance of the project with the validation and verification criteria. Hence, the audit team concludes that the GHG emissions reductions or removals have been quantified in accordance with VCS rules. AENOR can confirm that the estimated annual average GHG emission reductions/removals of 1,812 tCO_2e/yr during the first crediting period and the net GHG emissions reductions of 975 tCO_2e achieved during the first monitoring period are accurate and free of material errors.

CONTENTS

1 INTRODUCTION

1.1 Objective

The purpose of the validation and verification audit activity was to conduct an independent assessment of the project in order to determine whether the project complies with the validation and verification criteria as set out in the guidance documents listed in Section 1.2 of this report, including the monitoring procedures and that the GHG emission reductions and removals reported in the monitoring report are materially accurate.

1.2 Scope and Criteria

The scope of the validation and verification audit is to validate and verify the emissions reductions of the proposed project activity in Guatemala against the Verified Carbon Standard, the identified methodology and associated tools, for the first renewable crediting period from 1-September-2018 to 31-August-2025 and the first monitoring period from 1-September-2018 to 9-March-2020.

The objectives of this audit included a validation of the project's estimated emission reductions and the verification of the achieved emissions reductions with the Verified Carbon Standard requirements, besides the assessment of the additionality.

The scope was defined as follows:

- The project and its baseline scenarios.
- The physical infrastructure, activities, technologies and processes of the project.
- The GHG sources, sinks and/or reservoirs those are applicable to the project.
- The types of GHGs that are applicable to the project.
- The project crediting period.
- The project first monitoring period.

In accordance with Section 4.1.8 of the VCS Standard, the criterion for validation and verification was the VCS Version 4, including the following documents:

- VCS Standard v4.0
- VCS Program Guide v4.0

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS documents.

1.3 Level of Assurance

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertions are materially correct and is a fair representation of the GHG data and information.

All the versions of the validation and verification report were subjected to an independent internal technical review before being submitted to the client to confirm that all validation activities had been completed according to the pertinent AENOR instructions required. The technical review was performed by a technical reviewer(s) qualified in accordance with AENOR´s qualification scheme for VCS validation and verification.

Name	Role in the Team
Luis Javier Arribas Alonso	Lead auditor
Juan Carlos Gómez	Technical reviewer

1.4 Summary Description of the Project

TRL Cookstove project plans to give access to the indigenous communities in the Sololá Department to sustainable energy technology by providing, installing, and maintaining energy efficient cookstoves, reducing demand for wood fuel, slowing local deforestation and empowering the Tz'utujil Maya people of Lake Atitlán.

The project area is the Sololá Department. The department, located in the western highlands of Guatemala, includes Lake Atitlán and its surrounding communities. In the project area traditional cooking methods use a three-stone hearth to prepare meals, driving unsustainable wood consumption. By replacing open cooking fires with ICS technology and performing energy efficiency improvements in existing biomass fired cookstoves, the project reduces energy demand in the form of wood fuel, thus generating net GHG reductions.

The aims of the project are to:

- Remove GHG emission from atmosphere by replacing open cooking fires with ICS technology (PA1) and performing energy efficiency improvements in existing biomass fired cookstoves (PA 2), reducing energy demand in the form of wood fuel. This way, during the first monitoring period, from September 1, 2018 to March 9, 2020. 150 instances of the 777 estimated for the first project activity (PA 1) and 91 of the 661 estimated for the second project activity (PA 2) have been commissioned at various points over the course of the monitoring period. Together, the two project activities have generated 975 tCO2e GHG emission reductions over the first monitoring period.

- Contribute to the local biodiversity conservation through the reduction of demand for wood fuel, slowing local deforestation, achieving a more sustainable land use, the reduction of the erosion rate and the increase of biodiversity.
- Contribute to the local sustainable development by offer training and working opportunities for local population in the field of sustainable agriculture.

The project crediting period is 7 years renewable, starting in September 1st, 2018. This is a grouped project.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

The validation and verification was performed through a combination of document review, interviews with relevant personnel and on-site inspections, as discussed in Sections 2.2 through 2.4 of this report. At all times the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure that the project was in full conformance to all requirements.

2.2 Document Review

The Project Description and Monitoring Report submitted by the Project Proponent (PP) was reviewed against the approved methodology and against VCS requirements. Additional background documents related to the project design, baseline and additionality were also made available before and during the on-site visit in Guatemala.

To address the corrective actions and clarification requests that arose from the desk review and on-site visit, the PP revised the project description document version 1 (dated on 12-November-2019) and developed a final version 1.3 dated on 29 May 2020.

2.3 Interviews

The AENOR validation and verification team conducted interviews with project developers in the project site (Sololá Department, Guatemala) to confirm selected information and to resolve issues identified in the document review. The list of the interviewed people is below detailed.

Name	Title/Organization/Community
Cameron Krummel	Founder, Administrator, Chief Financial Officer/TRL

Name	Title/Organization/Community
Isabel Quinilla	Founder, Technology Adaptation Specialist I/TRL
Jose Cuá Ajuchan	Technician/TRL
María Sosof Sosof	Technology Adaptation Specialist II/TRL
Ava Scott	Climate change technician/TRL, Princeton in Latin America Fellow
Andrew Pethan	Data Systems Architect/TRL, voluntary
Enrica Colazzo	Project Coordinator/ Africa 70
Vilma Mendoza	Project manager/Pueblo a Pueblo
Gregorio Chiviliu José Pablo Sol Daniel Sisay Francisco Tacaxoy Ajchomajay	Representative members from the Church “Verbo de Dios”
Gaspar Coche	Participant of the TRL Cookstove project

2.4 Site Inspections

The objectives of the on-site inspections performed were mainly to cross check the description provided in the P.D related to the environmental conditions of the project area, but also:

- Ensure that the geographic area of the project, as reported in the PD is in conformance with Section 3.10.1 of the VCS Standard.
- Perform a risk-based review of the project area to ensure that the project conforms to all other requirements of the VCS rules and the methodology.
- Observe the PP’s evidence and collect and record data in order to assess whether data collection techniques conform to the monitoring plan and related documentation and to evaluate data quality control systems.
- Select samples of data and information for validation and verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the project, as required by Section 4.1.2 of the VCS Standard.
- Perform a risk-based review of the project area to ensure that the project is in conformance the eligibility requirements of the VCS rules and the applicability conditions of the methodology.
- Assess the implementation of the project activities reported.

The audit team observed the monitoring team collect field data on a sample of installations identified in the data base of the project previously by the audit team, checking measurements and observing field procedures.

The following table summarizes the activities carried out during the site visit.

Activity & Information	Date
Initial meeting - Introduction and scope of the validation/verification process. - Confirmation of the on-site visit planning. - Clarifications related to monitoring procedures. - Introduction to carbon calculations.	9/03/2020
Visit to project area - Randomly selected installations of each of 4 types of activities included in the project. (considering feasible access), in accordance with the data base provided by the project developer. - Review of operation and monitoring records. - Test of monitoring equipment and observation of monitoring practices. - Calibration and/or verification of equipment used (if applicable).	10-12/03/2020
Meetings with stakeholders - Project proponents and staff - Local stakeholders (CONAP, Amigos del Lago de Atitlán, Legambiante, Africa 70, ADECCAP, ...). - Community members (including women) benefited by project program	10-12/03/2020
Final meeting - Audit visit closure	12/03/2020

2.5 Resolution of Findings

A total number of 7 CAR and 5 CLs were raised during this validation and verification process.

All findings issued by the AENOR audit team for this validation and verification process have been closed. In accordance with Sections 4.1.13 and 4.1.14 of the VCS Standard, all findings issued during the validation and verification process, and the inputs for their closure, are described in Appendix 2 of this report.

2.5.1 Forward Action Requests

No FAR was raised for the next verification event.

3 VALIDATION FINDINGS

3.1 Project Details

3.1.1 Project type, technologies and measures implemented, and eligibility of the project

The project is classified under sectoral scope 3 “Energy demand, Type II – Energy Efficiency”. The project is eligible under the CDM AMS-II.G. Small-scale Methodology: Energy efficiency measures in thermal applications of non-renewable biomass, Version 11.1, includes the introduction of high efficiency biomass fired project devices to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers.

3.1.2 Project design

The project has been designed to include two project activities, each with multiple project activity instances. Both project activities apply AMS-II.G V11.1. The project is a grouped project, to allow for additional project activity instances subsequent to validation.

The PP has set the following eligibility of the new project activity instances for project activity one

1. New instances (e.g. ONIL stove installs) will meet all applicability conditions set out in the methodology (CDM AMS-II.G, version 11.1).
2. The technologies are applied in the same manner as specified in the PD and for forecasted instances, no other project device type will be used, other than ONIL stove technology.
3. New instances will only apply the ONIL stove technology as specified PD.
4. The project shall only add new instances within the Sololá Department, that it is the geographic area specified in the PD.
5. All new instances will achieve additionality via application of section 5 paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, Option D: “Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the barriers in accordance with the applied methodology.”
6. All new instances are installed when the baseline is the same (an open cooking fire) for clients facing the specific barriers mentioned in section 3.5 of the PD (limited information, financial resources, and primarily, capacity to absorb new technologies). Within the project area, the recipients of TRL cookstoves face the same barriers.

The PP has set the following eligibility of the new project activity instances for project activity two

1. New instances (e.g. energy efficiency improvements in existing ONIL stoves) will meet all applicability conditions set out in the methodology (CDM AMS-II.G, version 11.1).

2. The technologies are applied in the same manner as specified in the PD and for forecasted instances, no other measure will be used other than the energy efficiency improvement in an existing ONIL stove as specified in section 1.11 of the PD.
3. New instances will only apply the improved ONIL stove technology as specified in section 1.11. of the PD.

4. The project will only perform energy efficiency improvements in existing ONIL stoves within the Sololá Department, that it is the geographic area specified in the PD.
5. All new instances will achieve additionality via application of section 5 paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, Option D: "Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers in accordance with the applied methodology.".
6. All new energy efficiency improvements are completed when the baseline is the same (a damaged, old ONIL stove) for clients facing the specific barriers mentioned in section 3.5. of the PD, within the project area, families possess damaged cookstoves for several reasons. replacement parts to make the improvement without the support of the project. The support and education of our Outreach Team also ensures best use, enabling the improvement to last and continue providing for emission reductions for years.

The audit team considers that these eligibility criteria comply with VCS requirement, specifically with Sections 3.5.15 of the VCS Standard. Furthermore, the audit team confirms that the multiple project activity instances complied with the set eligibility criteria.

3.1.3 Project proponent and other entities involved in the project

The project is proposed by "Tuik Ruch Lew/Helping the Earth (TRL)". No other entities involved in the project.

The audit team finds that contact and entity information provided in the PD conforms to the VCS requirements.

3.1.4 Ownership

TRL has the project ownership in line with the Section 3. 6.1 4 of the VCS Standard, and although TRL beneficiaries possess ownership of the equipment, before installation of each project instance, beneficiaries enter into a verbal contractual agreement with TRL. Beneficiaries agree to allow TRL, as a not-for profit association, to:

(1) Claim the GHG emission reductions and/or removals generated by the equipment used in the TRL ICS Project.

(2) Conduct follow-up visits for monitoring purposes

The audit team has checked during the onsite visit the acknowledge of the verbal contractual agreement with TRL by the beneficiaries of the TRL ICS project and finds that the PP's project ownership is unconditional, undisputed and unencumbered, in accordance with VCS requirements.

3.1.5 Project start date Joint Validation & Verification Report: VCS Version 4.0

The project start date is 01/09/2018, which corresponds to the date on which TRL began a new series of installations.

This event corresponds to the first activity: the earliest activity that leads the GHG reduction of the project. AENOR has checked with the submitted record, the note of delivery of the new cookstoves from the manufacturer to TRL, that established date is appropriate and consistent. Then, in opinion of AENOR it is considered reasonable and correct based on the VCS requirements for start date established in Section 3.7 of the VCS Standard.

3.1.6 Project crediting period

The crediting period of the grouped project is from Sep 1, 2018 - Aug 31, 2025, for a total of seven years, twice renewable, in accordance with the Section 3.8.1 of the VCS Standard. Therefore, the project activity is in line with the length of the crediting period, and it has the option to renew two more times.

3.1.7 Project scale and estimated GHG emission reductions or removals

The project is classified as "project" according its scale (less than or equal to 300,000 tonnes of CO_2e per year), since it will reduce an average of 1,812 tCO_2e per year during the first crediting period.

3.1.8 Project location

The project takes place within the Sololá Department (14.70°N, 91.25°W), which includes the Lake Atitlán Basin, a nature reserve. 14°38'17.63"N, 91°13'44.44"W are the coordinates of Santiago Atitlán, headquarters of the project.

The coordinates of project area have been provided. During the onsite visit, AENOR verified the location of the project activity.

3.1.9 Conditions prior to project initiation

Regarding conditions prior to the project initiation, the PD and MR describes properly the historical overexploitation of wood from forests in Guatemala where the common practice is that homes use wood as primary energy source for cooking, normally using open cooking fires, being this situation more evidence between the Tz'utujil Maya people living in the Lake Atitlán.

During the onsite visit, AENOR verified that project is being implemented in accordance with the description of the PDD and MR.

3.1.10 Project compliance with applicable laws, statutes and other regulatory frameworks

Section 1.14 of the PD provides information related the compliance with the applicable laws, statues and other regulatory frameworks. The main and relevant Laws are detailed, and its enforcement analyzed in the PD. According to the information provided and assessed during the on-site visit, the project fulfils with laws mentioned in the PD as it could be verified during site visit. Thus, AENOR deems that project complies with applicable laws, statues, and other regulatory frameworks.

3.1.11 Participation under other GHG programs

GHG reductions generated by the project will not be used for compliance with binding limits to GHG emissions since such limits are not enforced in Guatemala, and there is no emissions trading program in place in the country.

The project has not been registered nor is seeking registration under other GHG program, nor has it been rejected by other GHG program.

3.1.12 Other forms of credit

The project has not sought or received other forms of environmental credit

3.1.13 Additional information relevant to the project

Leakage Management

This section is not applicable as the project is not an AFOLU project. Per the VCS Standard V4, the project proponent does not need to present a leakage management plan.

Commercially sensitive information:

No commercially sensitive information has been excluded from the public version of the PD and MR.

Sustainable development contributions:

Distribution of ICS technology is listed among Guatemala's stated sustainable development priorities.

AENOR assessed the sustainable contributions to the sustainable development through the review of the project design document but mainly through the review of evidence provided, site visit and interviewing to the local stakeholders.

Further Information

Not applicable. No additional legislative, technical, economic, sectoral, social, environmental, geographic, site-specific, and/or temporal information is relevant to the quantification of the project's net GHG emission reductions or removals.

3.2 Participation under Other GHG Programs

As the project has not been registered under any other GHG program, this section is not applicable.

3.3 Safeguards

3.3.1 No Net Harm

The project is not expected to generate negative environmental nor socioeconomical impacts.

3.3.2 Local Stakeholder Consultation

Due to the kind of this project, it does not require the approval of any governing body, and no town-hall seminars requesting feedback have not been conducted. However, the PP has participated in different community meetings and conferences where has enabled to gain valuable feedback, as well as, through casual conversations with stakeholders.

This way, TRL was able to gather useful feedback from several stakeholder groups, including representatives of social and environmental public-sector agencies as well as civil society organizations, and use it to modify the project design.

Only positive comments about the project and its environmental impacts have been received, except to the size of the organization that limits the project to local or regional level.

Comments such as these motivated the following actions by TRL: (1) place additional emphasis on seeking funding to provide for larger subsidies for the project area's most vulnerable families; (2) hire additional field team personnel to increase TRL's capacity to provide maintenance and educational visits; and (3) hold trainings for other community projects that wish to replicate TRL's model in areas the project cannot reach.

Further the meetings and conferences, TRL made the decision to expand its informal consultation activities to reach affected parties with limited access to this type of meeting, as consequence of the cost of the registration fees or transportation fees, the lack of free time, etc,, and seeks consultation from these groups through direct community engagement with semi-structured interviews,

TRL has changed and adapted the systems used as well as organizational policies to reflect positive and negative feedback.

Before and after installations, beneficiaries are continually consulted through a digital survey platform in the home of the beneficiary, Furthermore, all consultation is conducted in Tz'utujil, by local Outreach Team Members so that beneficiaries can openly and clearly communicate constructive feedback and grievances.

Because of the feedback received through these consultations, TRL conducts meetings and demonstrations designed to educate and promote the project several times a year. In September of 2019, TRL solicited feedback from the local community as part of an ICS technology exposition held in the central park. Feedback gathered through expositions such as these inform project design.

TRL solicits direct feedback from various other NGOs in Santiago. Sharing in-depth knowledge about the environmental and social characteristics of the Sololá Department and its diverse communities has supported TRL in its identification of the potential impacts, risks, and opportunities associated with the project activities.

By means of documents reviewed and the interviews performed, AENOR considers that the summary of the comments received included in the PD is complete. The main conclusions of the meetings and opinions collected from meetings are included in the PD.

Hence, in the opinion of the AENOR team the local stakeholder consultation process was suitability performed and the PP's response to the inputs was appropriate. The audit team deems that the PP communicated the information about the project design and implementation in accordance with the requirements established by the VCS Standard.

3.3.3 Environmental Impact

No environmental impact assessments are required for the project.

3.3.4 Public Comments

During the validation process no public comment was received by AENOR nor noticed from VCS Staff about the project.

3.3.5 AFOLU-Specific Safeguards

Not required because the project is a non-AFOLU project

3.4 Application of Methodology

3.4.1 Title and Reference

The methodology used is the CDM AMS-II.G. Small-scale Methodology: Energy efficiency measures in thermal applications of non-renewable biomass, Version 11.1.

Besides the methodological document, the following tools are applied:

- Tool 30: Calculation of the fraction of non-renewable biomass, Version 2.0.
- Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, Version 13.0.

3.4.2 Applicability

The final PD states all evidence used to demonstrate each condition of the applicable methodology. Complete explanations are included in the PD. In opinion of AENOR, the evidence and explanations confirm the fulfilment of the project with the methodology. The assessment was carried out for each applicability

criterion and included, among others, the review of evidence and sources provided in the PD and the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures as follows:

Applicability conditions for PA 1

Applicability condition	Compliance
This methodology comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers.	The technology and measure used by the project is the introduction of an ONIL cookstove, a high efficiency biomass fired project device.
In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent. Refer to the requirements indicated in "Data / Parameter table 12" which details the options for testing and certification as well as supporting documentation (e.g. certificate issued by third party or test results) that needs to be presented to the validating DOE. Data / Parameter table 12 of AMS-II.G. states the following option" The efficiency of the project devices shall be based on certification by a national standards body or an appropriate certifying agent recognized by that body" may be used to measure efficiency.	ONIL cookstoves are multi-pot portable cookstoves with a manufacturer certified thermal efficiency of 24%. The cited Validation Report, completed by TÜV SÜD South Asia Pvt. Ltd., an appropriate certifying agent recognized by the Clean Development Mechanism, states the following conclusion: "The efficiency of an ONIL certified stove is 24% as compared to the 10% (as per the default value of the AMS.II.G) efficiency of the traditional (three stone) open fire stove. The efficiency of the stove has been verified by Aprovecho test results of the ONIL stove done by Aprovecho Research center (ARC). ARC is the third-party independent testing center and tested ICS efficiency in the programme. ARC result can be accepted as they have experienced over 30 years in designing and implementing improved and technologies, as well as their testing standard and lab result are globally accepted." See appendix 2 and footnote 10 for additional references this rated efficiency.
The aggregate energy savings of a single project activity will not exceed the equivalent of 60 GWh per year, or 180 GWh thermal per year in fuel input.	Aggregate energy savings do not exceed the threshold due to current and forecasted energy efficiency improvement capacities (see section 1.11). With an overestimate of 3.5 tonnes of woody biomass savings made possible per ONIL

<table>
<tr><th>Applicability condition</th><th>Compliance</th></tr>
<tr><td></td><td>stove per year, and 0.0043 GWh thermal energy per tonne, each stove will save a maximum of 0.0546 TJ/year and it would take 11,868 devices operating each year to reach 180 GWh of thermal energy savings.</td></tr>
<tr><td>Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.</td><td>Per the following official reports and statistics, non-renewable biomass has been used in the project region since at least 1989:

In the department of Sololá, 84% of homes use wood as the primary energy source for cooking.

The FAO reports that between 1990 and 2010, Guatemala lost an average of 54,550 ha of forest cover (1.15%) per year. In total, between 1990 and 2010, Guatemala lost 23.0% of its forest cover, or around 1,091,000 ha.

According to the FAO report, “State of the World’s Forests,” Carbon stock in living forest biomass were depleting in Guatemala, from 1990 to 2010, demonstrating a negative annual change rate.

Carbon stock in living forest biomass in Guatemala
(million tonnes)

<table><tr><th>1990</th><th>2000</th><th>2005</th><th>2010</th></tr><tr><td>365</td><td>324</td><td>303</td><td>281</td></tr></table>
Remote sensing data from Global Forest Watch shows that from 2001 to 2018, Sololá lost 2.48kha of tree cover, equivalent to a 3.1% decrease in tree cover since 2000.</td></tr>
<tr><td>When the biomass is sourced from renewable sources, project participants should use a corresponding Type I methodology.</td><td>Tool 30 is applied to determine fNRB. Not applicable.</td></tr>
</table>

Applicability condition	Compliance
If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	Not applicable. The project device does not require briquettes, pellets, or woodchips.
The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	Each project device (ONIL stove) installed by the project has a TRL Logo and a unique identification number. In addition, all users have a unique identifier (string of numbers and letters referred to as a "client ID") linked to client information (name, location etc.).
The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	When the stoves are purchased from the manufacturer, they contain no manufacturer logo or unique identification number as described above. TRL adds both after purchase from the manufacturer and prior to installation in the client's home. At the installation the TAS completes the corresponding form in Kobo Toolbox. Only after the installation has taken place and the equipment's unique identification number is matched with a client ID are emission reductions from that project device included in the emission reduction calculations.

Applicability conditions for PA 2

Applicability condition	Compliance
This methodology comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers.	The measure used by the project is an energy efficiency improvement in an existing biomass fired cookstove (existing ONIL stove).

Applicability condition	Compliance
In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent. Refer to the requirements indicated in "Data / Parameter table 12" which details the options for testing and certification as well as supporting documentation (e.g. certificate issued by third party or test results) that needs to be presented to the validating DOE.	Project Activity Two does not consist of the introduction of high efficiency biomass fired project devices (cookstoves or ovens or dryers) to replace the existing devices but rather, energy efficiency improvements in existing biomass fired cookstoves. Not applicable.
The aggregate energy savings of a single project activity will not exceed the equivalent of 60 GWh per year, or 180 GWh thermal per year in fuel input.	Aggregate energy savings do not exceed the threshold due to current and forecasted energy efficiency improvement capacities (see section 1.11). With an overestimate of 2.8 tonnes of wood saved per improved stove per year, and 0.0043 GWh thermal energy per tonne, it would take 14,835 retrofitted stoves operating to reach 180 GWh of thermal energy savings.
Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	Per the following official reports and statistics, non-renewable biomass has been used in the project region since at least 1989: In the department of Sololá, 84% of homes use wood as the primary energy source for cooking The FAO reports that between 1990 and 2010, Guatemala lost an average of 54,550 ha of forest cover (1.15%) per year. In total, between 1990 and 2010, Guatemala lost 23.0% of its forest cover, or around 1,091,000 ha. According to the FAO report, "State of the World's Forests," Carbon stock in living forest biomass were depleting in Guatemala, from 1990 to 2010, demonstrating a negative annual change rate. **Carbon stock in living forest biomass in Guatemala**

Applicability condition	Compliance
	(million tonnes) 1990: 365 2000: 324 2005: 303 2010: 281 Remote sensing data from Global Forest Watch shows that from 2001 to 2018, Sololá lost 2.48kha of tree cover, equivalent to a 3.1% decrease in tree cover since 2000.
When the biomass is sourced from renewable sources, project participants should use a corresponding Type I methodology.	Tool 30 is applied to determine **fNRB**. Not applicable.
If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	The project device does not require briquettes, pellets, or woodchips. Not applicable.
The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	Each project device (improved existing biomass fired cookstove) added by the project has a TRL Logo and a unique identification number. In addition, all users have a unique identifier (string of numbers and letters referred to as a "client ID") linked to client information (name, location etc.).
The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	When the replacement parts are purchased from the manufacturer, they contain no logo or unique identification number as described above. The existing biomass fired cookstove that is being repaired is assigned a number if it does not already have one. After TRL completes the energy efficiency improvement, the team marks the stove with the TRL logo, and completes the corresponding form in Kobo Toolbox. The improved equipment's unique identification number is matched with a client ID. Emission

Applicability condition	Compliance
	reductions generated by that project device are included in calculations from that date onwards.

AENOR, based on records provided including spreadsheets calculations of the emissions reductions, has verified that applicability conditions of the different tools are complied. In conclusion, the project activity complies with the applicability conditions of the methodology, and any tools or modules selected by the PP.

3.4.3 Project Boundary

The project boundary is defined by AMS-II.G. V11.1 section 5.1 as, "the physical, geographical site of the efficient devices that utilize biomass". The project boundary is the Sololá Department, as defined by the government of Guatemala. The project devices are located inside the homes of project participants. As described section 1.12, the project takes place within the Sololá Department (14.70°N, 91.25°W), which includes Lake Atitlán. 14°38'17.63"N, 91°13'44.44"W are the coordinates of Santiago Atitlán, headquarters of the project.

Source		Gas	Included?	Justification/Explanation
Baseline	Source 1	CO_2	yes	CO_2 is the primary output of burning wood.
		CH_4	no	CH_4 contributes too small of a fraction of the emitted gas and is excluded to make a conservative estimate.
		N_2O	no	N_2O contributes too small of a fraction of the emitted gas and is excluded to make a conservative estimate.
		Other	no	There are no other major sources of emissions.
Project	Source 1	CO_2	yes	CO_2 is the primary output of burning wood.
		CH_4	no	CH_4 contributes too small of a fraction of the emitted gas and is excluded to make a conservative estimate.
		N_2O	no	N_2O contributes too small of a fraction of the emitted gas and is excluded to make a conservative estimate.

		Other	no	There are no other major sources of emissions.

According to the VCS requirements, sources of emissions that are expected to increase in the project scenario compared to the baseline case must be included if the exclusion would lead to a significant overestimation of the total net anthropogenic GHG emission reductions generated during the fixed baseline period.

Taking into account the justifications, assumptions and supporting information provided and the design of the project, AENOR deems that project boundary is correctly defined and in compliance with the applicable methodology and VCS requirements.

3.4.4 Baseline Scenario

According to the additionality analysis of the PD, using Option 2 of AMS-II.G. (section 5.2.2.) and the section 5 paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, in the absence of the project, the most probable baseline scenario is the continuation of the pre-project use of wood fuel needed for an open cooking fire in the PA 1 and for the existing, damaged, inefficient biomass fired cookstoves in the PA 2.

AENOR deems that assumptions, justifications and data used in the identification of the baseline scenario are appropriately justified and can be deemed reasonable.

Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the project description.

Relevant national and/or sectoral policies and circumstances have been considered and are listed in the PD.

The procedures for identifying the baseline scenario have been correctly followed according to the methodology and tool applied and the identified scenario reasonably represents what would have occurred in the absence of the project.

Thus, AENOR considers that the identified baseline scenario is correctly justified.

3.4.5 Additionality

According to the paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, the PP has provided an explanation to show that the project activity would not have occurred anyway due to at least one of the stablished barriers in accordance with the applied methodology."

The project activities would not have occurred anyway due to the barriers identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher."

For both project activities, in addition to procurement of materials and installation/completion of the energy efficiency enhancement, TRL provides ongoing technological adaptation support and maintenance to all ONIL stove users. These services address the barriers associated with limited access to sustainable energy technology present in the communities served. In rural Guatemala, beneficiaries have limited access to information regarding alternative cooking methods and thus limited capacity to absorb ICS technology without support. The project activity couple's technological adaptation with environmental education over the first year of stove installation. All communication is conducted in the beneficiary's primary language, Tz'utujil, with strong emphasis placed on the relationship between the end user and TRL. In the absence of support exists the possibility that the technology could go unused post-installation or that frustrations could provoke damage to the technology that would negatively affect efficiency levels. Additionally, due to misuse and/or wear and tear that occurs over time, existing biomass fired cookstoves may deteriorate or undergo damage. In these cases, TRL locally sources replacement parts such as a new combustion chamber, identifies families with inefficient, damaged ONIL stoves, and installs the new combustion chambers to improve cookstove efficiency. Without all these provisions of the project activity, the users would have limited capacity to absorb the new technologies and emissions would be higher.

Hence, after the assessment of the explanations and justifications in the PD and the review of the submitted evidence, also detailed in the project document, AENOR deems credible and reliable the supported documents provided. The information described in the PD is consistent with them. Thus, it can conclude that there are several barriers that make each activity different from activities developed in the surrounding area. Thus, the project activity is not the baseline scenario, it is not the common practice and hence, it is additional.

The incomes from VCUs will help to overcome the faced barriers by the project and will alleviate the expected long time period for revenues.

3.4.6 Quantification of GHG Emission Reductions and Removals

Procedures for quantifying the GHG emission reductions and removals generated by the project during the project crediting period were conducted in accordance with the methodology "CDM AMS-II.G. Small-scale Methodology: Energy efficiency measures in thermal applications of non-renewable biomass", V11.1. The validation team performed an intensive quantification review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS documentation and methodology modules.

Furthermore, the validation team reproduced calculations for selected samples to ensure accuracy of the results. Conversion factors, formulas, and calculations were provided by the PP in spreadsheet format to ensure all formulas were accessible for review. The validation team recalculated subsets of the analysis to confirm correctness. Where applicable, references for analysis methods or default values were checked against relevant scientific literature for best practice.

CDM AMS-II.G. Small-scale Methodology: Energy efficiency measures in thermal applications of non-renewable biomass, V11.1 defines the procedure to calculate emission reductions. The calculation of project emissions separate from baseline emissions is thus not applicable.

AENOR can confirm that equations are correctly used in calculations considering the different CD measures.

Regarding to the Leakage, the project uses a net gross adjustment factor of 95% to account for leakage. Section 5.4 paragraph 34 of AMS-II.G. V11.1 state "Alternatively, By savings, i, j is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required."

Therefore, the Net GHG Emission Reductions and Removals are calculated per equation one as:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices. For Project Activity One, i = 1. For Project Activity Two, i = 2.

j = Indices for the situation where there is more than one batch of project device. There are seven batches.

The methodology defines a batch "as the population of the device of the same type commissioned during a certain period of time (e.g. week or month) in a certain calendar year." It goes on to state, "To establish the date of commissioning, the Project Participant may opt to group the devices in "batches" and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch."

The project groups all the stoves installed in one year into a batch. For the project, this year runs from September to August. September 1 of 2018 to August 31, 2019 is batch one (j=1), September 1 of 2019 to August 31 of 2020 is batch two (j=2), and so on. For Project Activity One, the installation date (commissioning date) of the cookstove determines its batch. For Project Activity Two, the date on which the device receives its energy efficiency enhancement -- its improvement -- determines its batch. This date is equivalent to the commissioning date as it is the date in which the device is now able to provide for thermal energy savings at the documented, more efficient rate.

AMS-II.G. later states in footnote two, "If the efficiency drop of project devices is monitored through the first batch approach (see paragraph 37 below), project participants shall describe in the PDD the measures taken to ensure that all batches receive the same level of quality control in the production, and maintenance/replacements during the crediting period, as the first batch. Monitoring reports shall describe the number of actions taken for maintenance and replacements to all batches separately."

For Project Activity One, the project opts to account for efficiency per paragraph 37. All batches receive the same five-visit follow up schedule, monitoring and record keeping using a digital platform, and maintenance/replacements as needed. All the equipment is purchased from the same factory (HELPs International) which has quality assurance measures. It does not remain in TRL's warehouse for any longer than one year. Cookstoves are purchased in shipments of 40 (about three per year) and installed (commissioned) as determined by client demand. The technology and quality of the cookstove is equivalent for each stove across all batches, and throughout the monitoring period. This will be corroborated by maintenance records stored in TRL's client database.

For Project Activity Two, which uses option four and equation nine of AMS-II.G. instead, the above is not required nor applicable. With the use of a controlled cooking test (CCT), the requirements are not applicable because any annual changes of the quantity of woody biomass used and any annual changes in specific fuel consumption will be captured by the CCT.

ERy = Emission reductions during year y in t CO2e

ERy,i,j = Emission reductions by project device of type i and batch j during year y in t CO2e, as determined by Equation (2). See calculations below. Formula for Equation (2):

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

LEy = Leakage emissions in the year y. Not applicable (see section 4.3)

According to the TOOL 30, the calculations of the fraction of non renewable biomass are as follows:

$$fNRB = \frac{NRB}{NRB + RB}$$

Where:

fNRB = Fraction of non-renewable biomass in the country/region or project area

(fraction or %), determined ex-ante.

NRB = Quantity of non-renewable biomass (t/yr) in the country/region or project

area, determined as per equation (3)

RB = Quantity of renewable biomass in the country/region or project area, determined as per equation (6)

0.9359 = 379939.85 tonnes/yr / (379939.85 tonnes/yr + 26,024.4 tonnes/yr)

Equation (3)

$$NRB = B_{old,total} - RB$$ Validation & Verification Report: VCS Version 4.0

Where

$B_{old,\ total}$ = Total annual consumption of wood in the project area in the absence of the project activity, as determined per equation (5)

405,964.25 tonnes/yr - 26,024.4 tonnes/yr = 379939.85 tonnes/yr

Equation (5)

$$B_{old,total} = HW_{project} \times N_{project} + TI_{project}$$

The amount of wood consumed per household in the project region is determined by organizational surveys conducted with clients who used three-stone fires for cooking. The resulting wood use assumes that families have similar wood consumption as our clients throughout the region (based on similar demographics and cultural preferences). The average usage number is 5.6299 tonnes per year per family, option C of the $HW_{project}$ variable.

Variable / Units	Value
$HW_{project}$ (client survey data of pre-project device woody biomass usage per household)	5.6299 tonnes / family / year
$N_{project}$ (2018 census data of families using wood as cooking fuel source)	72,109 families
$TI_{project}$ *(conservative value -- low commercial woody biomass use in region)*	0 tonnes
$B_{old,total}$: $HW_{project}$ × $N_{project}$ + $TI_{project}$	**405,964.25 tonnes / year**

Equation (6)

Renewable biomass (RB) in the country/region/project area is estimated using the equation below.

$$RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest})) + \sum (MAI_{other,i} \times (F_{other,i} - P_{other}))$$

Where:

$MAI_{forest,i}$ = Mean Annual Increment of woody biomass growth per hectare in sub-category i of forest areas (t/ha/yr)

$MAI_{other,i}$ = Mean Annual Increment of woody biomass growth per hectare in sub-category i of other wooded land areas (t/ha/yr)

$F_{forest,i}$ = Extent of forest in sub-category i (ha)

$F_{other,i}$ = Extent of other wooded land in sub-category i (ha)

P_{forest} = Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (ha)

P_{other} = Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas (ha)

i = Sub-category i of forest areas and other wooded land areas

References for all values in the table below can be found in section 5.1 in the corresponding table for each Tool 30 Data / Parameter.

Land Type	Total Amount of Land	Protected Land	Unprotected Land (Total Amount of Land – Protected Land)	Growth Rate *MAI*	Total Renewable Biomass (Unprotected * *MAI*)
Forest	$F_{forest,i}$: 91,100 ha	$P_{forest,i}$: 77,684 ha (Conservative estimate only including land in the national forest)	13,416 ha	$MAI_{forest,i}$: 0.9 tonnes/ha/yr	12,074.4 tonnes/yr

Other (Grass and Shrub)	$F_{other,i}$: 13,950 ha	$P_{other,i}$: 0 ha (Conservative estimate)	13,950 ha	$MAI_{other,i}$: 1.0 tonnes/ha/yr	13,950 tonnes/yr
Total					RB=26,024.4 tonnes/yr

Project Activity One - Equation (8): Option 3

$$B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1\right)$$

Where:

$B_{y=1,new,i,j,survey}$ = Quantity of woody biomass used by project devices in tonnes per device of type i and batch j. Use a value of 2.3177 tonnes/stove/year.

$\eta_{old,i,j}$ = 10.0%

$\eta_{new,i,j}$ = 24%. Account for annual efficiency loss per paragraph 37 of AMS-II.G. V11.1.

Age of Project device	$\eta_{new,i,j}$	$B_{y,savings,i,j}$
0	24.0%	3.245
1	23.6%	3.152
2	23.2%	3.059
3	22.8%	2.967
4	22.4%	2.874
5	22.0%	2.781
6	21.6%	2.689
7	21.2%	2.596
8	20.8%	2.503
9	20.4%	2.410

10	20.0%	2.318

Equation (2)

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

ication Report: VCS Version 4.0

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y, as determined per Option 3: Equation (8). Use values above.

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB), as determined ex-ante by Tool 30: Methodological tool: Calculation of the fraction of non-renewable biomass, Version 02.0. Use a Value of 0.936, calculated above.

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'), per AMS-II.G. V11.1.

$EF_{projected\_fossilfuel}$ = Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 68.6 t CO2/TJ, per Table 2 of AMS-II.G.

μ_y= Adjustment to account for any continued use of pre-project devices during the year y when applying equations 7 and 9 (fraction). Use 1.0 in other cases. Equation 8 is used.

The following table below demonstrates calculations for equation (2) and how the formula is applied to determine emission reductions by project device of type i and batch j during year y in t CO2e. Operating under the conservative assumption that an estimated five percent of project devices will be decommissioned annually, the number of project devices included in each batch's calculation fall over time. This is to account for the possibility that project devices might be damaged, destroyed or pending use for a variety of reasons. In monitoring reports, this number will reflect the true number of project devices marked as operating in that year.

Equation (2) Project Activity 1							
Age of Project device	0	1	2	3	4	5	6
$B_{y,savings,i=1,j}$	3.245	3.152	3.059	2.967	2.874	2.781	2.689
Ly adjust (.95)	0.95	0.95	0.95	0.95	0.95	0.95	0.95

$f_{NRB,y}$	0.936	0.936	0.936	0.936	0.936	0.936	0.936
$NCV_{biomass}$	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156
$EF_{projected\_fossilfuel}$	68.6	68.6	68.6	68.6	68.6	68.6	68.6
μ_y	1	1	1	1	1	1	1
ER per Project Device	3.087	2.999	2.911	2.823	2.734	2.646	2.558
N(y=2018,i=1,j)	57						
N(y=2019,i=1,j)	120	54					
N(y=2020,i=1,j)	120	114	51				
N(y=2021,i=1,j)	120	114	108	49			
N(y=2022,i=1,j)	120	114	108	103	46		
N(y=2023,i=1,j)	120	114	108	103	98	44	
N(y=2024,i=1,j)	120	114	108	103	98	93	42

Equation (1) Project Activity 1	
ERy,i,j	Estimated net GHG emission reductions or removals (tCO_2e)
ER(y=2018,i=1,j)	176
ER(y=2019,i=1,j)	533
ER(y=2020,i=1,j)	862
ER(y=2021,i=1,j)	1166
ER(y=2022,i=1,j)	1445
ER(y=2023,i=1,j)	1702
ER(y=2024,i=1,j)	1938
Total (Sum)	7822

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
2018	X	X	X	176
2019	X	X	X	533
2020	X	X	X	862
2021	X	X	X	1166
2022	X	X	X	1445
2023	X	X	X	1702
2024	X	X	X	1938
Total	X	X	X	7822

Project Activity Two

Equation (9): Option 4

$$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \frac{SC_{new,i,j}}{SC_{old}})$$

Where:

SC_{old} = Specific fuel consumption or fuel consumption rate of the pre-project devices

$SC_{new,i,j}$ = Specific fuel consumption or the fuel consumption rate of the devices of type i and batch j deployed as part of the project

$B_{old,i,j}$ = 5.6299

Based on the Clean Cooking Test, the value of SC_{old} was 1132.3g cooked tortilla per kg of wood fuel based on the average of several trials of stoves before undergoing our improvement procedure and new components. The estimation that the project device for PA 2 will have a similar life span to the project device for PA 1 is based on the assumption that the aging and consequential deterioration of the combustion chamber is the reason for the loss in efficiency over time. The other parts of the project device such as the concrete body can survive much longer. The stoves of certain owners who dedicate meticulous care to maintain the combustion chamber well have continued to function for longer than the manufacturer stated 10-year lifespan. Testimonies and physical evidence seen while our Outreach Team is in the field corroborates this estimation.

The values under the same CCT procedure after improvement and estimates for the life of the project device are below. However, while the estimated life span is used in the calculation of estimated VCUs, $SC_{new,i,j}$ is a data / parameter that receives ongoing monitoring (see section 5.3). $SC_{new,i,j}$, or "Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item(s) processed (e.g. food cooked) or fuel consumption per hour respectively with the age a reflects the actual efficiency of the project device as time progresses. This efficiency will be accounted for in monitoring reports, along with evidence of CCTs executed per the protocol described in appendix three, in accordance with the requirement of AMS-II.G. data / parameter table 14, to determine actual efficiency and resulting VCUs for the monitoring period.

Age of Project device	$SC_{new,i,j}$ =	$B_{y,savings,i,j}$ =
0	590.6	2.693
1 (estimate)	644.8	2.424
2 (estimate)	698.9	2.155
3 (estimate)	753.1	1.885
4 (estimate)	807.3	1.616
5 (estimate)	861.5	1.347
6 (estimate)	915.6	1.077
7 (estimate)	969.8	0.808
8 (estimate)	1024.0	0.539
9 (estimate)	1078.1	0.269
10	1132.3	0.000

Equation (2)

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y, as determined per Option 4: Equation (9)

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB), as determined ex-ante by Tool 30: Methodological tool: Calculation of the fraction of non-renewable biomass, Version 02.0. Use a Value of 0.936. Calculations are demonstrated above.

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'), per AMS-II.G. V11.1.

$EF_{projected\_fossilfuel}$ = Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 68.6 t CO2/TJ, per Table 2 of AMS-II.G.

μ_y= Adjustment to account for any continued use of pre-project devices during the year y. Use a value of 1 as the energy efficiency improvement performed eliminates the possibility of continued use of pre-project devices.

The following table below demonstrates how equation (2) is applied to determine emission reductions by project device of type i and batch j during year y in t CO2e.

Equation (2) Project Activity 2							
Age of Project device	0	1	2	3	4	5	6
$B_{y,savings,i,j}$	2.693	2.424	2.155	1.885	1.616	1.347	1.077
Ly adjust (.95)	0.95	0.95	0.95	0.95	0.95	0.95	0.95
$f_{NRB,y}$	0.936	0.936	0.936	0.936	0.936	0.936	0.936
$NCV_{biomass}$	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156
$EF_{projected\_fossilfuel}$	68.6	68.6	68.6	68.6	68.6	68.6	68.6
μ_y	1	1	1	1	1	1	1
ER per Project Device	2.563	2.306	2.050	1.794	1.538	1.281	1.025
N(y=2018,i=2,j)	61						
N(y=2019,i=2,j)	100	58					
N(y=2020,i=2,j)	100	95	55				
N(y=2021,i=2,j)	100	95	90	52			
N(y=2022,i=2,j)	100	95	90	86	50		
N(y=2023,i=2,j)	100	95	90	86	81	47	
N(y=2024,i=2,j)	100	95	90	86	81	77	45

Equation (1) Project Activity 2	
ERy,i,j	Estimated net GHG emission reductions or removals (tCO_2e)
ER(y=2018,i=2,j)	156
ER(y=2019,i=2,j)	390
ER(y=2020,i=2,j)	588
ER(y=2021,i=2,j)	754.
ER(y=2022,i=2,j)	891
ER(y=2023,i=2,j)	1000
ER(y=2024,i=2,j)	1085
Total	4864

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
2018	X	X	X	156
2019	X	X	X	390
2020	X	X	X	588
2021	X	X	X	754
2022	X	X	X	891
2023	X	X	X	1000
2024	X	X	X	1085

Total	X	X	X	4864

Sum of Project Activity One and Two	Estimated GHG emission reductions or removals (tCO_2e)
Sept 2018 - Aug 2019	332
Sept 2019 - Aug 2020	923
Sept 2020 - Aug 2021	1450
Sept 2021 - Aug 2022	1920
Sept 2022 - Aug 2023	2336
Sept 2023 - Aug 2024	2702
Sept 2024 - Aug 2025	3023
Total estimated ERs	12686

AENOR deems that values are correct and consistent with the sources.

The values and estimates presented in the PD are considered reasonable based on the documentation reviewed, further references and the result of the interviews during the onsite visit.

The PD describes in an appropriate way with evidence and justifications how the project activity fulfils with the applicability conditions of the tool.

Based on the information reviewed, it can also be confirmed that the sources used are correctly quoted and interpreted in the PD and supporting documents. All assumptions and data indicated in the PD and all relevant sources were checked and confirmed.

In essence, the methodology was correctly applied following the requirements. All values in the PD are considered reasonable in the context of the proposed VCS project activity. Data sources are quoted correctly. Hence, the calculation of baseline emissions, project emissions and the estimated net GHG emission reductions are considered correct.

3.4.7 Methodology Deviations

No deviations were detected from the applicable methodology.

3.4.8 Monitoring Plan

The monitoring plan presented in the PD complies with the requirement of the methodology. The assessment team checked all parameters presented in the monitoring plan against the requirements of the methodology and associated tools were followed.

The list of parameters available at validation and the values used was also checked by AENOR and it is deemed complete and consistent with calculations and assumptions considered. The following table summarizes the data/parameters available at validation:

Data/Parameter available al validation	Value	Assessment procedure and result
$B_{old,HH}$ Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices	5.6299	Value is consistent with validated source: AMS-II.G. Table 4. Average of wood use survey results stored in client database
$B_{old,I,j}$ Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j	5.6299	• Values are consistent with validated sources: AMS-II.G. Table 5
$f_{NRB,y}$ Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass.	0.9359 (93.59%)	• Calculated by "TOOL30: Calculation of the fraction of non-renewable biomass"
$\eta new,i,j$ Efficiency of the device of each type i and batch j implemented as part of the project activity.	24%, decreasing through the life span of the project device	• Aprovecho data, including these WBT results on the thermal efficiency of the ONIL stoves, is widely cited by ICS projects, including those already validated verified to issue VCUs. This value was approved in prior validation reports for currently active VCS projects.

Data/Parameter available al validation	Value	Assessment procedure and result
		• Adjusted for the loss of efficiency per paragraph 37 of the methodology
SC_{old} Specific fuel consumption of the pre-project devices.	1132.3 g (tortillas)/kg wood fuel	• Specific fuel consumption is to be determined using the CCT protocol carried out in accordance with international standards specified by Clean Cooking Alliance. • When the CCT is conducted on a sample basis, the sampling requirements and guidance provided in the "Standard for sampling and surveys for CDM project activities and programme of activities" will be followed.
HWproject Average household wood fuel consumption, including fuelwood and charcoal in the project area.	5.6299	• Tool 30 V2 permits the use of the results of a sampling survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". The PP surveyed beneficiaries on household wood fuel consumption using an open fire. TRL's Programs Team conducted data validation after every round of data collection to ensure accuracy. Survey results, stored in client database, are averaged.
TIproject Non-domestic woody biomass consumption for energy applications (e.g. commercial, industrial or institutional uses of wood in ovens, boilers, etc.) and all woody biomass consumption for non-energy applications (construction,	0	• Tool 30 Data / Parameter Table 2 states "For country or region, it may be determined through existing studies or government data or surveys. For the project area, it may be determined through surveys. The most recent available historical data shall be used. The project has decided to

Data/Parameter available al validation	Value	Assessment procedure and result
furniture) that are extracted from forests or land areas in the project area for which the estimate of fNRB is to be made.		employ a low, conservative estimate of 0.
Nproject Number of households consuming wood fuel for thermal applications within the project area.	72109	• Tool 30 data / parameter table 3 states, "For country or region, it may be determined through existing studies or government data or surveys." Government Data from the 2018 Census is used.
MAIforest,i Mean Annual Increment of woody biomass growth per hectare in subcategory i of forest areas.	0.9	• Option B 2006 IPCC Guidelines for National Greenhouse Gas Inventories "Above-ground biomass growth rates (t/ha-yr) for different ecological zones" (Chapter 4, Table 4.9).
MAIother Mean Annual Increment of woody biomass growth per hectare in subcategory i of other wooded land areas	1	• Option B 2006 IPCC Guidelines for National Greenhouse Gas Inventories "Above-ground biomass growth rates (t/ha-yr) for different ecological zones" (Chapter 4, Table 4.9).
Fforest,i Extent of forest in sub-category i	91100	• Global Forest Watch data are timely, accurate, and available by department within Guatemala. Data are specific to the Sololá Department. GFW data were chosen for rigor and advanced monitoring methodology that uses remote-sensing technology to gather near real-time information.
Fother,i Extent of other wooded land in sub-category i	13950	• Tool 30 Data/ Parameter Table 5 Option B: Global Forest Watch Data. Data is for 2015., the most recent avalaible data.
Pforest Extent of non-accessible area (e.g. protected area where extraction of	77684	• Tool 30 Data/ Parameter Table 6 Option B: National studies or government data or official

Data/Parameter available al validation	Value	Assessment procedure and result
wood is prohibited, geographically remote area) within forest areas.		statistics. Global Forest Watch Data for 2015.
Pother Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas	0	• Tool 30 Data/ Parameter Table 6 Option B: National studies or government data or official statistics. Global Forest Watch Data for 2015. • The assumption is made that all the unprotected wooded area in the Sololá Department was forest area. GIS mapping of project area demonstrates that this assumption is both conservative and accurate.

The list of parameters to be monitored is the following:

- $N_{y,i,j}$: Number of project devices of type i and batch j operating during year y.
- μ_y: Adjustment to account for any continued use of pre-project devices during the year y
- $NCV_{biomass}$: Net calorific value of the non-renewable woody biomass, briquettes, or charcoal used in project devices.
- $SC_{new,i,j}$: Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item(s) processed (e.g. food cooked) or fuel consumption per hour respectively with the age a.
- $B_{y=1,new,i,j,survey}$: Quantity of woody biomass used by project devices in tones per device of type i.
- $\eta_{old,i,j}$: Efficiency of pre-project device, which is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation that is without a grate or a chimney.
- Life Span: The operating life time of the project device. The life span should be reported in cases where the PPs are opting to account the efficiency loss as per paragraph 37.
- Date of commissioning of batch j: To establish the date of commissioning, the Project Participant opts to group the devices in "batches" using the latest date of commissioning of a device within the batch as the date of commissioning for the entire batch.
- Date of commissioning of project device i: Actual date of commissioning of the project device.
- $N_{d,HH}$: Number of project devices distributed per household.

The procedures described in section 5 of the PD were reviewed by the AENOR team and cross-checked against the applicable methodology and associated tools and were reproduced by the monitoring team on

the field during the site visit. The audit team found to be in compliance with methodological requirements, and good practice as defined.

In the opinion of the AENOR team, all necessary parameters required by the selected methodology are contained in the monitoring plan. They are clearly described, and the means of monitoring detailed in the plan comply with the requirements of the methodology. Tables in section 5 of the PD detail the different data variable to monitor along with the data unit, recording frequency, purpose of data, QA/QC, etc. Thus, the monitoring plan is in compliance with the applicable methodology

The procedures followed to carried out the surveys are also detailed in section 5 of the PD and are in accordance with the CDM guidelines. Equations for the estimation of the sample size have been checked by the audit team.

In opinion of the AENOR assumptions considered for surveys procedures are reasonable and credible and consistent with calculation. Thus, AENOR deems it correct.

After the review of evidence provided by the PP, the interview and communications with PP, AENOR confirms that monitoring arrangements described in the monitoring plan are feasible within the project design and that the means considered for the implementation, including data management, quality and assurance control procedures, are sufficient to ensure that the GHG net anthropogenic reductions achieved resulting from the proposed VCS project activity can be reported ex post and verified. Therefore, in opinion of the AENOR team, the PP will be able to implement the monitoring plan.

3.5 Non-Permanence Risk Analysis

This requirement is not applicable to the project activity because it is not an AFOLU PROJECT.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

All calculations of greenhouse gas emission reductions and removals were checked by the audit team. No errors were discovered that materially affect the stated greenhouse gas emission reductions and removals of the project during the monitoring period. The methods used to estimate greenhouse gas benefits of the project were consistent with the methodology and the validated part of the project.

As it is explained in this validation and verification report, CDM AMS-II.G. Small-scale Methodology: Energy efficiency measures in thermal applications of non-renewable biomass, V11.1 defines the procedure to calculate emission reductions. The calculation of project emissions separate from baseline emissions is thus not applicable.

Regarding to the Leakage, the project uses a net gross adjustment factor of 95% to account for leakage. Section 5.4 paragraph 34 of AMS-II.G. V11.1 state "Alternatively, By savings, i, j is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required."

AENOR has checked and confirmed that these issues are in conformance and have followed the methodology of the PD.

Therefore, the Net GHG Emission Reductions and Removals are calculated per equation one as:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices. For Project Activity One, i = 1. For Project Activity Two, i = 2.

j = Indices for the situation where there is more than one batch of project device. There are seven batches.

ERy = Emission reductions during year y in t CO2e

ERy,i,j = Emission reductions by project device of type i and batch j during year y in t CO2e, as determined by the following formula:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

Project Activity One

$$B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times \left(\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1\right)$$

Where:

$B_{y=1,new,i,j,survey}$ = Quantity of woody biomass used by project devices in tonnes per device of type i and batch j. Use a value of 2.3177 tonnes/stove/year.

$\eta_{old,i,j}$ = 10.0%

$\eta_{new,i,j}$ = 24% Account for annual efficiency loss per paragraph 37 of AMS-II.G. V11.1.

Age of Project device	$\eta_{new,i,j}$ =	$B_{y,savings,i,j}$ =

0	24.0%	3.245
1	23.6%	3.152
2	23.2%	3.059
3	22.8%	2.967
4	22.4%	2.874
5	22.0%	2.781
6	21.6%	2.689
7	21.2%	2.596
8	20.8%	2.503
9	20.4%	2.410
10	20.0%	2.318

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y, as determined per Option 3: Equation (8). Use values above.

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB), as determined ex-ante by Tool 30: Methodological tool: Calculation of the fraction of non-renewable biomass, Version 2.0. Use a Value of 0.936, calculated above.

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'), per AMS-II.G. V11.1.

$EF_{projected\_fossilfuel}$ = Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 68.6 t CO2/TJ, per Table 2 of AMS-II.G.

μ_y = Adjustment to account for any continued use of pre-project devices during the year y when applying equations 7 and 9 (fraction). Use 1.0 in other cases. Equation 8 is used.

The following table below demonstrates calculations and the emission reductions by project device of type i and batch j during year y in t CO2e. This number reflects the true number of project devices marked as operating in that year:

Project Activity 1							
Age of Project device	0	1	2	3	4	5	6
$B_{y,savings,i=1,j}$	3.245	3.152	3.059	2.967	2.874	2.781	2.689
Ly adjust (.95)	0.95	0.95	0.95	0.95	0.95	0.95	0.95
$f_{NRB,y}$	0.936	0.936	0.936	0.936	0.936	0.936	0.936
$NCV_{biomass}$	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156
$EF_{projected\_fossilfuel}$	68.6	68.6	68.6	68.6	68.6	68.6	68.6
μ_y	1	1	1	1	1	1	1
ER per Project Device	3.087	2.999	2.911	2.823	2.734	2.646	2.558
N(y=2018,i=1,j)	57						
N(y=2019,i=1,j)	93	49					

Project Activity 1	
ERy,i,j	Net GHG emission reductions or removals (tCO_2e)
ER(y=2018,i=1,j)	175
ER(y=2019,i=1,j)	434
Total (Sum)	609

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)

Year A: 2018	X	X	X	175
Year B: 2019	X	X	X	434
Total	X	X	X	609

Project Activity Two

$$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \frac{SC_{new,i,j}}{SC_{old}})$$

Where:

SC_{old} = Specific fuel consumption or fuel consumption rate of the pre-project devices

$SC_{new,i,j}$ = Specific fuel consumption or the fuel consumption rate of the devices of type i and batch j deployed as part of the project

$B_{old,i,j}$ = 5.6299

Based on the Clean Cooking Test, the value of SC_{old} was 1132.3g cooked tortilla per kg of wood fuel based on the average of several trials of stoves before undergoing our improvement procedure and new components. The estimation that the project device for PA 2 will have a similar life span to the project device for PA 1 is based on the assumption that the aging and consequential deterioration of the combustion chamber is the reason for the loss in efficiency over time. The other parts of the project device such as the concrete body can survive much longer. The stoves of certain owners who dedicate meticulous care to maintain the combustion chamber well have continued to function for longer than the manufacturer stated 10-year lifespan. Testimonies and physical evidence seen while our Outreach Team is in the field corroborates this estimation.

The values below were derived from the CCT procedure after improvement (in the Fall of 2019) and estimates for the life of the project device. For this monitoring period, the estimated life span is used in the calculation of estimated VCUs. $SC_{new,i,j}$ is a data / parameter that receives ongoing monitoring (see VCS PD V1.3 section 5.3). $SC_{new,i,j}$, or "Specific fuel consumption or fuel consumption rate during year y of the device(s) of type i deployed as part of the project that is fuel consumption per quantity of item(s) processed (e.g. food cooked) or fuel consumption per hour respectively with the age a reflects the actual efficiency of the project device as time progresses. These test results were used for estimations in the PD. Additionally, this test was conducted after September 1 of 2019 and thus applies to the most recent batch. This efficiency will be adjusted in future monitoring reports, along with evidence of additional CCTs executed per the protocol described in the VCS PD V1.3 appendix three, in accordance with the

requirement of AMS-II.G. data / parameter table 14, to determine actual efficiency per batch and resulting VCUs for future monitoring periods.

Age of Project device	$SC_{new,i,j}$ =	$B_{y,savings,i,j}$ =
0	590.6	2.693
1 (estimate)	644.8	2.424
2 (estimate)	698.9	2.155
3 (estimate)	753.1	1.885
4 (estimate)	807.3	1.616
5 (estimate)	861.5	1.347
6 (estimate)	915.6	1.077
7 (estimate)	969.8	0.808
8 (estimate)	1024.0	0.539
9 (estimate)	1078.1	0.269
10	1132.3	0.000

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel}$$

Where:

$B_{y,savings,i,j}$ = Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y, as determined per Option 4: Equation (9)

$f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fNRB), as determined ex-ante by Tool 30: Methodological tool: Calculation of the fraction of non-renewable biomass, Version 02.0. Use a Value of 0.936. See PD V.1.3 for calculations.

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'), per AMS-II.G. V11.1.

$EF_{projected\_fossilfuel}$ = Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 68.6 t CO2/TJ, per Table 2 of AMS-II.G.

μ_y = Adjustment to account for any continued use of pre-project devices during the year y. Use a value of 1 as the energy efficiency improvement performed eliminates the possibility of continued use of pre-project devices.

The following table below demonstrates the determination of the emission reductions by project device of type i and batch j during year y in t CO2e for the project activity 2:

Project Activity 2							
Age of Project device	0	1	2	3	4	5	6
$B_{y,savings,i,j}$	2.693	2.424	2.155	1.885	1.616	1.347	1.077
Ly adjust (.95)	0.95	0.95	0.95	0.95	0.95	0.95	0.95
$f_{NRB,y}$	0.936	0.936	0.936	0.936	0.936	0.936	0.936
$NCV_{biomass}$	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156
$EF_{projected\_fossilfuel}$	68.6	68.6	68.6	68.6	68.6	68.6	68.6
μ_y	1	1	1	1	1	1	1
ER per Project Device	2.563	2.306	2.050	1.794	1.538	1.281	1.025
N(y=2018,i=2,j)	61						
N(y=2019,i=2,j)	30	58					

Project Activity 2	
ERy,i,j	Net GHG emission reductions or removals (tCO_2e)
ER(y=2018,i=2,j)	156
ER(y=2019,i=2,j)	210
Total	366

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year A: 2018	X	X	X	156
Year B: 2019	X	X	X	210
Total	X	X	X	366

Sum of Project Activity One and Two	Net GHG emission reductions or removals (tCO_2e)
Year A: Sept 2018 - Aug 2019	331
Year B: Sept 2019 - Aug 2020	644
Total estimated ERs	975

As mentioned above, AENOR reproduced the calculations and deems that equations applied are appropriate as they correspond to the ones indicated in the PD monitoring section.

AENOR has checked the summary calculation spreadsheet and find it consistent with data in the PD, monitoring section and consistent with data presented.

The following table summarizes the results:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year A: Sept 2018 - Aug 2019	X	X	X	331
Year B: Sept 2019 - Aug 2020	X	X	X	644
Total	X	X	X	975

The total GHG benefit calculated as the sum of both project activities along the monitoring period (01-09-2018 to 9-03-2020) is **975 tCO2e**.

AENOR reproduced the calculations to achieve the same results and deems they are depicted clearly and correctly in the provided sheets. The AENOR verification team was able to trace calculations directly from the data sources of parameters and data. Formulae used are in compliance with monitoring plan, PD section and methodology. The default values used to determine the parameters are appropriate. Thus, the net amount of VCUs to be issued is accurate and realistic.

In order to calculate the above terms, the monitoring report details the data and parameters used during the verification process. For each of them, AENOR checked its accuracy, consistency and reliability by reproducing the spreadsheets calculations, verifying the correctness of formulae and methods used and crosschecking the data values with sources (Appendix 1).

AENOR carried out a deep review of the monitoring report and the calculations.

AENOR verified the consistency and accuracy of each parameter detailed in the lists below by crosschecking the information in the MR with the information in the PD, as well as checking values and reproducing the calculations in the spreadsheets calculation package, and did not find inconsistencies between them after the closing of CARs and CLs requested. Therefore, AENOR deems that values reported for the parameters are accurate and consistent.

Moreover, AENOR also verified a complete evidence package provided to cross check the information with data values used in calculations and MR. Other default values used are from sources well accredited and validated at validation stage.

AENOR did not find inconsistencies between the MR, the PD and spreadsheet calculation.

The following table summarizes the data and parameters monitored during the monitoring period and used by the PP to calculate the GHG emission reductions, which has been assessed by AENOR:

Data/Parameter monitored	Value applied	Purpose of data/parameter	Assessment procedure and result
$\mathbf{N}_{y,i,j}$	Batch j=1 PA i=1: 57 (year 1) 49 (year 2) PA i=2: 61 (year 1) 58 (year 2) Batch j=2 (up to April 9) PA i=1: 93 PA i=2: 30	baseline emissions	• The results are monitored and registered in the client data base that tracks installation, improvement and visit dates.
$\boldsymbol{\mu}_y$	1	baseline emissions	• According to the methodology AMS-II.G, a default values of 1 is used for project activity PA 1 and a value of 1 is used if the pre-project

Data/Parameter monitored	Value applied	Purpose of data/parameter	Assessment procedure and result
			devices are decommissioned and no longer used in the case of the PA 2, as determined by the monitoring survey.
$NCV_{biomass}$	0.0156	baseline emissions	• AMS-II.G. prescribes that the IPCC default for wood fuel, 0.0156 TJ/tones, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass, as is the case for the project.
$SC_{new,i,j}$	590.6 g (tortillas)/kg wood fuel (j=1)	baseline emissions	• The CCT is performed by the TAS, M&E Director, and Lead Technician. CCTs are performed per procedures specified by the Clean Cooking Alliance, in accordance with CDM AMS-II.G., Data / Parameter table 14.
$B_{y=1,new,i,\ j,survey}$	2,3177	Baseline emissions	• Data base with the values of the Sample survey of end user at each end user location was reviewed and considered correct. It was checked that the Pre-project devices have been completely decommissioned and only efficient project device(s) are exclusively used in the project households
ηold,i,j	0.1	Baseline emissions	• AMS-II.G. states" Efficiency of pre-project device, which is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney;". The pre-project device is a three-stone fire using firewood, and only one type of device is being replaced. Thus, the prescribed default value of .1 was applied.

Data/Parameter monitored	Value applied	Purpose of data/parameter	Assessment procedure and result
Life Span	10	Baseline emissions	• The manufacturer provided the information related to this parameter.
Date of commissioning of batch j	Batch j=1: Aug 31 2019 Batch j=2: Aug 31 2020	Baseline emissions	• The different commissioning dates of the stoves was checked against the purchase records and the transport receipts.
Date of commissioning of project device i	Different values registered in the beneficiary database	Baseline emissions	• At the time of commissioning (installation), the TAS fills out a questionnaire in Kobo toolbox that is automatically stamped with a date. This date is linked to both the unique stove number and client ID, and stored in the client database. The information of this parameter was verified during the onsite visit and all the installation visited had registered the information correctly.
$N_{d,HH}$	1		• Only one device is distributed per household. The project does not distribute multiple project devices per household. The information of this parameter was verified during the onsite visit and all the installation visited had registered the information correctly.

In order to verify the accuracy and consistency of parameters monitored and used to calculate the reductions achieved for the monitoring period, the AENOR verification team reproduced the calculations checking the correctness of the formulae applied and assumptions used, when applicable and that values used matched with data sources.

AENOR checked that the list of parameters to be monitored was complete and consistent with information in the monitoring plan of the PD.

After a deep and thorough review and reproduction of calculations and the corresponding tracks to the other spreadsheets, AENOR deems the parameters monitored are correct, reliable and consistent. Information in the MR is in compliance with the PD, the calculations provided and the applicable methodology. Then, the results showed in the MR are reliable, consist and accurate.

AENOR checked that the list of parameters to be monitored was complete and consistent with information in the monitoring plan of the PD.

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

The data and parameters used to determine GHG emission reductions and removals are listed in Section 4 of the MR.

During AENOR's verification, the evidence provided by the PP was enough in both quantity and quality to support the determination of GHG emission reductions reported by the project.

Quality assurance and control is an essential part of company procedures to assure the accuracy of inventory data, modeling results, and carbon accounting. Quality assurance procedures are done to minimize and correct any potential data transcription, calculation, or formatting errors that may result in inaccurate carbon accounting results.

In accordance with VCS Standard, the PP is committed to storing all project data in a secure and retrievable manner for at least two years after the end of the project crediting period. In order to facilitate project management and long-term accounting, all primary data outputs supporting annual verification including the spatial database is stored and maintained.

Roles and responsibilities are clearly identified in the MR. QA/QC procedures were developed by the PP for maintaining consistency and quality of field inventories over time. Interviews with the PP and inspection of data and results demonstrated that the PP possess all of the competencies required for reporting of GHG emissions reductions on accurate way.

Data presented to the audit team were clear and coherent and processing steps could be traced to the corresponding sections of the methodology and monitoring plan with transparency.

Throughout the verification, the PP demonstrated a commitment toward conservativeness and took all measures appropriate to ensure the reliability of evidence provided. Interviews conducted (oral evidence) are outlined in Section 2.4, and the final documents received from the PP supporting the determination of GHG reductions can be viewed in Appendix 1.

AENOR deems that the PP performed good practices in this assessment and concludes that GHG reductions were quantified correctly in accordance with the PD and applied methodology, and that the that evidence is sufficient in quantity and appropriate in quality to determine the GHG reductions of the project.

The monitoring plan provides means for internal data review and quality control, and the data presented by the project proponent included the results of these internal assessments. AENOR reviewed the different procedures applied by TRL and AENOR considers that information provided is sufficiency and the quality of that information is appropriate to determine the GHG reductions.

During the site visit, AENOR verified the enforcement of the quality assurance and quality protocols and checked that all instruments used for the whole monitoring period were checked and in good conditions to be used. Furthermore, AENOR performed a consistency check in order to verify the consistency of the previous measurement and the re-measurement, and to verify the correctness of the reported results.

5 VALIDATION AND VERIFICATION CONCLUSION

AENOR has performed the validation and the verification of the project "Tuik Ruch Lew Improved Cookstove Project For Lake Atitlan" in the Sololá Department, Guatemala, and has verified that the project is in compliance with the Verified Carbon Standard version 4.0 without qualifications or limitations.

The validation and verification process was performed on the basis of all issues and criteria of VCS. The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation and verification.

The verification assessment covered the monitoring period from 01-September-2018 to 09-March-2020 and verified that calculated emission reductions and/or removals were achieved during the monitoring period with a reasonable level of assurance.

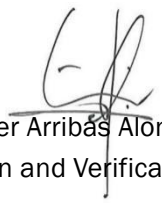
AENOR is able to issue a positive verification opinion for the 975 tonnes CO_2e as reported in the monitoring report for the reporting period 01-September-2018 to 09-March-2020.

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2018-2019 (from 01/09/2018 to 09/03/2020)	0		0	975
Total	**0**	0	0	**975**

Total VCUs to be issued: 975 t CO2e.

Date: 21 August 2020



Luis Javier Arribas Alonso
Validation and Verification Leader

APPENDIX I: LIST OF EVIDENCE PROVIDED

1. Final Joint Project Description v1.3, dated on 29 May 2020.

2. Final Monitoring Report v1.2, dated on 15 July 2020.
3. Previous versions of the Project Description and Monitoring Report.
4. Client database
5. Spreadsheet *Ex_ante_calculations "VCS Calculations Spreadsheet V1.3.xlsx."*
6. Spreadsheet expost calculations "*VCS MR Calculations Spreadsheet V1.3.xlsx*."
7. New cookstoves transport receipts.
8. Aprovecho Test Results
9. New cookstoves purchases bills.
10. TRL Official Government Certification of Non-profit Status
11. CCA-CCT Protocol
12. Spreadsheet "Controlled Cooking Test 2019 Data Collection"
13. Combustion chambers receipts.

APPENDIX II: FINDINGS

Clarification Requests (CLs)

VCS CL ID	01	Date: 13/04/2020
Description of CL		
The project proponent shall provide to the audit team the following evidence: 1. Appendixes of the PD. 2. Purchase receipts/invoices for the stoves installed. 3. Purchase receipts/invoices for the spare parts of the improved stoves. 4. Evidence of the 569 stoves installed since the association's founding and the 1,355 legacy stoves installed under the Cojolva Association of Maya Women Weavers 5. Evidence of the start date of both project activities on September 1, 2018. 6. Manufacturer specifications of the new stoves and the combustion chambers (installed in the improved stoves) with information about the lifetime. 7. Footnote 8: "Aprovecho Research Center, 2004, HELPS "ONIL" Griddle Stove Fuel efficiency and Emissions" 8. Website link of footnote 9. 9. Controlled cooking test (CCT) procedure in accordance with "www.cleancookingalliance.org/technology-and-fuels/testing/protocols.html". 10. Registers with the determination of the specific fuel consumption SC_{old} and SC_{new} 11. Evidence of the data about 84% of homes use wood as the primary energy source for cooking indicated in section 1.13. 12. Evidence of the local stakeholder consultation carried out in July 2018.		
Project participant response		**Date: 29/05/2020**
1. Appendices have been updated and shared with the VVB in a google drive folder. Note, appendices will be inserted into the physical PD once complete, in PDF form. 2. Receipts and invoices added to the VCS Evidence folder 3. Receipts and invoices added to the VCS Evidence folder 4. Specific numbers for cookstoves not relevant to the project's ERs were removed to avoid confusion. All registries of these stoves are in the client database in the tab "Non VCS" and made available to the VVB 5. Per the VCS standard V 4 section 3.7 "the project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals." For cookstoves, this would constitute the commissioning of the first instance under that project. The first cookstove of the TRL Improved Cookstove Project was installed in September of 2018. The client database does contain		

legacy stoves which were installed under previous projects. These are clearly documented in a separate tab “Non VCS”. The most recent, the Journey Latin America (JLA) Stove project installed its final stove on 21st of February of 2018. Correspondence between the PP and JLA document the final piece of funding disbursed in July of 2017. The final grant report was written in September of 2017. Careful use of funds allowed to project to continue operating until February of 2018. In April of 2018, a donation was made. This donation was raised by TRL to finance VCS and SD VISta related expenses. These funds allowed for the initial purchase of stoves made on August 30 and energy efficiency improvements to be completed in addition. These funds kickstarted the new, Improved Cookstove Project, with the intention that generating carbon offsets would enable the project to continue to be financially viable. The client database clearly demonstrates the close of the JLA stove project (in the “Non VCS” tab) and the beginning of the TRL Improved Cookstove Project (in the “New VCS” and “Improved VCS” tabs). All cookstoves included in the project are marked with a TRL logo. Cookstoves previously installed under JLA do not contain this logo. Clarification was added to the updated PD.

6. Manufacturer specifications from HELPs International were added to the VCS Evidence folder. This document includes text referencing the 10 year life span. TRL is committed to sourcing replacement parts from local businesses when possible. Therefore, the manufacturer of the combustion chambers is a local community producer that unfortunately cannot provide paperwork. The data / parameter table life span added to section 5.2 of the updated PD explains the reasoning for estimating that the project device for PA 2 will have a similar life span to the project device for PA 1. This assumes that the aging and consequential deterioration of the combustion chamber is the reason for the loss in efficiency over time. The other parts of the project device such as the concrete body can survive much longer. This is clear as stoves of certain owners who dedicate meticulous care to maintain the combustion chamber have continued to function for longer than the manufacturer stated 10-year lifespan. Testimonies and physical evidence seen while our Outreach Team is in the field supports this assumption.
7. This footnote was a citation pulled directly from a POA document for a project using the same technology, currently verified under VCS. The citation has been updated throughout the PD to reference the physical test results, located publicly in the project’s VCS Registration Documents. The following context is needed to understand the 24% thermal efficiency rating. The PoA document states: “According to independent stove efficiency tests performed by the independent Aprovecho Research Center ONIL stoves have a “cold start” thermal efficiency is 20 percent, compared to 10 percent from the traditional open fire method. The ONIL Stove uses 107 grams of wood to boil a liter of water, while the traditional open fire method uses approximately 200 grams. The “hot start” efficiency from Aprovecho testing is

26%. Since the stove retains heat once it has been started in the morning the efficiency used in the methodology is a combination of the cold start efficiency of 20% to account for morning use and the 26% efficiency to account for lunch and evening meals. Thus, the weighted average efficiency used in calculations is 24% (0.20*(1/3)+0.26*(2/3)).” (MEXICO - Specific CPA-DD_final, p. 3). This methodology, originally applied by VCS project “DISTRIBUTION OF ONIL STOVES - MEXICO” is currently approved to generate VCUs.

8. The content of that footnote has been removed in lieu of the citation described immediately above.
9. The Controlled Cooking Test (CCT) procedure was added to the appendices
10. CCT Data Collection and Test Results, containing registers with the determination of the specific fuel consumption SC_{old} and SC_{new} were added to the appendices. The mean of test results references the values for SC_{old} and SC_{new}
11. The table cited in the PD was downloaded from the website for the 2018 Guatemalan Census. A sheet was added with instructions for how to reproduce this document from the Guatemalan Census Website: 1)Go to https://www.censopoblacion.gt/explorador 2) Scroll down to Row 18, Cuadro B4 - Hogares según tipo de alumbrado, fuente principal de energía para cocinar y disponibilidad de cuarto exclusivo para cocinar 3) Download Excel. Instructions follow for how to derive the following statistic: the Sololá Department, 84% of homes use wood as the primary energy source for cooking are as follows: 1) Go to tab B4_1 2) Select value for cell J16 (Number of homes in the Sololá Department that use wood "Leña" as the primary energy source for cooking) 72109 3) Divide cell J16 by cell C16 (Number of total homes in the Sololá Department) 85607 4) Derive 84% or 0.842325978
12. Additional information about the local stakeholder consultation carried out in July 2018 was added to the updated PD for clarification. Additional photos were added to the PD, or made available in the VCS evidence folder in the case that the PP did not have explicit permission of the individuals in the photo to use it publicly.

Documentation provided by project participant

1. Google Drive folder: VCS Appendices. Updated PD, V1.3 section “Appendices”
2. Google Drive folder: VCS Evidence for VVB “(1) Receipts from HELPS, Cookstove Transport, Cookstove Storage, Field Team Transport.pdf”.
3. Google Drive folder: VCS Evidence for VVB “(2) Combustion Chamber Receipts.pdf”
4. Updated PD, V1.3 section 1.8. Client Database tab “Non VCS”
5. Google Drive folder: VCS Evidence for VVB “(3) Correspondence JLA.png,” “(4) Asociacion Rtui'k Ruch'lew financial 3rd quarter report for 2017,” “(5) CONFIDENTIAL_GYT Continental Bank Statement January 2018..pdf,” “(6) Stove Purchase August 2018 5.pdf,” Updated PD, V1.3 sections 1.4 and 1.8. Client Database.

6. Google Drive folder: VCS Evidence for VVB "(7) Estufa de plancha ONIL.pdf". Updated PD, V1.3 section 5.2
7. "MEXICO - Specific CPA-DD_final" pages 3 and 34: "Annex 3C: Efficiency of the system being deployed as compared to the system being replaced. Test performed by the Aprovecho Research Center in Cottage Grove, Oregon, USA". https://registry.verra.org/app/projectDetail/VCS/1216. Accessed May 7, 2020. VCS Appendicies: appendix 2. Updated PD, V1.3
8. "MEXICO - Specific CPA-DD_final" pages 3 and 34: "Annex 3C: Efficiency of the system being deployed as compared to the system being replaced. Test performed by the Aprovecho Research Center in Cottage Grove, Oregon, USA". https://registry.verra.org/app/projectDetail/VCS/1216. Accessed May 7, 2020. VCS Appendices: appendix 2. Updated PD, V1.3
9. Google Drive Folder: VCS Appendices "(3) CCA-CCT Protocol"
10. Google Drive Folder: VCS Appendices "(4) Controlled Cooking Test 2019 Data Collection.xlsx". Cell D22 is SC_{old} and G22 is SC_{new} .
11. Google Drive folder: VCS Evidence for VVB: (8) Cuadro B4 - Hogares según tipo de alumbrado, fuente principal de energía para cocinar y disponibilidad de cuarto exclusivo para cocinar.xlsx. Citation in the PD V1.3 is updated to: "Devised from the data of the Population and Housing Census 2018, Guatemala. "Table B4 – Homes according to type of lighting, primary energy source for cooking, and availability of a room exclusively for cooking" https://www.censopoblacion.gt/explorador "
12. Google Drive folder: VCS Evidence for VVB "(9) Foto simposio.png", Updated PD, V1.3 section 2.2

DOE assessment	**Date: 26/06/2020**
The evidence and additional explanation provided by the PP are considered adequate and enough. **Therefore, the CL is closed.**	

VCS CL ID	**02**	**Date:** 13/04/2020
Description of CL		
The PP shall clarify the type of improved ONIL stoves included in the project activity two: ● The new stoves of the project activity one installed after September 1, 2018 that need to be improved after being used. ● The stoves installed before September 1, 2018 that need to be improved after that date. ● Both type of stoves.		

Project participant response	Date: 29/05/2020
To be conservative, both types of stoves are included in Project Activity Two. In the rare case a stove that was previously registered under Project Activity One becomes damaged and requires an energy efficiency enhancement, it is removed from the Ny,i,j count. This will be reflected in monitoring reports. Most instances of the Project Activity Two involve the energy efficiency improvements of cookstoves that are damaged due to age and long-term wear and tear. The client database demonstrates an example of a new stoves of Project Activity one installed after September 1, 2018 that needed an improvement after being used (Stove #1931). All other examples in the tab "Improved VCS" are stoves installed before September 1, 2018 that received the energy efficiency improvement after that date.	
Documentation provided by project participant	
The Client Database demonstrates examples of both types	
DOE assessment	**Date: 26/06/2020**
The additional explanation provided by the PP on the type of improved ONIL stoves included in the project activity two is considered adequate and enough. **Therefore, the CL is closed.**	

VCS CL ID	03	Date: 13/04/2020
Description of CL		
The PP shall clarify if comments from the local stakeholders were received during the local consultation carried out in July 2018, and in affirmative case, the PP shall clarify how the received comments were considered to improve and modify the project design (internal reports of the weekly Friday meetings and annual reports) and provide evidence of the answers provided to the stakeholders due to their comments, informing of the modifications to project design.		
Project participant response		**Date: 29/05/2020**
The stakeholder section of the updated PD elaborates on the information provided. The text specifies what comments were received at the consultation in July 2018 and how the project design has been modified. For example, the updated PD documents the following modifications: (1) additional emphasis on seeking funding to provide for larger subsidies for the project area's most vulnerable families; (2) hire additional field team personnel to increase TRL's capacity to provide maintenance and educational visits; and (3) hold		

trainings for other community projects that wish to replicate TRL's model in areas the project cannot reach. Comments around these topics are described in greater detail in the updated PD along with additional photo evidence of the realization of these actions. The internal reports are presented orally at Friday meetings and discussed as a team. Annual reports are made available on the TRL website. The most recent annual report documents comments from consultations with ONIL stove users. The 2018 annual report contains an image of the event in July of 2018 however does not contain information about the comments received.
Documentation provided by project participant
https://www.trlearth.org/2019-annual-report page 14 https://92ab1a0f-788d-465d-b30f-00e0abb05ee3.filesusr.com/ugd/f7418f_42591a85644a4f7d95fdf41f85cc0f1d.pdf page 4 Updated PD V1.3, section 2.2, added text and figure 14.

DOE assessment	**Date: 26/06/2020**
The evidence and additional explanation provided by the PP in the updated PDD on the local stakeholders' consultations are considered adequate and enough **Therefore, the CL is closed.**	

VCS CL ID	**04**	**Date:** 13/04/2020
Description of CL		
The PP shall provide more details and evidences of the justification of the different barriers included in section 3.5 to determinate the additionality of the project activities (one and two), in accordance with the Tool 21 and considering the information provided by "Guidelines for objective demonstration and assessment of barriers" (version 01) and "Non-binding best practice examples to demonstrate additionality for SSC project activities" (version 01).		
Project participant response		**Date: 29/05/2020**
Additionality is demonstrated using Option 2 of AMS-II.G. (section 5.2.2.). The additionality assessment uses section 5 paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, "Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers in accordance with the applied methodology." This tool was		

chosen due to the absence of published, credible statistics on the penetration of high efficiency biomass fired devices (e.g. energy efficient cookstoves) available for the project area. The project activities would not have occurred anyway due to the barrier listed as Option D: (2) Other barriers: "without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher." The updated PD clearly documents how individuals in the project area would not be able to absorb the ICS technology without the culturally-informed ongoing support of the project's Outreach Team. No other project provides similar support or possesses similar community ties in the area. This is largely due to the fact that funders of ICS projects largely refuse to fund overhead or salaries for many follow-up visits, demonstrating a strong preference to only fund cookstove equipment. The result is the absence of long-standing community levels organizations like TRL. The carbon market will provide funds to finance of this labor, which enables TRL to provide the support needed to overcome the specific barrier of limited capacity to absorb new technologies. This adaptation support, maintenance, and follow-up protocols were demonstrated to the VVB at the site visit. The PD was updated for clarity, removing the text about the investment barrier.
Documentation provided by project participant
Physical evidence seen at the VVB's site visit and testimonies of clients provided during the visit. Updated PD V1.3 Section 3.5

DOE assessment	**Date: 26/06/2020**
The evidence and additional explanation provided by the PP in the updated PDD on the barriers identified to justify the additionality are considered adequate and enough **Therefore, the CL is closed.**	

VCS CL ID	**05**	**Date:** 13/04/2020
Description of CL		
The PP shall provide the source of data for the following parameters: 1. $HW_{project}$ (client survey data of pre-project device woody biomass usage per household) 2. $N_{project}$ (2018 census data of families using wood as primary cooking fuel source)		

3. $MAI_{other,i}$ (Mean Annual Increment of woody biomass growth per hectare in sub-category i of other wooded land areas)
4. $F_{forest,i}$ (Extent of forest in sub-category i)
5. $F_{other,i}$ (Extent of other wooded land in sub-category i)
6. P_{forest} (Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas)
7. P_{other} (Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas)
8. $B_{y=1,new,i,j,survey}$ (Quantity of woody biomass used by project devices in tonnes per device of type i and batch j).
9. The estimated project devices will be decommissioned annually in each project activity (3 in the first one and 5 in the second one).

Project participant response	Date: 29/05/2020

1. The results of the client survey for HW project (5.6299 tonnes / family / year) are stored in the Tab: "Non VCS" Column: "AC" of the Client Database. 0's and non-numerical values removed, with calculations demonstrated in the “Surveyed Wood Use” tab, added to the updated VCS Calculations Spreadsheet. An updated download of the Client Database and VCS Calculations Spreadsheet will be sent to the VVB over email.
2. The table cited in the PD was downloaded from the website for the 2018 Guatemalan Census and made available in the VCS Evidences folder. The excel file has been modified by the PP with a sheet containing instructions for how to reproduce this document from the Guatemalan Census Website. Tab B4_1 cell J16 (Number of homes in the Sololá Department that use wood "Leña" as the primary energy source for cooking) has a value of 72109.
3. The source for $MAI_{other,i}$, per option B of Tool 30 Data / Parameter Table 4 is the 2006 IPCC Guidelines for National Greenhouse Gas Inventories “Above-ground biomass growth rates (t/ha-yr) for different ecological zones” (Chapter 4, Table 4.9). The value is 1.0, the average of the average of the growth for tropical shrubland.
4. The source for $F_{forest,i}$ per option B of Tool 30 Data/ Parameter Table 5 is Global Forest Watch. “Land cover in Sololá, Guatemala”. Accessed on 20/04/2020 from www.globalforestwatch.org. The value of 91100 ha includes total forest area in the Solola Department. Data is for 2015. The VCS evidence folder contains screenshots of the website.
5. The source for $F_{other,i}$ per option B of Tool 30 Data/ Parameter Table 5 is Global Forest Watch. “Land cover in Sololá, Guatemala”. Accessed on 20/04/2020 from www.globalforestwatch.org. Data is for 2015. The value of 13950 ha Includes total shrubland and total grassland area added together (107kha + 3.25 kha). The VCS evidence folder contains screenshots of the website.

6. The source for P_{forest} per option B of Tool 30 Data/ Parameter Table 6 is Global Forest Watch. "Land cover in Sololá, Guatemala". Accessed on 20/04/2020 from www.globalforestwatch.org. Text is added to the updated PD to clarify how the value of 77684 ha is derived from the cited source. Value is calculated by first determining the amount of area in the Sololá Department that doesn't consist of protected land (27366 ha). This is done using a google maps area calculator. This step is taken because althuogh the Sololá Department largely consists of protected area, there is a significant portion of the Department that is unprotected land. Additionally, the protected area reaches outside of the Sololá Department. Therefore, to calculate a reasonable estimation of the amount of unprotected land, and area calculator is needed. Then add together Fforest,i and Fother,i (all of the wooded land in the Sololá Department, as determined by Global Forest Watch) and subtract the total unprotected area to determine the total amount of protected wooded area. Next, the conservative assumption was made that all of this unprotected area is forest. GIS mapping of project area demonstrates that this assumption is both conservative and accurate, as the color coded map in page 2 of the screenshot shows this part of the map is nearly 100% forest. This estimation of protected forest is conservative as GIS imaging shows the unprotected area contains a small amount of agricultural land and towns. By operating under the assumption that this land is 100% forest, the resulting calculated amount of Renewable Biomass in the project area is slightly higher. A higher Renewable Biomass value leads to a lower fNRB and this fewer ERs in the final calculation. Therefore, this is a conservative estimate.
7. The source for P_{other} per option B of Tool 30 Data/ Parameter Table 6 is Global Forest Watch. "Land cover in Sololá, Guatemala". Accessed on 20/04/2020 from www.globalforestwatch.org. Text was added to the updated PD to clarify again that the assumption is made that all the unprotected wooded area in the Sololá Department was forest area and therefore none of the remaining area is other land. GIS mapping (visible in the screenshots of Global Forest Watch website) of the project area demonstrates that this assumption is both conservative and close to accurate.
8. The source for the current value is a sample survey of end user at each end user locations per AMS-II.G Data / Parameter table 16. The results of the client survey for $B_{y=1,new,i,j,survey}$ are stored in the tab: "Non VCS" Column: "AO" of the Client Database. 0's and non-numerical values removed, with calculations demonstrated in the "Surveyed Wood Use" tab, which was added to the updated VCS Calculations Spreadsheet. Note this is a monitored value that will be updated for each monitoring period. Future survey results will be entered in the client database, separating responses for PA 1 and PA 2.
9. It has been clarified that an estimated 5% of project devices will be decommissioned annually in each project activity. This estimation was made on the grounds that since the beginning of the project activity, roughly 5% off current VCS stoves, for both project activities, have a status that is considered "not operating"

	in the client database. Note, MRs will use real numbers based on monitoring, not these estimates which are made for the purpose of estimating total ERs for the 7 year project lifetime.
Documentation provided by project participant	
1. Client Database Column AC, VCS Calculations Spreadsheet cell 17B 2. Google Drive folder: VCS Evidence for VVB: (8) Cuadro B4 - Hogares según tipo de alumbrado, fuente principal de energía para cocinar y disponibilidad de cuarto exclusivo para cocinar.xlsx. The reference to this document in the PD V1.3 is updated to: "Devised from the data of the Population and Housing Census 2018, Guatemala. "Table B4 – Homes according to type of lighting, primary energy source for cooking, and availability of a room exclusively for cooking" https://www.censopoblacion.gt/explorador " 3. Ch. 4 Forest Land, table 4.9 (p. 4.57) https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf 4. Google Drive folder: VCS Evidence for VVB: (10) Global Forest Watch Data (p. 2) 5. Google Drive folder: VCS Evidence for VVB: (10) Global Forest Watch Data 6. Google Drive folder: VCS Evidence for VVB: (10) Global Forest Watch Data, p. 2 Updated PD V1.3 Section 5.1 Data / Parameter table Pforest, Google Maps Area Calculator 7. Google Drive folder: VCS Evidence for VVB: (10) Global Forest Watch Data p. 2, Updated PD V1.3 Section 5.1 Data / Parameter table Pother 8. Client Database tab "Non VCS" Column AO, VCS Calculations Spreadsheet tab "Surveyed Wood Use" cell E17 9. Client Database Column F in sheets, "New VCS" and "Non VCS"	
DOE assessment	**Date: 26/06/2020**
The PP has provided the source of data of all parameters. **Therefore, the CL is closed.**	

Corrective Actions Requests (CARs)

VCS CAR ID	01	Date: 13/04/2020
Description of CAR		
The PD has not been completed in accordance with the instructions included in the VCS project description template as it is indicated below: 1. The project title is not the same in all sections of the document and it is not consistent with the project title registered in the VCS website. 2. Section 1.1. does not include information about the location of the project. 3. The PD includes some text in other language different to English (title of section Appendix, title of some appendixes, footnote 12, …).		
Project participant response		**Date: 29/05/2020**
1. The project title registered in the VCS website is "Tuik Ruch Lew Improved Cookstove Project for Lake Atitlan". References to the project title throughout the PD have been updated accordingly. In the PD text, the title is sometimes abbreviated as the "TRL ICS Project". 2. Section 1.1 of the PD has been updated to include more information about the location of the project. 3. The Spanish text in the PD is removed. Only titles and names (e.g. of Guatemalan legal documents or organizations) or places in Guatemala remain in Spanish. Additional English descriptions are added to footnotes. The title of the section "Appendices" is English, as there is more than one appendix.		
Documentation provided by project participant		
1. VCS Website: https://registry.verra.org/app/projectDetail/VCS/2077, Updated PD (V1.3) 2. Updated PD (V1.3), section 1.1 3. Updated PD (V1.3)		
DOE assessment		**Date: 26/06/2020**
1. The project title is now the same in all sections of the document and it is consistent with the project title registered in the VCS website. 2. Section 1.1. includes proper information about the location of the project. 3. The PD does not include text in other language different to English. Therefore, the updated PD has been completed in accordance with the instructions included in the VCS project description template and **the CAR is closed**.		

VCS CAR ID	02	Date: 13/04/2020
Description of CAR		
The PD has not been completed with correct and complete information in the issues indicated below: 1. The project type indicated in section 1.2 is not correct. 2. The last eligibility criteria of the project activities one and two is not justified properly in accordance with the requirement of the paragraph 3.5.15.5) of the VCS standard version 4. 3. The ending of the crediting period is not correct. 4. The number of cookstoves installed already and the estimated number of additional stoves to be installed the next six years for both project activities is not consistent with the information included in the calculation spreadsheet provided to the audit team. 5. The information of section 1.17. is not consistent with the requirements of the VCS standard which indicates that the leakage management is only applicable to AFOLU projects. 6. Some applicability conditions indicated by the applied methodology have not been included in section 3.2. 7. The information included in the justification of the first applicability condition is not consistent with the information indicated in the spreadsheet provided to the audit team. 8. The justification of the fourth applicability condition does not clarify if it is applicable or not to the project activity. 9. Section 3.3. does not include the definition of the project boundary in accordance with the applied methodology. 10. Section 3.5. does not identify the option of the applied methodology used to demonstrate the additionality. 11. Some sections of the PD does not indicate the current version of the applied methodology. 12. The footnote 31 indicates as conservative assumption for the project activity one an estimated six project devices will be decommissioned annually instead of the three considered in the spreadsheet. 13. The equation used to calculate the parameter $B_{y,savings,i,j}$ for the project activity two is not the number 8 in the applied methodology.		
Project participant response		**Date: 29/05/2020**
1. The added words “improved project” were removed from section 1.2 of the PD. 2. In the updated PD, additional information was added to eligibility criteria five for both Project Activity One and Two to properly demonstrate how all new cookstoves will have		

characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area, in accordance with with the requirement of the paragraph 3.5.15.5) of the VCS standard version 4. The added text documents that all new cookstoves will substitute an open fire with the same ONIL model and technology, with the same technical support. It has been clarified that additional instances will only be considered eligible if the barriers that determine additionality in section 3.5 of the PD apply (eg. if the cookstove is installed in the same financial conditions, technological barriers etc.). In the case that a stove is sold from one client to another, appropriate measures are taken to ensure double counting is avoided and only one cookstove is allocated per family. Additional care has been taken to organize the client database in a way which clearly documents processes such as these, so that it is clear which stoves are eligible to generate ERs, and which are not.

3. Ending of the crediting period is changed from September 1 2025 to Aug 31, 2025.
4. The reference dates for the client database, calculations spreadsheet and the PD were not aligned previously. Updated versions of all three documents have been submitted to the audit team. For Project Activity One, 154 cookstoves have been installed already, however, 11 of them have a status (eg. pending use) that is not considered "operating" thus do not enter into ER calculations. The numbers in the VCS calculations spreadsheet reflect stoves marked as operating at the time of ER calculations. The number in section 1.11 reflects total existing installed capacities since the project start date. Additionally, as batch 2 (September 2019-August 2020) is not yet complete, the estimate of 120 is used for calculations. The ER calculations account for the 57 cookstoves from batch one and estimated installations for all future batches. For Project Activity Two, 92 energy efficiency improvements have been completed to date, however 4 instances have a status (eg. pending use) that is not considered "operating" thus do not enter into ER calculations. Additionally, as batch 2 (September 2019-August 2020) is not yet complete, the estimate of 100 is used for calculations. The ER calculations account for the 61 instances from batch one and estimated energy efficiency improvements for all future batches.
5. Section 1.17 of the PD is updated to reflect that per the VCS Standard V4, the project proponent does not need to present a leakage management plan as the project is not an AFOLU project, thus, the section is not applicable.
6. Four applicability conditions have been added to section 3.2. Each condition is applied separately to each project activity. As indicated by the applied methodology, paragraphs 2 through 9 of AMS-II.G. V11.1 have a corresponding applicability condition in the PD.
7. In the updated PD, this finding applies to the third applicability condition. The VCS Calculations Spreadsheet is updated. Cell B48 indicates 3.245 tonnes of woody biomass savings in sheet "ERy,i=1,j Calculations (PA1)". 3.5 tonnes is thus still a reasonable overestimate to prove that projected installations for Project Activity One will not provide for aggregate energy savings that exceed the equivalent of 180 GWh thermal per year in fuel input. Cell B52 indicates 2.693 tonnes of woody biomass savings in sheet "ERy,i=2,j Calculations (PA2)" 2.8 tonnes is thus still a reasonable

overestimate to prove that projected instances for Project Activity Two will not provide for aggregate energy savings that exceed the equivalent of 180 GWh thermal per year in fuel input. Excess text is removed from the updated PD and clarifying footnotes are added for both project activities.

8. The fourth (now sixth, in the updated PD) applicability condition, refers to paragraph 7 of AMS-II.G regarding specific fuel use. The justification of the applicability condition is updated to clarify that the project device does not require briquettes, pellets, or wood chips and thus the condition is not applicable to the project activity. Clarification is applied separately to each project activity.
9. Section 3.3 of the PD is updated to include the definition of project boundary as per AMS-II.G. V11.1 paragraph 16 and a description of the physical, geographic site of the project devices.
10. Section 3.5. of the PD is updated to identify option 2 of AMS-II.G. (paragraph 21) as the chosen option to demonstrate additionality. Per option 2 of AMS-II.G., the additionality assessment uses section 5 paragraph 10 of Tool 21: Methodological tool: Demonstration of additionality of small-scale project activities, V13, "Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers in accordance with the applied methodology." This tool was chosen over options one and three, as well as paragraph 11.1 of the tool due to the absence of published, credible statistics on the penetration of high efficiency biomass fired devices (e.g. energy efficient cookstoves) available for the project area.
11. The PD is updated so that all references to the applied methodology, AMS-II.G. indicate the current version, version 11.1.
12. Footnote 31 was removed from the updated PD. Text was added to section 4.4 to clarify that ER calculations operate under the conservative assumption that an estimated five percent of project devices will be decommissioned annually. Footnote 57 in the updated PD consistently references this assumption. This is the case for both project activities. Each year the project estimates to install 120 cookstoves (10 a month) and complete 100 energy efficiency improvements in existing biomass fired devices. The VCS Calculations Spreadsheet is updated. For both project activities, cells in the tabs "ERy,i=1,j Calculations (PA1)" and "ERy,i=2,j Calculations (PA2)" that reflect N(y,i,j) contain a formula that removes 5% each year.
13. The previous version of the methodology referred to the equation used to calculate the parameter By,savings,i,j for Project Activity Two as equation 8. In version 11.1, the updated version, the numbering of equations shifted. Section 4.4 of the PD is updated to reference Equation (9): Option 4, as per version 11.1 of AMS-II.G. The calculations do not change.

Documentation provided by project participant

1. Updated PD (V1.3), section 1.2
2. Updated PD (V1.3), section 1.4

3. Updated PD (V1.3), section 1.9 4. Updated PD (V1.3), section 1.11. Updated VCS Calculations Spreadsheet, Updated Client Database (column F in the "new vcs" and "improved vcs" tabs) 5. Updated PD (V1.3), section 1.17 6. Updated PD (V1.3), section 3.2 7. Updated PD (V1.3), section 3.2 Updated VCS Calculations Spreadsheet 8. Updated PD (V1.3), section 3.2 9. Updated PD (V1.3), section 3.3 10. Updated PD (V1.3), section 3.5 11. Updated PD (V1.3) 12. Updated PD (V1.3), section 4.4, Updated VCS Calculations Spreadsheet 13. Updated PD (V1.3), section 4.4

DOE assessment	**Date: 26/06/2020**
The updated PD has been completed with correct and complete information in the issues requested. **Therefore, the CAR is closed**.	

VCS CAR ID	**03**	**Date:** 13/04/2020
Description of CAR		
Regarding to the emission reductions description included in the PD, the audit team has found the following issues: 1. All equations used to calculate the emission reductions have not been included in the PDD, such as equation (2) with the calculation of the parameter ERy,i,j. 2. The PD does not describe the measures taken to ensure that all batches receive the same level of quality control in the production, and maintenance/replacements during the crediting period, as the first batch, as it is required in the footnote 2 of the applied methodology. 3. The PD does not indicate if the parameter fNRB is determined ex ante or ex post as it is required in the paragraph 27 of the applied methodology. 4. The value of the parameter $EF_{projected\_fossil\ fuel}$ indicated in the PD is not the value indicated in the table 2 of the applied methodology. 5. The PD does not indicated clearly the option used to determined the parameter $B_{y,savings,i,j}$ for each project activity included in the project (option 3 and 4). 6. The parameters $B_{old,i,j}$ and $f_{NRB,y}$ (if they are determined ex-ante) are not included in section 5.1 as it is required by the applied methodology although these parameters are used to calculate the emission reductions. However, the parameter $N_{p,HH}$ is	

included in section 5.1. although it is not required by the applied methodology or tool and it is not used to calculate the emission reductions.

7. The description of the parameter $N_{project}$ included in table of section 5.1. is not consistent with the information provided by the tool applied.
8. The data unit and the description indicated in table of section 5.1. for the parameter $TI_{project}$ are not correct. Moreover, the PP shall clarify if the value of the parameter is obtained from surveys as it is indicated in the source of data, or it is a conservative low estimate as it is indicated in the justification of choice of data.
9. The reference to the methodology AMS-II.G included in the justification of choice of data $HW_{project}$ in table of section 5.1. is not correct.
10. The source of data MAI_{forest} in table of section 5.1. shall clarify the option provided by the tool selected and include the information about the QA/QC procedures indicated by the tool.
11. The value of the parameter MAI_{other} in table of section 5.1. is not consistent with the values provided in other section of the PD and the spreadsheet.
12. The source of data $F_{forest,i}$, $F_{other,i}$, P_{forest} and P_{other} in table of section 5.1. shall clarify the option provided by the tool selected.

Project participant response	Date: 29/05/2020

1. The formula, Equation (2): ERy,i,j = By,savings,i,j x Ny,i,j x μy x fNRB,y x NCVbiomass x EFprojected_fossilfuel is included on page 36, 39 and 43 of the PD. The tables: "Equation (2) Project Activity 1" and "Equation (2) Project Activity 2" are included in the PD to demonstrate calculations for this parameter. Tables have been updated for clarity. For example, detailed labels have been added to the PD and the updated VCS Calculations Spreadsheet. The only other equations used to calculate the emission reductions are 1, 8 (Project Activity One only), and 9 (Project Activity Two only) of AMS-II.G and 1, 3, 5 and 6 of Tool 30. All are documented in the PD.
2. Section 4.4 of the PD was updated to include a more detailed description of the measures taken to ensure that all batches receive the same level of quality control in the production, and maintenance/replacements during the crediting period, as the first batch. The definition of batch per AMS-II.G. is included along with additional text that clarifies, for Project Activity One, the installation date (commissioning date) of the cookstove determines its batch, and for Project Activity Two, the date on which the device receives its energy efficiency enhancement -- its improvement -- determines its batch. Further explanation is also added to clarify that for Project Activity One, the project ops to account for the loss in efficiency per footnote 2 and paragraph 37, option a. An explanation is added to the updated PD to document that details the procedures for cookstove production, maintenance and replacements during the crediting period, which shall be applied consistently to all batches. Completion of these measures will be corroborated by maintenance records stored in TRL's client database, which is shared with the VVB. Meanwhile, for Project Activity Two, which uses option four and equation nine of the methodology, the requirements above are not applicable. With the use of a

controlled cooking test (CCT), any annual changes of the quantity of woody biomass used and any annual changes in specific fuel consumption will be captured by the CCT.

3. Text is added to the PD to clarify that the parameter fNRB is determined ex ante.
4. The value referenced a previous version of the methodology. The value of the parameter EFprojected_fossil fuel indicated table 2 AMS-II.G V11.1 is 68.6 for Latin America and the Caribbean. The PD and ER calculations have been updated to reflect this value.
5. Option 3 used to determine the parameter By,savings,i,j for Project Activity One. Option 4 used to determine the parameter By,savings,i,j for Project Activity Two. The text of section 4.4 of the PD is updated accordingly to clarify which option each project activity uses to calculate By,savings,i,j.
6. The parameters in section 5.1 of the updated PD as follows: $\boldsymbol{B}$old,HH, $\boldsymbol{B}$old,I,j, fNRB,y, SCold, HWproject, TIproject, Nproject, MAIforest,i, MAIother, Fforest,i, Fother,i, Pforest, and Pother. The parameter Np,HH has been removed from the updated PD. Section 5.1 separates AMS-II.G. and Tool 30 parameters, presenting them in the order of the methodology or tool, respectively. Monitored parameters included incorrectly in section 5.1 are moved to section 5.2 of the updated PD, per AMS-II.G.
7. The description of the parameter Nproject in table of section 5.1. is updated to state, “Number of households consuming wood fuel for thermal applications within the project area” and the data unit is updated to state, “number of households” (rather than “number”) for the data unit. Updated PD is now consistent with the information provided by Tool 30 Data / Parameter Table 3. Source is clarified.
8. The data unit indicated in the table of section 5.1. of the updated PD for the parameter $TI_{project}$ is corrected to t/yr and the description is corrected to “Non-domestic woody biomass consumption for energy applications (e.g. commercial, industrial or institutional uses of wood in ovens, boilers, etc.) and all woody biomass consumption for non-energy applications (construction, furniture) that are extracted from forests or land areas in the project area for which the estimate of fNRB is to be made,” corresponding with Tool 30 Data / Parameter Table 2. The value of the parameter is a conservative low estimate. Further justification is added to explain that given the lack of availability of reliable sources of studies or government data or survey conducted at the department level, and the contextual knowledge that there is little woody biomass extracted from the forests in the project area for use in non-domestic applications and non-energy applications, a reasonable estimate would be very low. Therefore, the value of 0 was chosen to be as accurate and conservative as possible.
9. Section 5.1 of the updated PD includes a reference to Tool 30 rather than to AMS-II.G in the justification of choice of data HWproject.

10. Section 5.1 of the updated PD clarifies option B of tool 30 Data / Parameter table 4 as the source of data for MAIforest. The information about the QA/QC procedures indicated by the tool was also added.
11. The value of the parameter MAIother is 1. For consistency, the table of section 5.1. of the PD is updated, as well as all other references to this parameter in the PD (e.g. section 4.4) and the VCS Calculations Spreadsheet.
12. The source of data $F_{forest,i}$ and $F_{other,i}$ P_{forest} and P_{other} is option b, per Tool 30 Data / Parameter Tables 5 and 6. Section 5.1 of the updated PD documents the option and clarifies the sources, respectively.

Documentation provided by project participant

1. Updated PD (V1.3), section 4.4. Updated VCS Calculations Spreadsheet.
2. Updated PD (V1.3), section 4.4
3. Updated PD (V1.3), section 4.4
4. Updated PD (V1.3), section 4.4
5. Updated PD (V1.3), section 4.4
6. Updated PD (V1.3), sections 5.1 and 5.2
7. Updated PD (V1.3), section 5.1
8. Updated PD (V1.3), section 5.1
9. Updated PD (V1.3), section 5.1
10. Updated PD (V1.3), section 5.1
11. Updated PD (V1.3), sections 4.4, 5.1, Updated VCS Calculations Spreadsheet.
12. Updated PD (V1.3), section 5.1

DOE assessment	**Date: 26/06/2020**

The updated PD has been completed with correct and complete emission reductions description. **Therefore, the CAR is closed**.

VCS CAR ID	**04**	**Date:** 13/04/2020

Description of CAR

The following parameters that the methodology considers data and parameters to be monitored are not included in section 5.2. of the PD:

1. The parameter $\eta_{new,i,j}$, which is included in section 5.1. Data unit indicated in table of section 5.1. is not correct. As comments, it is indicated that this parameter is fixed ex ante, although the methodology requires that this parameter will be monitored.
2. The parameters $\eta_{old,i,j}$, μ_y, $NCV_{biomass}$ which are included in section 5.1.

3. The parameters $N_{d,HH}$, Life Span, Date of commissioning of batch *j and* Date of commissioning of project device i.	
Project participant response	**Date: 29/05/2020**
1. The parameter ηnew,i,j was moved from section 5.1 to section 5.2 of the updated PD, as the methodology lists this as a monitored parameter. The data unit was corrected to "fraction" per AMS-II.G. Data / Parameter Table 12. The comment about the parameter being fixed ex-ante was removed and updated to explain that while it does not appear in the monitoring plan, instead the value will be adjusted for the loss of efficiency per paragraph 37 of AMS-II.G. 2. Section 5.2 of the PD has been updated to include the parameters Ny,i,j, **μ**y, ηnew,i,j, NCVbiomass, SCnew,i,j, By=1,new,i, j,survey, ηold,i,j, Life Span, Date of commissioning of batch j, Date of commissioning of project device i and $\boldsymbol{Nd,HH}$ per AMS-II.G. The parameters $\eta_{old,i,j}$, $\boldsymbol{\mu}_y$, $NCV_{biomass}$ were removed from section 5.1. The table for EFprojected_fossilfuel was also removed as it is a default and does not require a table per AMS-II.G V11.1. All monitored parameters are now presented in the explicit order of the methodology. Parameters included incorrectly in section 5.2 are removed from the updated PD, per AMS-II.G. 3. See response immediately above. PD is updated accordingly with these parameters in section 5.2	
Documentation provided by project participant	
1. Updated PD (V1.3), sections 5.1, 5.2 2. Updated PD (V1.3), sections 5.1, 5.2 3. Updated PD (V1.3), sections 5.1, 5.2	
DOE assessment	**Date: 26/06/2020**
The updated PD has been completed section 5.2 with the correct parameters that the methodology considers data and parameters to be monitored. **Therefore, the CAR is closed.**	

VCS CAR ID	**05**	**Date:** 13/04/2020
Description of CAR		
The value of parameter $N_{y,i,j}$ indicated in table of section 5.2. is not consistent with the value indicated in other section of the PD.		
Project participant response		**Date: 29/05/2020**

The value of parameter $N_{y,i,j}$ indicated in table of section 5.2 has been clarified as 120 for Project Activity One and 100 for Project Activity Two. This number is the projected number of additional instances forecasted per year used solely for estimations of emission reductions. Monitoring reports will use the actual numbers recorded. The PD is updated throughout for consistency to reflect this projected value for $N_{y,i,j}$. The only other references to this parameter are in section 4.4. Here the values for N(y=2018,i=1,j) and N(y=2018,i=2,j) are different. This is because batch one has been completed, so real values are used to calculate the estimated ERs. In these cases, the values are 57 and 61, respectively. As indicated in the data / parameter table, all values for $N_{y,i,j}$ decrease yearly per the estimated 5% decommissioning rate.
Documentation provided by project participant
Updated PD (V1.3), sections 4.4 and 5.2. Client Database.

DOE assessment	**Date: 26/06/2020**
The value of parameter $N_{y,i,j}$ indicated in table of section 5.2. of the updated PDD is now consistent with the value indicated in other sections of the PD. **Therefore, the CAR is closed.**	

VCS CAR ID	**06**	**Date:** 06/08/2020
Description of CAR		
The MR has not been completed in accordance with the instructions included in the VCS template as it is indicated below: 1. The project title is not the same in all sections of the document and it is not consistent with the project title registered in the VCS website. 2. The information included in the template regarding to the “Report ID” in the cover page have not been deleted. 3. The “Contact” information provided in the cover page is not correct. 4. All sections are not using Arial or Franklin Gothic Book 10.5 point, black, regular (non-italic) font.		
Project participant response		**Date: 07/08/2020**
1.The title has been updated to: “Tuik Ruch Lew Improved Cookstove Project For Lake Atitlan” 2.The report ID has been updated to 1. 3.”www” was added to the front of the website “trlearth.org” in the contact information for clarity.		

4.The font has been changed to Franklin Gothic Book 10.5
Documentation provided by project participant
Updated MR, V 1.2

DOE assessment	**Date: 07/08/2020**
The updated MR has been completed in accordance with the instructions included in the VCS template. **Therefore, the CAR is closed.**	

VCS CAR ID	**07**	**Date:** 06/08/2020
Description of CAR		
The information included in some tables of section 4.2. is not consistent with the information required by the PD and the methodology applied.		
Project participant response		**Date: 07/08/2020**
All inconsistent values have been adjusted per the PD and AMS-II.G V 11.1		
Documentation provided by project participant		
Updated MR, V 1.2		
DOE assessment		**Date: 07/08/2020**
The information included in the tables of section 4.2. of the updated MR is consistent with the information required by the PD and the methodology applied. **Therefore, the CAR is closed**.		

Forward Actions Requests (FARs)

FAR ID		**Date:**
Description of FAR		
.NA		