Gold Standard for the Global Goals

TEMPLATE

KEY PROJECT INFORMATION & VPA DESIGN DOCUMENT (PDD)

PUBLICATION DATE **04.05.2022**

VERSION **v. 2.0**

RELATED SUPPORT - Programme of Activity requirements

This document contains the following Sections

KEY PROJECT INFORMATION

Type of VPA	☐ Real case VPA ☒ Regular VPA
Scale of VPA Note that a VPA can be of one scale. Please select applicable scale accordingly.	☐Microscale ☐Small scale ☒Large scale
Title of corresponding real case VPA (if applicable)	NA
GS ID of real case VPA (if applicable)	NA
GS ID of VPA	2685
Title of VPA	GS2434 MicroEnergy Credits – Mongolia - Microfinance for Clean Energy Product Lines VER Project – VPA No.003: XacBank LLC-VPA 3
Time of First Submission Date	14/08/2014
Date of Design Certification	02/09/2014 (Design certification date for 1st crediting period) 14/04/2023 (Design certification date for crediting period renewal)
Version number of the VPA-DD	2.3
Completion date of version	24/04/2023
Coordinating/managing entity	MicroEnergy Credits
VPA Implementer (s)	XacBank LLC
Project Participants and any communities involved	-
Host Country (ies)	Mongolia
GS ID and Title of applicable Design Certified VPA	NA
GS ID and Title of applicable Performance Certified VPA	NA

Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Other Requirements applied	Programme of Activity Requirements v2.0
Methodology (ies) applied and version number	Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) (version 4.0)
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
VPA Cycle:	☐ Regular ☒ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6)	Estimated Annual Average	Units or Products
13 Climate Action (mandatory)	GHG emission reductions	122351	tCO_2e
7 Affordable and Clean Energy	The number of active CEPs disseminated by the project, during year y	14040	Number
8 Decent Work and Economic Growth	Number of jobs created by the project activity	4	No. of jobs

SECTION A. DESCRIPTION OF PROJECT

A.1. Purpose and general description of project

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This VPA involves the installation and maintenance of efficient heating stoves by Partner Organization (PO) in Mongolia[1].

The current practice in Mongolia is to use inefficient stoves at the household level, resulting in necessary combustion of large amounts of coal. As per the latest UNICEF survey for Mongolia 56% of the household report using the traditional stoves for space heating[2]. The use of these fuels generates a variety of gases including Carbon dioxide (CO_2). The replacement of these traditional stoves with Improved stoves reduces the amount of fuel required for heating and reduces the amount of GHG emitted into the atmosphere.

MicroEnergy Credits (MEC) is the Coordinating/Managing Entity (CME) for this PoA. MEC is a social enterprise that helps micro-entrepreneurs and low-income households in developing countries to invest in Clean Energy Products through their local microfinance institution. Under the PoA, MEC will develop programs with microfinance institutions[3], such as VPA implementer XacBank LLC, and clean product suppliers to market, distribute, and finance CEPs to these micro-entrepreneurs and low-income households.

The PO has signed the standard contractual agreement with the CME (MEC) to participate in the PoA, and this agreement guides the transfer of the emission reduction rights to the CME (MEC).

The VPA is neither registered as an individual GS or CDM project activity nor as part of another registered PoA. MEC's Credit Tracker Platform is used to record detailed information on each efficient heating technology installation. Using this data, MEC is able to ensure that all installations in the proposed VPA are uniquely defined and included in the proposed VPA only, thereby avoiding double counting of emission reductions generated by the VPA.

MEC has registered a CDM PoA (PoA 8142, now transitioning to GS as GS11616) which may disseminate the same models of stoves described. MEC's Tracker platform is used to record detailed information and the unique identification number assigned to each CEP installation disseminated in this VPA and PoA, as well as in CDM PoA 8142 and GS 1048. Using this data, MEC is able to ensure that the stoves sold under this VPA are

[1] Home insulation has been removed in design change
[2] UNICEF MICS. 2018; Table TC 4.1 (pg 171) & Table TC 4.4 (pg 174)
[3] For the purposes of this document, a "microfinance institution" is defined as a local institution that provides financial services to low income households.

uniquely defined and included in the VPA only, thereby avoiding double counting of emission reductions generated by the VPA.

Under the project activity a total of 15,601 CEPs have been disseminated between the dates 02/01/2012 and 26/04/2013.

Table 1 below represents the year-wise sales of the VPA:

Year	Sales
2012	15,115
2013	486
Total	15,601

A.1.1. Eligibility of the VPA under approved PoA

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The table below describes how the VPA meets the required eligibility conditions of the PoA and provides supporting evidence.

Table 2 Eligibility for VPA inclusion as per PoA requirements

No.	Eligibility Criterion	Description/ Required condition	Means of Verification/Supporting evidence for inclusion
1	Boundary and location of the VPA	The VPA is located within Mongolia. Please note that not all CEP installations may have been deployed at VPA inclusion stage, however the location of the CEP can also be checked during verification. In the event that any deployed CEP is found to be outside of the project boundary/location, those CEP will not be counted in the emission reduction calculation.	Location and boundary is specified in the specific VPA-DD stating that the location is limited to Mongolia. Documentation provided to the VVB: 1. CME Statement provided to VVB confirms that the location and boundary is within Mongolia.

2	No Double counting of CEP	A unique numbering or identification system for the CEP installed is applied.	Each CEP is assigned a unique alpha-numeric code, a 'sysnum', in the MEC Tracker database to ensure no products are entered twice and that no products are included in multiple CPAs. Documentation provided to VVB: 1. MEC Credit Tracker database with column for 'Sysnum' 2. First Booking Record with column for 'Sysnum' (first VPA of PoA)
3	VER ownership	End users receiving CEP under the specific VPA contractually cede their rights to claim and own emission reductions under the Gold Standard to the CME of the PoA	Upon purchase of a CEP, the user must sign the Carbon rights waiver (i.e. Title Transfer Form) which includes the provision that emission reductions generated by the CEP are transferred from the end-user to the PO and ultimately owned by the CME. Documentation provided to VVB: 1. Carbon rights waiver (Title transfer form)
4	Double counting of VPA	The VPA is exclusively bound to the PoA. Confirmation that the programme activity has not been and will not be registered either as a single CDM or GS project activity or as a VPA under another PoA.	VPA will not be part of another single CDM project activity or VPA under another PoA. Further, MEC's Credit Tracker Platform is used to record detailed information on each CEP, which is used to ensure that all installations in VPA are uniquely defined and included in one VPA only. The condition is included as a fixed ex-ante parameter in section B6.2 of the VPA-DD where it is confirmed that the specific VPA will not be part of another single CDM project activity or VPA under another PoA.

			Documentation provided to VVB: 1. Contract with CME and MFI
5	Awareness and agreement of those operating a VPA on PoA subscription	Contractual provisions to ensure that those operating the VPA are aware and have agreed that their activity is being subscribed to the PoA.	Declaration from VPA operators as part of their contract with the CME, stating that they are aware and have agreed that their activity is being subscribed to the PoA. Documentation provided to VVB: Declaration by PO to CME
6	Non-diversion of ODA in case of Public funding	The CME and the VPA operator (in case of being different from the CME) shall confirm that in case of public funding there shall not be diversion of Official Development Assistance.	Statement of CME and the VPA operator (in case of being different from the CME) Documentation: 1. ODA Declaration form from MEC (CME) and VPA operator
7	VPA Start Date	The start date of the VPA shall not be before the PoA start date. Please note that not all CEP installations may have been deployed at VPA inclusion stage, however the CEP start date can also be checked during verification. In the event that any deployed CEP is found not in line with VPA start date, those CEP will not be counted in the emission reduction calculation	Starting date as stated in the section C of the VPA-DD is after PoA-DD start date. Documentation provided to VVB: 1. Statement from CME that no CEP under the VPA were sold prior to the PoA start date of 25/05/2011 2. First booking record 3. MEC Tracker Platform
8	VPA Crediting Period	VPA starting date of the crediting period is date of inclusion into registered PoA or up to two years prior, in case of retroactive crediting. Crediting period	The VPA will have a crediting period of 7 years which can be renewed twice, i.e. in total a maximum issuance of 21 years.

		shall not exceed the PoA end date. Each VPA shall provide verifiable evidence.	The VPA will not exceed the end date of the registered PoA.
9	Approval of VPA by CME	CME approved each VPA to be included into its registered PoA.	Statement of CME giving approval for the VPA to be included into its registered PoA provided to VVB.
10	Baseline for Target Group	The target group shall be domestic households in urban, peri-urban, or rural areas, of Mongolia. The baseline would be use of traditional stoves with lower efficiency by these target groups.	The target group for this VPA are the domestic households (houses/Gers) in urban, peri-urban, or rural areas of Mongolia. The baseline is use of traditional stoves with lower efficiency by these target groups. Documentation provided to VVB: Baseline surveys
11	Additionality of VPAs	As per Community Services Requirement v1.2 para 4.1.9 "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification: (a) Positive list (Annex B of this document) (b) Projects located in LDC, SIDS, LLDC (c) Microscale projects" As per Annex B- Positive List para 1.1.3, "Project activities solely composed of isolated units where the	The energy savings per year at a unit level (i.e. per stove) are clearly below 600 MWh as outlined in the ER calculation excel spreadsheet submitted to VVB. Further, the host country where the project is located is an LLDC[4]. 1. Thus, the project activity meets the criteria (a) and (b) and is therefore deemed additional. The details are shown in section B.5 of this document.

[4] https://www.un.org/ohrlls/content/list-lldcs

		users of the technology/measure are households or communities or institutions and where each unit results in <= 600 MWh of energy savings per year or <=600 tonnes of emission reductions per year" Hence, according to paragraph 4.1.9 of the 'Community Services Activity Requirements', each of the VPAs, regardless of the host country in which the project activity is being implemented, is deemed additional and therefore is not required to prove financial additionality at the time of Design Certification.	
12	Sampling requirements for the PoA	Sampling approaches are set out in each VPA and will follow the Reduced Emissions from cooking and heating- TPDDTEC version 4.0	VPA-DD has incorporated the sampling procedure in section B.7.2 and sampled survey forms shall be provided to GS VVB.
13	Compliance with Environmental Impact Assessment (EIA) Requirements and relevant host countries laws and policies	As stated in the PoA-DD, the EIA was conducted at the PoA level. Each VPA complies with EIA and relevant host country laws and policies as listed in the EIA report: The Article of Environment Impact Assessment Law of 4.6.2: • The standard methods of environment impact assessments 3.2.2,	To demonstrate compliance with the EIA, the PP shall implement the following: 1. Regular household stove's technical general requirement MNS 5216:1, hard fuel usages of household stove MNS 5216:2002, MNS 13240:2011, in the framework of this project, those type of requirements must be fulfilled on

	Resolution of Minister of Environment and Nature's the 1st annex of resolution №236, in 2008. The Law of Nature and Environment Protection	household energy efficient stoves. • **Manufacturer specifications provided to VVB** 2. If there is any waste from production, the project implementers should make a collaboration contract with the local waste management foundation or companies. • **Agreements with stove dismantling company(ies) to dismantle old stoves provided to VVB** 3. As the stove is lit from the top, it may have difficulty heating at the ground level. • **Manuals provided to end users at time of purchase provide information on how to properly light and refuel stoves provided to VVB** 4. The energy efficient products should be distributed with brochures and user manuals to the clients. • **Manuals associated with the stove disseminated provided to VVB** 5. Project parties should follow all of safety codes and user manuals, which is developed by producers and PIU • **Training on product use and information provided by Program Staff, demonstrated to VVB.**

14	Local Stakeholder Consultation and Sustainable Development	A local stakeholder consultation must be conducted prior to inclusion of any regular VPA into the PoA. If the VPA is retroactive, further stakeholder consultation may be conducted based on Gold Standard requirements. Sustainability impact and safeguarding assessments must be conducted prior to inclusion of any VPA into the PoA, which shall be reported in the VPA-DD. Mitigation measures shall be provided for any safeguarding indicators for which there is potential negative impact.	Document: 1. VPA1 is retroactive and LSC report is not required. However, the LSC report specifically applicable for VPA2-8 was provided. The consultation process reported upon in this report was applicable to VPA 1 given identical scope, target group, and stakeholders for the VPAs. 2. PFA feedback from GS indicates that SFR shall be conducted, no need for further consultations. 3. Safeguarding principles and sustainable development assessment are provided in sections D.1 and B.6 of the VPA-DD respectively.
15	Technological Requirements	The VPA will comply with the applicable criteria of applied methodology Reduced emissions from cooking and heating-(TPDDTEC) (version 4),	The VPA complies with all applicability criteria of TPDDTEC version 4.0. A detailed justification is provided in Section B.2 of VPA-DD.
16.	Applicability of Community services Activity requirements (CSA)	The VPA should meet all the applicability conditions of the Community Services Activity requirements and each condition should be described and justified in the VPA-DD	The VPA-DD meets all the applicability conditions of CSA as per section B.2 of this document.
17	SSC Limit for VPAs	The SSC-VPA will remain under the thermal threshold of 180 GWh/a thermal energy savings throughout the crediting period of the VPA. Please note that not all CEP may have been deployed at VPA inclusion stage, the	Not applicable to this VPA as it is a large scale VPA. However, a worksheet 'Energy savings unit' in the ER calculation sheets calculates the scale for the project activity.

		SSC limit for VPAs can however also be checked during verification. The SSC-VPA will not credit more than the SSC Limit of 180GWh/a thermal savings. Adherence to this limit is demonstrated in ER calculations for each VPA, provided to VVB.	
18	Target Group	The target group shall be domestic households in urban, peri-urban, or rural homes. The distribution mechanism is direct sales and sales through distribution partners.	Documentation provided to VVB: 1. MEC Tracker booking record demonstrates product information including residential address and end user contact information, proving target group is domestic households, located in peri-urban homes surrounding Ulaanbaatar. 2. Operations Manual of XacBank, VPA implementer, demonstrates distribution mechanism of direct sales through XacBank operated product centers.
19	Sampling requirements	Sampling approaches are set out in each VPA and will follow the Reduced Emissions from cooking and heating- TPDDTEC version 4.0.	Documentation provided to VVB: 1. VPA-DD section B.7.2 includes sampling plan for VPA, which follows TPDDTEC version 4.0.. 2. VPA shall follow sampling requirements laid out in PoA-DD.
20	SDG impact assessment	The PoA, by way of implementing its VPAs, shall demonstrate contribution towards the following SDGs: 1. SDG 13 Climate Action 2. SDG 7: Affordable and Clean Energy	The SDG monitoring plan and related details are provided in section B.6 of the VPA-DD.

		3. SDG 8: Decent Work and Economic Growth	
21	Safeguarding principles assessment	The safeguarding principles assessment shall be carried out at the VPA level.	Safeguarding principles assessment and related details are provided in section D.1 of this VPA-DD.
22	Stakeholder inclusivity	Local stakeholder consultation for VPA to be conducted prior to the VPA start date. As per the para 4.12.8 the VPA would be retroactive or Regular depending on whether the LSC is conducted before or after the start date of the project activity. This information should be mentioned at the time of inclusion of a VPA-DD	As the VPA is retroactive in nature therefore the stakeholder consultation has been conducted after the start date of the VPA. Details related to local stakeholder consultation have been provided in Section E of the VPA-DD
23	Applicability of Requirements and Guidelines: Usage rate Monitoring, version 2.0	The VPA should meet all the applicability conditions of the applied methodology, Usage rate Monitoring, version 2.0 and each condition should be described and justified in the VPA-DD	The VPA is meeting all the applicability conditions of the usage rate monitoring, version 2.0. Details have been mentioned in Section B.2 of this document.
24	Applicability of applied methodology	The VPA should meet all the applicability conditions of the applied methodology, TPDDTEC ver 4.0 and each condition should be described and justified in the VPA-DD	The VPA-DD is meeting all applicability conditions of the methodology, TPDDTEC ver 4.0. This has been detailed in section B.2 of the VPA-DD

The VPA meets the requirements of the Community Services Activity Requirements, as follows –

Eligibility Criteria Category	Eligibility criterion - Required condition	Justification
1. Eligible Project Types	All CSA Projects shall lead to climate change mitigation and/or adaptation by providing or improving access to services/resources at the household or community or institution level. Eligible services include electricity and energy, water and sanitation, waste management, housing, etc.	The goal of the VPA is to distribute Energy Efficient heating devices the households/SMEs of the host country of Mongolia. Thus, the VPA leads to climate change mitigation (and other sustainable development impacts) by providing access to clean heating at the household and institution level.
GENERAL ELIGIBILITY CRITERIA		
2. Type of project	(b) End-use energy efficiency: Project activities that reduce energy requirements as compared to baseline scenario without affecting the level and quality of services or products, where the end-user of the products and services are clearly identified and when the physical intervention is required at the user end. For example, efficient cooking, heating, lighting, etc.	The VPA involves distribution of cleaner and energy efficient devices thereby resulting in reduction of baseline energy requirements, without compromising the quality and level of services/products for households/SMEs
3. Project Area, Boundary and scale	Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements.	The project area is point location of CEP beneficiaries in the host country of the VPA. The project boundary will be limited to the geographical boundary of the host country of Mongolia. Scale is no limit for energy efficient stoves, since TPDDTEC methodology version 4.0 is followed. The stoves distributed under this VPA have total energy savings of greater than small scale threshold of 180 GWhth/yr. Hence this is a Large Scale VPA. Moreover,

Eligibility Criteria Category	Eligibility criterion - Required condition	Justification
		there is no suppressed demand element. The scale limits for the VPA are shown in section A.4 of this document and ER calculation sheet which has been submitted to VVB.
4. Legal Ownership	(a) Projects involving the distribution of a large number of devices for services such as heating, cooking, lighting, electricity generation, water treatment technology such as water filter, etc. shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain. In line with the FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided. (b) The transfer of Product ownership shall be discussed during local stakeholder consultations for projects.	The CEP owners confirm that rights to the ownership of carbon credits reside with the XacBank (PO) according to the end user agreement /declaration form signed via monitoring app etc (refer Eligibility under GS4GG section above). The final title over carbon credits lies with MEC, and to that effect, an agreement of transfer of carbon credits is signed between the PO and MEC (CME) The transfer of product ownership

A.1.2. Legal ownership of products generated by the VPA and legal rights to alter use of resources required to service the project

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As the CME for this PoA, MEC, has the legal ownership of products generated by the VPA and legal rights to alter use of resources required to service the VPA. MEC will coordinate the efforts of different POs to disseminate clean energy products. POs will act as VPA Activity Implementers.

The VPA is a voluntary initiative taken by the CME of the PoA, MEC, and the VPA implementer, XacBank LLC.

CME confirms hereby the approval for this VPA to be included into its registered PoA.

The CME had requested a deviation from Gold Standard (dated 01/06/2022) which allowed the PoA (and its registered VPAs) to undergo design certification renewal, with the crediting period starting immediately after the end date of the previous crediting period. However, GS VERs can be claimed from 06/04/2020 (6th April 2020) or three years (retroactive) from the date of remote/physical site visit by a VVB, whichever occurs later.

The deviation approval form has been shared with the validating VVB for review.

A.2. Location of VPA

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The boundary of the VPA is determined by the location of the households where the CEPs are installed but is limited to the area of Mongolia. The location of all households using efficient stoves under the VPA fall in six districts of Mongolia. These districts are:

- Bayangol
- Bayanzurkh
- Chingeltei
- Khan Uul
- Songinokhairkhan
- Sukhbaatar

The identification of each CEP installed and in use is possible through the information compiled in the Credit Tracker Platform. This information is constantly validated by the CME through spot-checks and will be available at validation and verification.

Figure A.2.1: National Map of Mongolia (Source: Asian Development Bank)

GPS coordinates for Ulaanbaatar (focal point of VPA):
47.9200° N, 106.9200° E

The location of each clean energy installation will be recorded in MicroEnergy Credit's Credit Tracker Platform[5], which has been designed specifically for accelerating microfinance access to clean and efficient energy. These locations will define the more precise boundary of the project activities.

The Credit Tracker Platform is used to collect and store the information related to the unique identification number, location, installation date, and usage status of each clean energy product in the VPA, making it easy to identify, locate and verify the installations that pertain to the VPA. The MEC Credit Tracker Platform is a hosted internet service, limiting the risk of loss of data.

[5] Location is defined by one of the following sets of information:
A. Precise GPS location of the household that purchases/installs clean energy product.
B. GPS location within one mile of the household and credible address for household.
C. Three of the following identifiers: Purchaser name, household address, phone number, bank ID, national ID, product unique identification number, household GPS location, or GPS location within one mile of household

A.3. Technologies and/or measures

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The project makes the following CEP available to low-income populations in Mongolia:

Energy efficiency:

The efficient heating technology models that will be disseminated under this VPA are listed in table below. Stoves distributed to end-users have been assigned a unique ID at the time of sale. Corresponding to the unique ID, model details, date of installation, end-user contact details have also been collected and maintained by the CME in a database. In compliance with eligibility criteria 18, per manufacturer specifications each of the stoves (a) is designated for household level heating, (b) is a coal burning appliance, and (c) has a thermal efficiency value per manufacturer specifications of at least 70%, as demonstrated in table below[6]:

Stove Type	Thermal Efficiency
Silver Stove Mini (model 131)	71%
Silver Stove Turbo (model 26)	74%
Royal Stove Dul (Royal Single)	70%
Royal Stove Golomt (Royal Double)	72%

Fig B.1: Royal Improved harting technology

The stoves have a life expectancy of 15 years. The beneficiaries are informed about proper waste handling and disposal of scrap material due to end of life or non-

[6] Manufacturer specifications for all products provided to VVB.

operational product. Each user receives contact information of the VPA implementer at the time of sale A unique numbering or identification system for the CEP installed is applied.

The VPA follows GS Methodology Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) (version 4.0). It will be developed and implemented by the PO which has signed the standard contractual agreement with the CME (MEC) to participate in the PoA, and this agreement guides the transfer of the emission reduction rights to the CME (MEC). This VPA demonstrates the continued existence and prevalence of barriers to implementation as described in section B.5.

Other models of energy efficient stoves may also be offered under the VPA as long as they meet all the requirements of the methodology TPDDTEC version 4.0. and the PoA eligibility criteria in the registered PoA-DD.

The following table provides information on how the project helps in reducing GHG emissions and contributes to SDGs

Sustainable Development Goals Targeted	How the project contributes to the identified SDG
13 Climate Action (mandatory)	The emissions from the project stoves are less than the baseline stove. Therefore, GHG emissions are reduced.
7 Affordable and Clean Energy	The project provides access to affordable and cleaner technologies
8 Decent Work and Economic Growth	Employment is generated in manufacturing, dissemination and maintenance of CEPs by the project.

A.4. Scale of the VPA

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As per CSA v1.2 para 3.1.2 (c) requirements, the project needs to follow GHG emission reduction and sequestration requirements v2.1 for defining the scale of the project activity. According to which, all Projects exceeding the small-scale thresholds are defined as large scale. The worksheet 'Energy Savings Unit' has been added to the ER calculation Sheet which shows the VPA exceeds the SSC threshold limit of 180 GWhTh/yr and is therefore a large-scale project.

A.5. Funding sources of VPA

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No public funding or ODA have or will be diverted for the implementation of the VPA. As required, the ODA declaration to that effect has been provided for to VVB.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

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The VPAs will use the methodology *Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) (version 4.0)*. The PoA has applied the latest version of this methodology.

Cookstove Usage Rate Guidelines (Version 2.0) has also been referred for the VPA.

B.2. Applicability of methodology (ies)

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The VPA demonstrates compliance with each (relevant) applicability condition of the applied methodology (TPDDTEC,version 4.0) has been mentioned below:

Para no.	Applicability condition	Applicability demonstration
2.1.1	This methodology is applicable to project activities that introduce technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of households and/or residential, institutional, industrial, or commercial facilities	This VPA involves the installation and maintenance of clean energy products (CEPs) including efficient heating technologies in Mongolia. The use of CEPs reduces the amount of fossil fuel (refined coal briquettes) required for space heating thereby mitigating greenhouse gas (GHG) emissions from the thermal energy consumption of target households.
2.1.1(a)	Project shall choose a technology design that has predictable performance in that it is proven to be efficient and durable under field	The CEPs (heating stoves) disseminated under the VPA are proven to be both efficient and durable as they have a

	conditions; for cookstoves, the rated thermal efficiency shall be at least 20%	manufacturer certified minimum thermal efficiency of 70% and life expectancy of 15 years. Document: Manufacturer's specification/ project data sheet
2.1.1 (b)	The technology shall have continuous useful energy output of less than 150kW per unit, where "continuous useful energy output"	The energy output of the energy efficient stoves in the VPA is less than 150kW. Document: Manufacturer's specification/project data sheet
2.2.1(c)	The project activity is implemented by a project developer and can include additional project participants listed in Appendix 2 of the PDD template. The individual households and institutions may be represented collectively by community organizations, etc., but do not individually act as project participants.	The VPA is part of a PoA coordinated and managed by MicroEnergy Credits (MEC) and the VPA is implemented by the microfinance institution XacBank LLC. In this case, individual households and institutions are not represented collectively by community organizations, and do not individually act as project participants.
2.1.1 (d)	The project developer must design incentive mechanism(s), which should be effective as fast as possible, for the elimination of inefficient baseline stoves that are replaced by the project cooking devices and describe the incentive mechanism(s) in the VPA-DD at the time of validation.	The VPA involves distribution of efficient stoves to households. In fact, the baseline stoves were collected by XacBank for safer disposal, ensuring that there is no leakage of emissions due to baseline stoves getting used elsewhere.
2.1.1 (e)	To avoid double counting or double claiming, the project proponent must -- clearly communicate its ownership rights and intention of claiming the emission reductions resulting from the project activity to the following parties by contract or clear written assertions in the transaction paperwork: all other project participants; project	CME has implemented the following measures to avoid double counting or double claiming in this VPA: - Informing the end users that they cannot claim emission reductions from the VPA by having them sign a carbon rights waiver (i.e., Title Transfer Form)

	technology manufacturers; and retailers of the project technology or the renewable fuel in use --inform and notify the end users that they cannot claim emission reductions from the project --exclude from the project activity, cooking devices included in any other voluntary market or CDM project activity/PoA, and strive not to displace the cooking devices of another CDM or voluntary project/PoA. See data and parameters not monitored, Avoidance of double counting or double claiming with other mitigation actions, for details on this demonstration.	- Upon purchase of a CEP, the user must sign the Carbon rights waiver (i.e., Title Transfer Form) which includes the provision that emission reductions generated by the CEP are transferred from the end-user to the PO and ultimately owned by the CME through an explicit agreement signed between the XacBank (PO and MEC (CME) . - The VPA is neither registered as an individual GS or CDM project activity nor as part of another registered PoA. MEC's Credit Tracker Platform is used to record detailed information on each efficient heating technology installation. Using this data, MEC is able to ensure that all installations in the proposed VPA are uniquely defined and included in the proposed VPA only, thereby avoiding double counting of emission reductions generated by the VPA.
2.1.1 (f)	Project activities making use of solid fossil fuel in the project scenario or other improved fossil fuel cookstoves meeting certain conditions (e.g. switch from three-stone fire biomass stoves to LPG stoves) may only claim emission reductions for energy efficiency improvement aspect and shall assume the same baseline and project fuel for emission reduction calculations.	NA The VPA involves making use of solid fossil fuel (coking coal briquettes) in improved fossil fuel stoves for space heating.
2.1.1 (g)	Project activities making use of a new solid biomass feedstock in the project situation (e.g. switch to green charcoal or renewable	The VPA involves making use of solid fossil fuel (coking coal briquettes) in improved fossil fuel stoves for space heating. Thus, the

	biomass briquettes) must comply with relevant specific requirements for biomass related project activities, as defined in the latest version of the Community Services Activity Requirements. The specific requirements apply to both plantations established for the project activity and/or existing plantations that will supply biomass feedstock.	VPA uses Method 1 (as per section 3.10 of TPDDTEC v4.0) for emission reductions calculation which assumes the same baseline and project fuel and only emission reductions for energy efficiency improvement aspect are claimed.
2.1.1 (h)	Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases emitted by the project fuel/stove combination are estimated with adequate precision. Furthermore, for projects where cooking will move from outdoor to indoor or where the project technology reduces ventilation (for example, changing from a stove with chimney to improved stove with no chimney), indoor air pollution (IAP) levels shall not worsen in the project compared to the baseline, including PM 2.5 and carbon monoxide (CO) emissions. This may be demonstrated before project Design Certification or during project operation using the certification resulting from of a manufacturer's test, report of field testing of the technology's PM 2.5 and carbon monoxide (CO) emissions, report of lab testing of the technology, or results of modelling of the technology's operation under field conditions. If none of these are available, reference from published literature or report by independent agencies	The CME can confirm that that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases emitted by the VPA fuel/stove combination are estimated with adequate precision. The CEPs implemented under the VPA are heating devices and not cooking devices. This shall not lead to shifting the CEPs from outdoor to indoor and/or reduction in ventilation.

	may be used as evidence, provided it is not more than 5 years old.	

The applicability with Cookstove Usage guidelines, version 2.0 methodology is as follows

Para no.	Applicability condition	Applicability demonstration
1.1.1	The requirements and guidelines are applicable to projects activities or Programme of Activities (PoAs) applying the Gold Standard methodology 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption' (hereafter "TPDDTEC"), Averted Mortality and Disability Adjusted Life Years (ADALYs) methodology and Black Carbon methodology, and that involve solid, gaseous fuel based improved cooking technologies, for example firewood, charcoal based improved cookstoves, household biogas digesters, solar cookers, etc. Since the ADALYs and Black Carbon methodology refers to the TPDDTEC methodology for usage rate requirements, the TPDDTEC methodology, where mentioned in this document, collectively refers to these methodologies.	This condition is applicable for the VPA as the VPA is applying the TPDDTEC (version 4.0) methodology and makes use of solid fuel i.e refined coal briquettes for the project.
1.1.2	The projects activities and PoAs/VPAs that apply the simplified methodology for efficient cookstoves or a CDM methodology are not required to apply the requirements and guidelines outlined in this document. Instead, such projects shall follow the monitoring requirements and guidelines provided in the applied methodology(ies).	The VPA is following the TPDDTEC methodology hence it needs to apply the requirement and guidelines mentioned in the 'Cookstove Usage Methodology, version 4.0'

1.1.3	The requirements and guidelines presented in this document shall be followed when carrying out usage surveys to determine the parameter usage rate (Up,y). In case of any conflict with the TPDDTEC methodology, the requirements outlined in this document shall be followed.	The VPA has followed all the requirement and guidelines mentioned in the Cookstove Usage methodology while carrying out usage surveys to determine the parameter usage rate.

B.3. VPA boundary

>>ENERGY EFFICIENT HEATING DEVICES

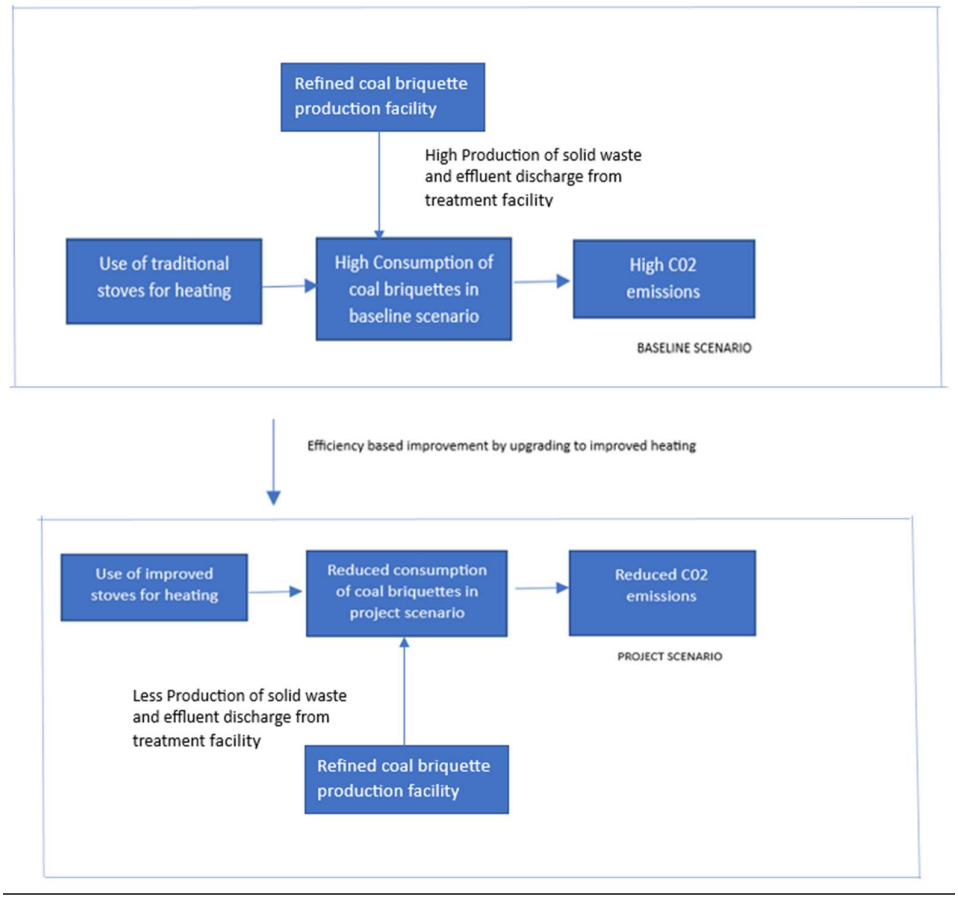
a. The project boundary is the physical, geographical location of each technology (e.g., each CEP) installed. The installed products reduce the use of unclean fuels, Refined coal briquettes, which release carbon dioxide when burned. Other sources/gases are deemed negligible for this VPA. The target area is the Urban, peri-urban or rural region of Mongolia.

    a. For project using processed fuel (refined coal briquettes), the project boundary also includes the baseline and project fuel from production and solid waste and effluent disposal or treatment facilities associated with fuel processing. The CME has however not accounted for these emissions in the ER calculation, to be conservative. Since in baseline scenario the end users use low efficiency stoves and refined coal briquettes as fuel for heating, the baseline fuel consumption is high whereas in project scenario the end users use energy efficient stoves and same refined coal briquettes using less fuel. Therefore, the emissions in the baseline scenario will be higher than the emissions in the project scenario hence CME has been conservative in not accounting for these emissions.

b. The target area of the project are rural regions in the different districts of Ulaanbaatar in Mongolia.

c.

The following picture shows the flow diagram of project boundary



Emissions sources included in the project boundary

Scenario	Source	GHGs	Included?	Justification/Explanation
Baseline scenario	Delivery of thermal energy	CO2	Yes	Important source of emissions
		CH4	No	Not considered
		N2O	No	Not considered
	Production of fuel, transport of fuel	CO2	No	Not considered
		CH4	No	Not considered
		N2O	No	Not considered

Project scenario	Delivery of thermal energy	CO2	Yes	Important source of emissions
		CH4	No	Not considered
		N2O	No	Not considered
	Production of fuel, transport of fuel	CO2	No	Not considered
		CH4	No	Not considered
		N2O	No	Not considered

B.4. Establishment and description of baseline scenario

>>

During transition to GS4GG, CME shifted from AMS II.E to GS methodology i.e. TPDDTEC v4.0 for improved stove.

As per CDM Tool 11: **"Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period".**

This process is conducted in two steps:

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

There are no mandatory national or sectoral policies in Mongolia that prohibit the use of traditional heating stoves for space heating. The household sector continues to experience considerable energy loss due to inefficient technologies such as the traditional chimney stoves. There are no relevant mandatory national and/or sectoral policies to be considered for baseline compliance.

We, therefore, proceed to Step 1.2

Step 1.2: Assess the impact of circumstances

In this section, we examine the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario. We also assess the availability of new fuels or raw materials in the identification of the current practice for the baseline emissions.

The majority of households living in the ger and houses of Ulaanbaatar have access to electricity but not to district heating.

As per the published literature by Aiymgul Kerimray[7], *Coal use for residential heating: Patterns, health implications and lessons learned,* in Mongolia approx. 98% Gers are dependent on coal for heating purposes and 63% of population of Ulaanbaatar uses solid fuel for heating. Coal and wood burning for heating of individual residences in ger (traditional Mongolian nomadic tent-like dwelling) areas are deemed essential for survival in Ulaanbaatar (the capital of Mongolia), the coldest capital in the world. In Mongolia almost all households used coal as the main heating fuel and firewood is used as a supplement. In Mongolia where the heating season lasts for almost 8 months, heating is one of the basic needs for living. The WHO listed Ulaanbaatar as having one of the world's worst air quality. Given the severity of the problem in Ulaanbaatar, there have been studies conducted on air quality monitoring, health effects assessment and interventions in Ulaanbaatar since 2000s. The detected annual average of PM2.5 fine particulate matter concentration in Ulaanbaatar exceeded WHO air quality guideline by 13 times reaching 136 μg/m3 , with peaks as high as 750 μg/m3 during the winter. Coal and wood burning for heating contribute about 60% of PM2.5 concentrations in Ulaanbaatar (World Bank, 2013). In ger areas of Ulaanbaatar, annual average PM2.5 was even higher and it was 200–350 μg/m3 , exceeding WHO limit 17–35 times. The ratio of premature deaths caused by respiratory and cardiovascular diseases over total premature deaths have steadily increased in Mongolia (Sumiya, 2016).

In response to growing public concern over air pollution, on May 15, 2019,[8] the Government of Mongolia (GoM) implemented a raw coal ban, a law to completely ban individual and business use of raw coal in six central districts of Ulaanbaatar (Songinokharikhan, Bayanzurkh, Chingeltei, Khan-uul, Sukhbaatar, Bayangol), excluding power plants with special licenses. Instead, GoM provided an alternative product on the market called "refined coal briquettes" at a subsidized price close to the price of raw coal.

Mongolia, renewable energy support policy mainly focuses on power supply and there are no support policies for building scale space heating renewable and alternative technologies. As demonstrated by above data, a large-scale adoption of improved appliances has not yet taken place in Mongolia. It is therefore demonstrated that the new circumstances do not make a continued validity of the current baseline not plausible, hence the current baseline does not need to be updated for the subsequent crediting period.

Thus, in line with the previous CDM methodology AMS-II.E and GS methodology TPDDTEC version 4.0 which is being used during transition to GS4GG, it is assumed that in the absence of the project activity, the baseline scenario would be the projected

[7] Coal use for residential heating: Patterns, health implications and lessons learned Aiymgul Kerimray, Luis Rojas-Solórzano, Mehdi Amouei Torkmahalleh, Philip K. Hopke, Brian P. Ó Gallachóir, published on 31 May 2017
[8] https://montsame.mn/en/read/133813#:~:text=During%20its%20meeting%20on%20Wednesday,S.

use of fossil fuel to meet similar thermal energy needs as those provided by the project devices. We, therefore, proceed to Step 1.3.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

This sub-step is to be applied only if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

The baseline scenario identified at the time of validation of project activity was the continued use of coal as fuel using traditional heating stoves without any investment. There were no plans to undertake any investment towards the end of the technical lifetime of the equipment before the end of the project's crediting period or due to availability of a new technology.

This sub-step also requires to assess whether the remaining technical lifetime of the equipment that would have continued to be used in the absence of the project activity, as determined in the PDD, exceeds the crediting period for which renewal is requested.

The identified baseline at time of registration i.e. traditional coal based heating stoves would have continued to operate in the absence of the project activity.

As mentioned in the previous step, there has not been penetration of improved stoves in Mongolia. The fuel used for heating has been replaced with cleaner fuel but there are no policies or strategies on replacing inefficient stoves for heating. Therefore, the continuation of use of current baseline equipment is likely during the crediting period. In addition, without carbon finance, there has not been a large-scale investment into the heating devices in Mongolia especially in Ulaanbaatar region. So far, the clean heating technology has only been made possible by Carbon Finance and without Carbon Finance there are no similar investments being made in large scale adoption of efficient heating devices.

Hence, as per the methodology provisions, it is assumed that in the absence of the programme, the baseline scenario would be the projected use of solid fuels in inefficient stoves for meeting similar thermal energy needs. Therefore, emission reductions are calculated by multiplying the thermal energy from specific fuel saving stemming from fossil fuel ($P_{b,p,y}$) with a CO_2 emission factor for coking coal briquettes. The baseline CO_2 emission factor for fossil fuel is 94.6 tCO2/TJ as per equation 1 of TPDDTEC ver. 4.0 For determination of each parameter required for the emission reductions, please refer to Section B.6.3 of the VPA. The baseline scenario of the project activity is therefore the continuation of use of the current equipment(s) without any investment and the projects proponents or third party(ies) did not plan to undertake any investment later, before the end of a crediting period, therefore the current baseline only needs to be updated for the fossil fuel used for heating for that crediting period or the crediting of emission reductions is not required to be limited to the period before the baseline equipment would cease its operation.

Hence, we move to step 1.4

Step 1.4: Assessment of the validity of the data and parameters

Due to change in methodology from AMS II. E to TPDDTEC v4.0, there are new parameters used for ER calculation that have been added to the monitoring plan:

- Specific fuel savings for an individual technology
- Cumulative usage rate for technologies
- NCV and CO2 emission factor of the coking coal briquettes

Step 2: Update the current baseline and the data and parameters

The application of the steps outlined above confirm that the current baseline can be applied, but data and parameters are being updated using baseline survey, and the latest methodology (TPDDTEC) version 4.0 (i.e., updated IPCC default values).

Step 2.1: Update the current baseline

To ensure that the baseline requirements of the methodology and the registered PoA-DD are still complied with by the VPA at the time of transition, a baseline survey was conducted by CME between March 2021-April 2021 and September 2021 to October 2021. This survey was carried out through a random representative approach from the household data from Ulaanbaatar municipality.

According to paragraph 3.4.1 of TPDDTEC v4.0:

The project developer shall define the baseline scenario as the existing baseline technology/practice use and fuel consumption patterns for the type of service provided by the project technology in the population targeted for adopting the new project technology, i.e., "target population".

The baseline scenario consists primarily in the use of coking coal briquettes as the primary fuel source with wood as a starter fuel and traditional stoves as the primary heating technology. As per published literature by Aiymgul Kerimray[9], in Mongolia approx. 98% Gers are dependent on coal for heating purposes and 63% of population of Ulaanbaatar uses solid fuel for heating. The heating technology includes "Traditional" stove (88%), of which 85% metal or cast iron; improved stove (2%); small Low Pressure Boiler (9%) Since the project is also requesting crediting period renewal the baseline has been reassessed using baseline surveys and baseline KPTs for different district-household combinations.

In the baseline surveys, the households were asked questions in regard to household size, heating pattern, fuel used and heating device used. The surveyors verified the

[9] Coal use for residential heating: Patterns, health implications and lessons learned Aiymgul Kerimray, Luis Rojas-Solórzano, Mehdi Amouei Torkmahalleh, Philip K. Hopke, Brian P. Ó Gallachóir, published on 31 May 2017

response given by the household related to the heating devices by an on-site observation. All the surveys and KPTs were carried out in person visiting the households.

Methodology for the sample survey:

1. The number of final samples taken were atleast 100 for baseline survey to meet 90% confidence interval, +/- 10% error margin.
2. The samples selected include the dwelling-district covered under the VPA at the time of submission.
3. A questionnaire was prepared in consultation with PO for conducting the survey. The questionnaire includes the HH member consent to interview and if he/she is the primary person responsible for the HH and has used the Improved stove, name and gender of the product owner, address and ask questions on
    a) Type of heating done (domestic/commercial)
    b) Currently used heating devices (Traditional stove with chimney and grate, Traditional stove without chimney and grate, Electric stove etc.)
    c) Number of stoves owned
    d) When was the stove last used?
    e) Does the stove have a chimney or grate?
    f) Do you experience any increase in fuel consumption during a different season?
    g) Other types of stove being used
    h) Average heating hours per day
    i) Average baseline fuel consumption (through baseline kitchen performance test in selected households, methodology explained below in this section)
    j) Person primarily responsible for fuel collection
    k) Smoke emission from baseline stove and health issues
    l) Interest in buying an improved stove

4. MEC enumerators visited the selected households during the day (between 9 AM and 6 PM) to ask them the questions and collect the answers.

The baseline survey indicates that majority of households in the project region use traditional stoves (that utilize refined coal briquette) for space heating in Mongolia.

Methodology for Kitchen Performance Tests

a. Sample selection was done based on a clustering approach. Sample households were selected randomly from the dwelling-district combination where stoves have been disseminated, but care was taken to select them from a smaller population focusing on one area so that the test houses are not spread out geographically.

b. For determining the fuel consumption in the baseline scenario, the KPT sample size determination was based on guidelines for Kitchen Performance Testing given in Annex 2 of the methodology, TPDDTEC version 4.0.
c. Approx. 100-110 samples were selected per VPA for baseline kitchen performance tests.
d. Quantitative measurement of coking coal briquettes which is the primary fuel, done with a weighing scale and its consumption was measured for 3 consecutive days in the sample households, visiting those households on 4 consecutive days.
e. If the sample houses use any other fuel type like electricity etc., those were marked clearly, and their measurement taken into consideration.
f. Following parameters were recorded:
    - The type of stove used for heating and number of stoves present in the household are recorded.
    - Any seasonal variation in heating pattern and fuel consumption.
g. Households were encouraged to use the heating devices typical of the annual pattern to avoid unusual usage during the test period.
h. Each household was given a measured quantity of coal briquettes using brand new weighing scale with precision of 10g for each of these days and after the day's heating requirement, the remaining fuel is measured. The logs were created for initial quantity of fossil fuel and remaining fuel after days' heating needs to arrive at the consumption per day.
i. Apart from measuring the heating practices, fuel handling, etc., are also taken into consideration. Coal briquette moisture levels are tested before stock of fuel being used in the kitchen tests.

The survey results showed that majority of households surveyed depend on traditional stove using coking coal briquettes. Based on the baseline kitchen performance tests, the quantity of fuel consumed by traditional stoves using coking coal briquettes in baseline scenario ($P_{b,y}$) has been presented in section B.6.2. On an average the family size per household was 3-5 members comprising of adults and children. None of the households were using any other forms of fuel other than coking coal briquettes as main fuel and had only one stove per household.

Each combination of household category (house/Ger) & district combination was represented by a sample size for which the baseline KPTs were performed. The details of the sampling are tabulated below:

Combination	**Sample Size for baseline KPTs**
House-Bayangol	104
House-Song	105
House-Others	104
Ger-Bayangol	106
Ger-Song	105
Ger-Others	107

The KPTs deployed high performance moisture meters of make 'Labcare Scientific' GIDM to measure moisture content in the coking coal briquettes used in Households for testing.

Step 2.2: Update the data and parameters

Ex-ante Parameter	2nd Crediting Period
$P_{b,y}$	Updated in section B.6.2 for all 6 dwelling-district combinations
$NCV_{b,fuel}$ (TJ/ton)	0.0282 (IPCC value)
$EF_{b,f,CO2}$ (t CO_2/TJ)	94.6 (IPCC value)

The results of the baseline survey and baseline KPTs have been shared with the VVB.

B.5. Demonstration of additionality

>>

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	Community Services Activity (CSA) Requirements (Version 1.2), paragraph 4.1.9: "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification: (a) Positive list (Annex B) i.e. "Project activities solely composed of isolated units where the users of the technology/measure are households or communities or institutions and where each unit results in <= 600 MWh of energy savings per year or <=600 tonnes of emission reductions per year" (b) Projects located in LDC, SIDS, LLDC (c) Micro-scale projects"

Describe how the proposed VPA meets the criteria for deemed additionality.	Project activities under the VPA are solely composed of isolated units where the users are households or institutions and the energy savings per year at a unit level (i.e. per stove) are clearly below 600 MWh as outlined in the ER calculation excel spreadsheet submitted to VVB. Further, the host country where the project is located is an LLDC[10]. Thus, the project activity meets the criteria (a) and (b) of para 4.1.9 of CSA and is therefore deemed additional.

>>

B.5.1. Prior Consideration

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Since the project was submitted to GS within 1 year of its start date. Therefore, not applicable.

B.5.2. Ongoing Financial Need

>>

Gold Standard Certification is vital to the sustenance of this VPA (and related activities), which would not be operational without a regular stream of carbon finance.

The VPA has a single source of revenue which is derived from the sales of carbon credits generated through its implementation. CME along with PO has been regularly monitoring this VPA since the start of the crediting period (i.e., from 02/09/2012 onwards) except for intermittent surveys carried out during COVID situation, after which monitoring was resumed as per plan. However, it was difficult to continue the monitoring activities and maintenance of stoves due to the non-renewal of the crediting period and no further issuances, resulting in the risk of end-user shifting to traditional stoves. CME has now been able to secure a purchase agreement for GS-VERs with a

[10] https://www.un.org/ohrlls/content/list-lldcs

European buyer. Therefore, to sustain the project the regular influx of carbon revenue is vital. The revenue from carbon finance is used for the following purpose-

1. Maintenance of Clean Energy Officers and other personnel for annual monitoring of improved heating devices disseminated under the VPA and upkeep of the CEPs.

The CME (MEC) is sharing the carbon revenue with the PO (Xac Bank) for the sustenance of the project.

Thus, based on the above justification, VPA is able to demonstrate on-going financial need in line with paragraph 4.1.52(b) of GS4GG Principles and Requirements. Further, the additionality has already been demonstrated as per section B.5 which shows the project needs financial help to continue its operations.

B.6. Sustainable Development Goals (SDG) outcomes

The relevant SDG indicators are as follows:

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact Indicator (Proposed or SDG Indicator)
13 Climate Action (mandatory)	Target 13.2: Integrate climate change measures into national policies, strategies and planning	GHG emission reductions
7 Affordable and Clean Energy	Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services	The number of active CEPs disseminated by the project, during year y
8 Decent Work and Economic Growth	Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Number of jobs created by the project activity

B.6.1. Explanation of methodological choices/approaches for estimating the SDG Impact

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This section provides the proposed approach for calculating baseline and project outcomes used for estimating SDGs' impact.

1. SDG 13 (Climate Action)

The contribution to SDG 13 will be measured through carbon credits issued following the Gold Standard TPDDTEC v4.0 methodology. Considering that the baseline and project fuels are identical (refined coal briquettes), and emission reductions are exclusively from improved efficiency (switch to more efficient stoves/heating technologies), the VPA shall use Method 1 (in line with paragraph 3.10.1(a) of TPDDTEC v4.0) for emission reductions calculation:

$$ER_y = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO2} + EF_{b,f,nonCO2})) - \sum LE_{p,y} \quad \textbf{(1)}$$

Where:

ER_y	Emission reduction for total project activity in year y (tCO_2e/yr)
$\Sigma_{b,p}$	Sum over all relevant baseline b/project p pairs
$N_{b,p,y}$	Number of project technology-days included in the project database for baseline b/project p pair in year y (days)
$U_{p,y}$	Cumulative Usage rate for technologies in project scenario p in year y (fraction)
$SFS_{p,b,y}$	Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology*day)
$NCV_{b,fuel}$	Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)
$f_{NRB,b,y}$	Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
$EF_{b,f,CO2}$	CO_2 emission factor from use of fuel f (tCO_2/TJ)
$EF_{b,f,nonCO2}$	Non-CO_2 emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO_2e/TJ). This parameter is omitted when f is a fossil fuel.
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

And

$$SFS_{p,b,y} = P_{b,y} - P_{p,y} \quad \textbf{(2)}$$

Where:

$P_{b,y}$	Quantity of fuel that is consumed in baseline scenario b during year y
$P_{p,y}$	Quantity of fuel that is consumed in project scenario p during year y

Leakage, if applicable, will be assessed on the following points:

a. The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.
b. The NRB or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.
c. The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.
d. The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.

By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.

2. SDG 7 (Affordable and Clean Energy)

The VPA involves the distribution of clean energy products (CEPs) (fuel efficient heating technologies) to replace the inefficient baseline heating technologies.

To measure 7.1 (By 2030, universal access to affordable, reliable and modern energy services), indicator 7.1.2 provides for the measurement of the 'proportion of the population with primary reliance on clean fuels and technology'. The outcome for SDG 7 is quantified as the number of active CEPs disseminated by the project, during year y, and is calculated using parameters from the project scenario.

$$CEP_{a,y} = N_{p,y} * U_{p,y} \quad \textbf{(3)}$$

Where:

$CEP_{a,y}$	The number of active CEPs disseminated by the project, during year y
$N_{p,y}$	Project CEPs distributed in year y

$U_{p,y}$	Cumulative Usage rate for technologies in project scenario p in year y (fraction)

3. SDG 8 (Decent Work and Economic Growth)

The project will create new jobs in the field of project implementation and monitoring and promotes productive employment in the host country. The parameter used for monitoring the indicator is - Number of jobs created by the project activity. In the baseline scenario no new project related jobs are created and no CEPs are distributed/operational.

For ex-ante purposes, the number of created jobs has been estimated to be 4 and no specific calculation is needed. Monitoring of SDG 8 is conducted through the HR records/employee lists summing up the total number of jobs created.

B.6.2. Data and parameters fixed ex ante

SDG13

<table>
<tr><td>Data/parameter</td><td>Project technology description</td></tr>
<tr><td>Unit</td><td>NA</td></tr>
<tr><td>Description</td><td>The detailed description of the project technology shall include as a minimum:
- Manufacturer name,
- product name (if applicable),
- technology type,
- capacity characteristics,
- continuous useful energy output demonstration,
- rated thermal efficiency</td></tr>
<tr><td>Source of data</td><td>Manufacturer specifications</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Stove Type (Improved heating device)</th><th>Manufacturer</th><th>Thermal Efficiency</th><th>Stove capacity (KW)</th></tr>
<tr><td>Silver Stove Mini (model 131)</td><td>Selenge Construction</td><td>71%</td><td>4.7</td></tr>
</table>
</td></tr>
</table>

	Silver Stove Turbo (model 26)	Selenge Construction	74%	4.2
	Royal Single/Dul Stove	Royal Ocean	74.3%	3.5
	Royal Golomt Stove	Royal Ocean	75.8%	6.6
Choice of data or Measurement methods and procedures	Manufacturer specifications			
Purpose of data	Calculation of project scenario			
Additional comment	NA			

Data/parameter	Expected technical life of project technology
Unit	Time period
Description	The expected technical life of an individual project technology shall be defined in the PDD.
Source of data	Manufacturer Specification
Value(s) applied	**Stove Type** / **Lifetime (years)** Silver Stove Mini (model 131) / 15 Silver Stove Turbo (model 26) / 15 Royal Stove Dul (Royal Single) / 15 Royal Golomt Stove (Royal Double) / 15
Choice of data or Measurement methods and procedures	Manufacturer specifications
Purpose of data	Calculation of project scenario
Additional comment	The beneficiaries are informed about proper waste handling and disposal of scrap material due to end of life or non-operational product.

Data/parameter	Avoidance of double counting or double claiming among project participants
Unit	NA
Description	Evidence of avoidance of double counting or double claiming with other parties directly involved with the project or programme
Source of data	Written assertions with the project developer of the ownership rights and intention of selling the emission reductions resulting from the project activity directed at or signed with all the applicable parties of the following: - all other project participants - project technology producers; and retailers of the project technology or the renewable fuel. - Carbon title transfer form between the end-users, PO and agreement between PO and CME
Value(s) applied	NA
Choice of data or Measurement methods and procedures	Title Transfer Form Upon purchase of a CEP, the user must sign the Carbon rights waiver (i.e., Title Transfer Form) which includes the provision that emission reductions generated by the CEP are transferred from the end-user to the PO and ultimately owned by the CME.
Purpose of data	Calculation of project scenario
Additional comment	To ensure avoidance of double counting among project participants

Data/parameter	Avoidance of double counting or double claiming with other mitigation actions
Unit	NA
Description	Review and analysis of mitigation actions in other voluntary market or UNFCCC/compliance mechanisms
Source of data	Using publicly available information from Gold Standard and other voluntary standards, at a minimum Verra and any recognized national or regional standards in the

	project location, and UNFCCC CDM project & PoA database.
Value(s) applied	NA
Choice of data or Measurement methods and procedures	The VPA will not be part of another single CDM project activity or VPA under another PoA. Further, MEC's Credit Tracker Platform is used to record detailed information on each CEP, which is used to ensure that all installations in VPA are uniquely defined and included in one VPA only. In addition, declaration from VPA operators as part of their contract with the CME, stating that their activities are not registered as part of another single CDM/GS project activity or VPA with a different CME. Documentation provided to VVB: 1. VPA-DD 2. Contract with CME and MFI
Purpose of data	Calculation of project scenario
Additional comment	Undertake at the time of project design review and VPA inclusion review.

Data/parameter	Regulatory framework for provision of thermal energy services
Unit	NA
Description	Evidence that the project does not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply/devices or fuel supply or use
Source of data	http://en.energy.gov.mn/ According to The Law of Mongolia on Energy the project does not conflict with any regulation on thermal energy supply in Mongolian households
Value(s) applied	NA

Choice of data or Measurement methods and procedures	In response to growing public concern over air pollution, on May 15, 2019, the Government of Mongolia (GoM) implemented a raw coal ban, a law to completely ban individual and business use of raw coal in six central districts of Ulaanbaatar (Songinokharikhan, Bayanzurkh, Chingeltei, Khan-uul, Sukhbaatar, Bayangol), excluding power plants with special licenses. Instead, GoM provided an alternative product on the market called "refined coal briquettes" at a subsidized price close to the price of raw coal. One of the proposed design changes to the PoA is aligned with Mongolia's recent regulations (mentioned above) as it involves shift from pit coal to refined coal briquettes. Further the project doesn't conflict with host country law. As per Climate & Clean Air Coalition report (SNAP Initiative), an assessment was undertaken to identify the air pollution benefits that could be achieved as Mongolia revised its climate change commitment in its Nationally Determined Contribution (NDC) to reducing greenhouse gas emissions by 22.7% in 2030. As per CCAC report, major sources of air pollution are greenhouse gases and air pollutants. This includes agriculture, transport, and coal consumption for household heating and cooking (responsible for over 50% of black carbon emissions in Mongolia), and for electricity and heat generation. It is also the major cause of respiratory issues in Mongolia. In order to ensure clean air in the country, initiatives like the one described in the VPA will lead to a greater level of improvements in the sector and have achieve reduction in air pollution due to use of inefficient heating devices.
Purpose of data	Calculation of project scenario
Additional comment	Undertake at the start of each crediting period.

Data/parameter	$EF_{b,f,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in baseline scenario

Source of data	IPCC defaults for coking coal
Value(s) applied	94.60
Choice of data or Measurement methods and procedures	Parameter will be determined based on IPCC default values for coking coal briquettes
Purpose of data	Calculation of baseline scenario
Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport, and use

Data/parameter	$EF_{p,f,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC defaults for coking coal
Value(s) applied	94.60
Choice of data or Measurement methods and procedures	As per parameter $EF_{b,f,CO2}$ above
Purpose of data	Calculation of project scenario
Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport, and use.

Data/parameter	$NCV_{b,fuel}$
Unit	TJ/ton

Description	Net calorific value of the fuels used in the baseline
Source of data	IPCC defaults for coking coal
Value(s) applied	0.0282
Choice of data or Measurement methods and procedures	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Purpose of data	Calculation of baseline scenario
Additional comment	NA

Data/parameter	$NCV_{p,fuel}$
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC defaults for coking coal
Value(s) applied	0.0282
Choice of data or Measurement methods and procedures	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Purpose of data	Calculation of project scenario
Additional comment	NA

Data / Parameter	$P_{b,y}$
Unit	tonnes/household-day
Description	Quantity of fuel that is consumed in baseline scenario b during year y
Source of data	Baseline performance field tests
Value(s) applied	

Household-district	Value
Ger_Bayan	0.01231
Ger_Song	0.013531
Ger_Others	0.012837

	House_Bayan	0.012027
	House_Song	0.012781
	House_Others	0.012377
Choice of data or Measurement methods and procedures	Baseline KPT	
Purpose of data	Calculation of baseline scenario	
Additional comment	Done once at the time of renewal of crediting period	

B.6.3. Ex ante estimation of SDG Impact

>>

SDG 13

The overall GHG reductions achieved by the project activity will be calculated using Equation 1 of the methodology as follows:

$$ER_y = \sum_{b,p} (N_{b,p,y} * U_{p,y} * SFS_{p,b,y} * NCV_{b,\,fuel} * (f_{NRB,b,\,y} * EF_{b,f,CO2} + EF_{b,f,nonCO2})) - \sum LE_{p,y}$$

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b/project p) couples
$N_{b,p,y}$	Number of project technology-days included in the project database for baseline b/project p pair in year y (days)
$U_{p,y}$	Cumulative Usage rate for technologies in project scenario p in year y (fraction)
$SFS_{p,b,y}$	Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology*day)
$f_{NRB,b,\,y}$	Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
$NCV_{b,fuel}$	Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)
$EF_{b,f,CO2}$	CO_2 emission factor from use of fuel that is substituted or reduced.
$EF_{b,f,nonCO2}$	Non-CO_2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

Since the project activity used fossil fuel the fNRB value shall not be required and is removed from the above equation. Similarly, no non-CO2 emissions are estimated from

the use of fossil fuel (RCB), therefore it is also removed from the above equation. The revised equation is:

$ER_y = \sum_{b,p} (N_{b,p,y} * U_{p,y} * SFS_{p,b,y} * NCV_{b,\,fuel} * EF_{fuel,\,CO2}) - \sum LE_{p,y}$

Leakage will be assessed using Option 2 of the methodology on the following points:

Option 2:
The project developer has evaluated the following potential sources of leakage

a. The displaced baseline technologies are destroyed when the project technology is distributed in the households, the households are provided with the improved stoves only when the households exchange the baseline stoves. However, this shall be monitored during project surveys.
b. Members of the population who do not participate in the project, and previously used lower emitting energy sources, instead use the non-renewable biomass or fossil fuels saved under the project activity.
c. Since the project activity uses fossil fuel the NRB fraction is not related.
d. The project involves space heating. Therefore, adoption of another technology for space heating is not required.
e. As shown in baseline survey the use of fossil fuels in stoves is the commonly used technology in Mongolia. And during distribution, only the households using traditional stoves were given the project heating stoves. Therefore, it is not possible to substitute other technology with lower emissions with this technology.

A sample emission reduction calculation has been shown below for Ger-Other district-household combination as follows:

Where:

Parameter	Value	Source
$N_{b,p,y}$	5994	Project database
$U_{p,y}$	90%	Assumption
$SFS_{b,p,y}$	0.008896 tonnes/technology*day	Calculated
$NCV_{b,fuel}$	0.0282 TJ/tonne	IPCC Default for coking coal
$f_{NRB,b,y}$	NA This parameter is omitted as f is a fossil fuel.	
$EF_{b,f,CO2}$	94.60 tCO_2/TJ	IPCC default for coking coal
$EF_{b,f,nonCO2}$	NA This parameter is omitted as f is a fossil fuel.	
$LE_{p,y}$	0 tCO_2e/yr (0 as all baseline devices shall be destroyed)	Assumed

And

$$SFS_{b,p,y} = P_{b,y} - P_{p,y} \quad \textbf{(2)}$$

Where:

Parameter	Values	Source
$P_{b,y}$	0.012837 tonnes/household-day	Baseline KPT results
$P_{p,y}$	0.003941 tonnes/household-day	Assumed based on degradation on efficiency by manufacturer specifications

Thus,

$SFS_{b,p,y}$ = 0.012837 – 0.003941 = 0.008896 tonnes/stove-day

And

ER_y = (5994 * 0.9 * 0.008896 * 0.0282 * 94.6) – 0.00

Or

ERy = 46,730 tCO_2e/yr

Thus, emission reductions due to implementation of the project activity in Ger-Other are 46,730 tCO2e/yr.

SDG 7

The number of active CEPs disseminated by the project, during year y is calculated as follows:

$$CEP_{a,y} = \text{No. of CEPsdistributed} * U_{p,y} \quad \textbf{(4)}$$

Where:

No. of CEPs distributed = 15,601
$U_{p,y}$ = 90%

Thus,

$CEP_{a,y}$ = 15,601 * 90%

$CEP_{a,y}$ = 14,040 CEPs

So, the project activity leads to the dissemination of 15,601 CEPs, of which 14,040 are active CEPs.

SDG 8

The number of jobs created by the project activity is estimated to be 4 (no specific calculation is needed).

The detailed emission reduction calculation for all dwelling-district combinations are presented in the ER calculation workbook which has been shared with the VVB

B.6.4. Summary of ex ante estimates of each SDG outcome

SDG 13

Year	Baseline estimate	Project estimate	Net benefit
2019	122351	0	122351
2020	122351	0	122351
2021	122351	0	122351
2022	122351	0	122351
2023	122351	0	122351
2024	122351	0	122351
2025	122351	0	122351
Total	856457	0	856457
Total number of crediting years	7		
Annual average over the crediting period	**122351**		**122351**

SDG 7

Year	Baseline estimate	Project estimate	Net benefit
2019	0	14040	14040
2020	0	14040	14040
2021	0	14040	14040
2022	0	14040	14040

2023	0	14040	14040
2024	0	14040	14040
2025	0	14040	14040
Total	0	14040	14040
Total number of crediting years	7		
Annual average over the crediting period	**0**	**14040**	**14040**

SDG 8

Year	Baseline estimate	Project estimate	Net benefit
2019	0	4	4
2020	0	4	4
2021	0	4	4
2022	0	4	4
2023	0	4	4
2024	0	4	4
2025	0	4	4
Total	0	4	4
Total number of crediting years	7		
Annual average over the crediting period	**0**	**4**	**4**

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

SDG 13

Data / Parameter	Avoidance of double counting or double claiming among project technology end users

Unit	NA
Description	Evidence of avoidance of double counting or double claiming with project technology end users
Source of data	Evidence of informing / notification of end users by signing carbon title waiver forms signed by end users
Value(s) applied	N/A
Measurement methods and procedures	The end user sign carbon title transfer agreement with the PO surrendering the user's rights to any carbon offsets associated with the CEP.
Monitoring frequency	Monitored whenever project technology is sold or otherwise disseminated
QA/QC procedures	Cross check using general internet search and search of public records of Gold Standard and other voluntary market and UNFCCC mechanisms
Purpose of data	Calculation of project scenario
Additional comment	NA

Data / Parameter	Presence of stove stacking
Unit	N/A
Description	Descriptive statistics of the presence and usage practices of baseline- and other non-project-technology by project technology end users
Source of data	- Usage Survey- use of other stoves, to capture heating pattern and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices, or monitoring surveys to capture the effect of season on usage patterns. - The surveys may be integrated with the usage survey.
Value(s) applied	N/A
Measurement methods and procedures	Usage surveys
Monitoring frequency	Annual
QA/QC procedures	The calculation of $SFS_{p,b,y}$ shall be cross-checked with the observed presence of stove stacking. Ensure any stove stacking is considered so that emission reductions are calculated only from real reduction of, or replacement of, baseline fuel use.
Purpose of data	Calculation of baseline and project scenario

Additional comment	- The project shall account for in the emission reductions when a baseline technology is used in parallel with the project stove.

Data / Parameter	$P_{p,y}$
Unit	tonnes/household-day
Description	Quantity of fuel that is consumed in project scenario b during year y
Source of data	Survey or field study
Value(s) applied	Household-district: Project fuel consumption House-Song: 0.00392 House-Bayan: 0.00369 House-Other: 0.0038 Ger-Song: 0.00415 Ger-Bayan: 0.00378 Ger-Other: 0.003941
Measurement methods and procedures	Ex-ante estimated using baseline KPT results and efficiency of baseline and project stoves Ex-post -Project KPT
Monitoring frequency	Updated every two years, or more frequently
QA/QC procedures	Compliance with the general requirements for sampling, general requirements for QA/QC and Annex 2 Kitchen performance test of TPDDTEC v4.0 methodology.
Purpose of data	Calculation of project scenario
Additional comment	A single project fuel consumption parameter is weighted to be representative of baseline technologies being compared for project crediting. KPT protocol shall be used for PFT (for e.g.: PCIA KPT protocol may be used)

Data / Parameter	$SFS_{p,b,y}$
Unit	tonnes/Stove*day
Description	Specific fuel savings for an individual project technology of baseline b/project p pair in year y
Source of data	Calculated from $P_{b,y}$, $P_{p,y}$ and other information to obtain the savings in the required units
Value(s) applied	<table><tr><td>Household-district</td><td>Fuel savings</td></tr><tr><td>House-Song</td><td>0.00886</td></tr><tr><td>House-Bayan</td><td>0.00833</td></tr><tr><td>House-Other</td><td>0.00858</td></tr><tr><td>Ger-Song</td><td>0.00938</td></tr><tr><td>Ger-Bayan</td><td>0.00853</td></tr><tr><td>Ger-Other</td><td>0.008896</td></tr></table>
Measurement methods and procedures	$SFS_{b,p,y} = P_{b,y} - P_{p,y}$ For ex-ante calculation, the specific fuel savings for a dwelling-district has been calculated from the difference between the fuel consumption in baseline and project scenario. The baseline fuel consumption has been taken from the BKPTs conducted and project fuel consumption has been estimated. The project fuel consumption has been estimated by applying yearly degradation on the efficiency of project devices (approx. 70% for all products as per manufacturer's specification) for the years of usage from sale.
Monitoring frequency	Updated every two years, or more frequently
QA/QC procedures	NA
Purpose of data	Calculation of baseline and project scenario
Additional comment	The baseline and project field test data must be analysed in combination to estimate the average fuel savings per technology unit.

Data / Parameter	$U_{p,y}$

Unit	Percentage
Description	Weighted average usage rate in project scenario p during year y
Source of data	Usage survey and supporting documents as per usage rate guidelines
Value(s) applied	90% for all combinations
Measurement methods and procedures	Ex-post Sampling surveys (telephonic / physical) may be conducted to record the continued operation of project devices. Sample size is determined using as per TPDDEC methodology requirement of minimum 30 samples per age cohort. The PP shall follow the cookstove usage guidelines which mentions that a project can claim upto 90% if it complies with both the 'mandatory' and 'good practice' level which requires CME to monitor : 1. Mandatory: a. Define use and nonuse - To define the use and non-use of project technology, the project developer would use the following criteria: time when last used, frequency of use, extent to which the traditional technology is displaced etc. b. In person household usage survey- which shall include interview the primary person responsible to gather information on use patterns, including information on duration and frequency of use, as well as information on multiple stove use ('stove stacking') and seasonal trends; photos of the coal storage area etc. c. Verification of accuracy of results-the project developer representative shall telephone a randomly selected 5-10% of the surveyed households to verify that homes were visited by surveyors and the recorded responses are correct. 2. Good practices:

	• Field team training and supervision- submit training records to VVB • End-user training and follow up visits- submit end user training records, photos to VVB Awareness campaign- submit the agenda and photos of the awareness campaign
Monitoring frequency	Annually
QA/QC procedures	Compliance with the general requirements for sampling and general requirements for QA/QC of TPDDTEC v4.0 methodology.
Purpose of data	Calculation of project scenario
Additional comment	NA

Data / Parameter	$N_{b,p,y}$
Unit	Days
Description	Number of project technology-days included in the project database for baseline b/project p pair in year y
Source of data	Each PO shall maintain these records in the Credit Tracker Platform (Project Database).
Value(s) applied	Household-district: No. of project Technology - days House-Song: 2255 House-Bayan: 5 House-Other: 3256 Ger-Song: 4079 Ger-Bayan: 12 Ger-Other: 5994
Measurement methods and procedures	$N_{b,p,y}$ = no. of stove sales * technology days The heating season in Ulaanbaatar is from September-April. Therefore, accordingly these 8 months of heating season shall be considered for claiming emission reductions.
Monitoring frequency	Annually

QA/QC procedures	Cross check the results of the usage survey with the contents of the project database to confirm whether the project technology units surveyed are present at end user locations as expected, or not. If there is discrepancy, this must be explained or corrected.
Purpose of data	Calculation of project scenario
Additional comment	NA

SDG 13

Data / Parameter	$LE_{p,y}$
Unit	tCO_2e per year
Description	Leakage in project scenario p during year y
Source of data	Sources established by section 2.4.A Leakage emissions of TPDDTEC version 4.0
Value(s) applied	<table><tr><td>Household-district</td><td>Value</td></tr><tr><td>House-Song</td><td>0</td></tr><tr><td>House-Banyan</td><td>0</td></tr><tr><td>House-Other</td><td>0</td></tr><tr><td>Ger-Song</td><td>0</td></tr><tr><td>Ger-Banyan</td><td>0</td></tr><tr><td>Ger-Other</td><td>0</td></tr></table>
Measurement methods and procedures	During project survey it was checked from sample households if they were still using baseline stoves available at the time of distribution of project stoves. Based on the response whether baseline stoves were dismantled, gave away, using or sold the leakage value was calculated.
Monitoring frequency	Every two years
QA/QC procedures	Compliance with the general requirements for sampling and general requirements for QA/QC of TPDDTEC v4.0 methodology.
Purpose of data	Calculation of leakage scenario
Additional comment	NA

SDG 8

Data / Parameter	Number of Jobs
Unit	Number
Description	Employment generation
Source of data	HR records/employee list
Value(s) applied	4
Measurement methods and procedures	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	-
Additional comment	-

B.7.2. Sampling plan

>> The below is a detailed description of the approach to implementation of the VPA sampling Plan.

Sampling Plan

Simple random sampling method will be applied to determine the samples for the monitored parameters ($U_{p,}$, $P_{b,y,}$ $P_{p,y}$) randomly from the total population. Randomization will be done using random function on Microsoft excel. The monitoring parameter, N_{all} shall be monitored 100% and continuously through the online credit tracker platform and the monitoring parameter $P_{b,y}$ will be calculated using baseline KPT guidelines as per Annex 2 of TPDDTEC 4.0 and procedure for calculation of the same is fixed.

Sampling Size

Sample size shall be determined using the following formula:

$$\mathbf{n} \geq \frac{\mathbf{1.645}N \times (\mathbf{1} - p)}{(N - \mathbf{1}) \times \mathbf{0.1}^2 \times p^2 + \mathbf{1.645}(\mathbf{1} - p)}$$

Sampling frame

Sample sizes was sufficient to ensure that the precision of the sample means/proportions are in accordance to the Sampling Frame established for the VPA within the PoA to estimate emissions reductions. As per the methodology, in cases where survey results indicate that the desired precision is not achieved, the lower bound value of corresponding confidence interval of the parameter value may be used as an alternative to repeat the survey. Alternatively, the survey may be expanded to reach the required confidence/precision. To ensure a simple random sample selection, random number generators was applied. Each unit in the target population was uniquely identifiable by its Serial ID number. Each CEP was allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of CEPs in the Database for that pre-defined simple random sampling frame. Applying the random number generators, the CEP were randomly chosen from the defined population up to the required sample size as calculated by the CME.

The dwelling type is decisive for project and baseline coal consumption and hence both dwelling types i.e. ger and houses are included in this VPA and sampling has been done for both dwelling types. The total samples determined through simple random sampling on the total population has been further split into districts – Bayangol, Songinokhairkhan and Other. Further, considering possible low response rate and households response bias into account, oversampling has been applied.

The sample size that has been taken for year 2021-2022 is atleast 90 for the baseline and Project KPT for each dwelling-district combination. Monitoring surveys have been carried out in six dwelling district combinations or frames namely:

Frame 1: Stove in house dwelling type, located in Songinokhairkhan district
Frame 2: Stove in house dwelling type, located in Bayangol district
Frame 3: Stove in house dwelling type, located in other district
Frame 4: Stove in ger dwelling type, located in Songinokhairkhan district
Frame 5: Stove in ger dwelling type, located in Bayangol district
Frame 6: Stove in ger dwelling type, located in other district

The mean value of each of the surveyed parameter, standard deviation, standard error, and precision has been calculated as per best practice examples for reliability

calculations provided in the "Guidelines for Sampling and surveys for CDM project activities and programmes of activities Version 04.0." For proportion-based reliability test, Standard Error and precision has been calculated as per best practice examples for reliability calculations provided in the "Guidelines for Sampling and surveys for CDM project activities and programmes of activities Version 04.0."

The sampling for the baseline and project survey shall be done using following approach:

In person Surveys

In person surveys were conducted for the purpose of both the usage/monitoring survey and KPTs. Data was collected by trained enumerators who spoke the local language.

Usage Survey

The usage survey determines the usage proportion for each age cohort of technologies being credited for each project scenario p. The age cohorts in the survey are established as follows:

- Participants in a usage survey with technologies in the first year of use (age0-1) must have technologies that have been in use on average at least 0.5 years or longer.
- Participants in a usage survey with technologies in the second year of use (age1-2) must be conducted with technologies that have been in use on average at least 1.5 years, and so on.

The technologies have been in use for more than the above-mentioned age cohorts. The parameter of interest is the usage proportion for each age cohort, the sample size is defined for each age cohort following the general requirements for sampling with a minimum of 30 samples for project technologies of each age cohort being credited, except where the age cohort comprised of fewer than 30 units, all units have been sampled.

Baseline and Project KPT

For determining the fuel consumption in the baseline scenario, the random sampling for KPTs was applied. For determining the fuel consumption in the baseline / project

scenario the KPT sample size determination was based on guidelines for Kitchen Performance Testing given in Annex 2 of the methodology, TPDDTEC version 4.0.

Each combination of household category (house/Ger) & district combination was represented by a sample size for which the baseline KPTs were performed. The details of the sampling are tabulated below:

Combination	**Sample Size for baseline KPTs**
House-Bayangol	104
House-Song	105
House-Others	104
Ger-Bayangol	106
Ger-Song	105
Ger-Others	107

The KPTs deployed high performance moisture meters of make 'Labcare Scientific' GIDM to measure moisture content in the coking coal briquettes used in Households for testing.

Similarly, for determining the fuel consumption in the project scenario, the random sampling for KPTs shall be applied using the KPT sample size determination based on guidelines for Kitchen Performance Testing given in Annex 2 of the methodology, TPDDTEC version 4.0.

All survey responses will be assessed for outliers. Outliers will be defined as datapoints that are more than 1.5 times the inner quartile range. Outliers will be removed from the dataset, unless a root cause analysis is conducted and the datapoint is found to be accurate.

In the event that disposal records for 100% of baseline stoves are not kept, surveys shall also include questions regarding the status of the baseline stove, as described in section B.2.

Coordination of overall monitoring shall be the responsibility of MEC, the CME. The VPA implementer, XacBank, shall conduct the monitoring. Roles and responsibilities of MEC follow:

- Develop, approve, execute, and improve the monitoring/reporting procedures

- Organize training of XacBank on monitoring requirements and procedures
- Use MEC Tracker database to conduct random sampling
- Coordinate monitoring work of XacBank
- Validate monitoring data and manage and update MEC Tracker Platform
- Calculate and report the emission reductions
- Coordinate the VVB work during the verification audit

Roles and responsibilities of XacBank follow:

- Conduct monitoring according to procedures directed by CME
- Use provided electronic monitoring form
- Use list of randomly sampled households from MEC Tracker to conduct monitoring
- Conduct spot-check results of individual surveys
- Store primary data

The MEC Credit Tracker Platform is used to keep detailed records of all CEPs under each VPA. Each installation is monitored annually to check usage status. Annual monitoring records are maintained in the Credit Tracker Platform to confirm usage status and client information. Each CEP is assigned a unique identification code, a 'sysnum', to ensure no double counting occurs. Each CEP is assigned to a VPA in the Credit Tracker Platform. The sampling frame for the VPA is all CEPs assigned to the VPA in Credit Tracker Platform. Procedures for maintenance of monitoring records in the Credit Tracker Platform are included in the PoA Sampling Plan.

Quality assurance and quality control of the monitoring procedures and data collection are ensured through the following measures:

- Survey is conducted using electronic survey form, which enables use of constraints to reduce enumerator error in entering respondent answers; automatic data entry, reducing risk of error in entering data from paper surveys; ongoing check of data to identify enumerator error or survey issues.
- Survey questions designed and tested to avoid recall bias, confirmation bias, and leading questions. Survey reviewed and commented by local team to ensure local applicability.
- Enumerators receive extensive training, using materials provided by CME (or contracted third party), to ensure survey is used properly.
- Survey manager conducts spot-checks of enumerator responses to ensure accuracy in responses.
- Primary data of electronic survey records are backed up on the internet, reducing risk of any loss of data.
  Survey enables a further check of data held in Credit Tracker Platform to ensure accuracy of overall PoA and VPA database

B.7.3. Other elements of monitoring plan

>>

Organizational Diagram of Monitoring Plan:

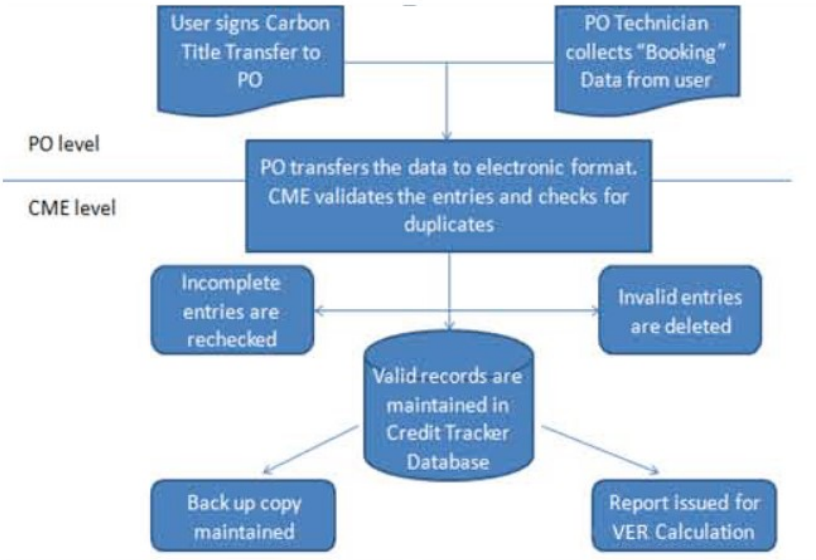

Figure 8: PoA Monitoring Plan

Procedures for training of monitoring personnel

- Personnel are trained in a group training session where the monitoring presentation is given by staff of the clean energy product unit. Personnel are also provided with a user manual.

Quality Assurance/Quality control

As the PoA is intended to include multiple regions within a country with a high level of cultural diversity as well as different end user groups, there is no "one size fits all" approach for dealing with these issues. However, in order to avoid many of these problems the CME will undertake the following strategies, tailoring the specific approach to the local circumstances:

a) Ensuring end user awareness. At the time of distribution, the customer is made aware that they are required to participate in monitoring activities. This will be via a written statement (in English and local language where appropriate) on the carbon waiver form, or via alternative means such as training distribution personnel to explain the importance of monitoring to each customer.

b) Questionnaire design. The design of the questionnaire will ensure that the questions are non-intrusive and easy to understand for both the interviewee and interviewer.

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

d) Quality of contractors. Any third parties hired by the CME to carry out sampling will be required to demonstrate a high level of cultural awareness, local language skills and appropriate experience with data entry and data management. The CME will ensure that contractors are adequately trained for the tasks they are contracted for Training will also be provided on how to deal with non-responses, refusals and other problems should these occur.

Technical Failure and Maintenance Protocol

PO has a robust aftersales mechanism in place which ensures that the customer complaints are registered and resolved in a timely manner. The mechanism involves various steps:
Step 1: Complaint Registration
Step 2: Lodging complaint
Step 3: Collection of products for repair
Step 4: Resolution of the complaint
Step 5: Feedback (optional)

Customers can get their complaints registered through either of the following modes:

1) Field staff of the PO who visit the customers on a monthly basis or

2) Call on the customer support number provided to them at the time of sale of the product.

The preferred mode of complaint registration is through field staff. A logbook is also maintained in branch office of different districts of Mongolia (covered under the VPA). The supplier/manufacturer local service team is then intimated. As soon as service team receives the complaint (within 48-72 hours depending on the location of the customer household) the service team visits the household for the examination of the product. In case of minor issues, repair of the device happens on the site itself however if the issue is major then the device is collected and taken to the nearest workshop for repair. Service team of the supplier/manufacturer is expected to resolve the issue within 30 days of receiving the complaint. Once the product is repaired, it is returned to the customer.

In case product is beyond repair then that CEP shall be flagged as non-operational and the CME shall not claim Emission Reductions for that CEP.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1. Start date of VPA

>>

The start date of a VPA is the date of sale of the first CEP distributed, which is 25/05/2011, as evidenced by the CEP booking record. This date represents the earliest date at which implementation of the project activity began.

C.1.2. Expected operational lifetime of VPA

>>

21 years

C.2. Crediting period of project

C.2.1. Start date of crediting period

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The VPA crediting period started from 02/09/2012 and is now requesting crediting period renewal for its second crediting period starting 02/09/2019.
First crediting period- 02/09/2012- 01/09/2019
Second Crediting period- 02/09/2019- 01/09/2026 (current renewal)

C.2.2. Total length of crediting period

>>

7 years, renewable twice (total 21 years)

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1. Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is done in Appendix 1, and since no safeguarding principle has negative impact on the project activity no principle has been identified for monitoring.

Principles	Mitigation Measures added to the Monitoring Plan
Principle x.y	N/A

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The VPA complies with the Gold Standard key requirements for a gender-sensitive project design and implementation strategy. The VPA and all involved organizations (project team) commits that the project does not reduce or in any way put people's access to the project activities and services as well as people's control of resources, entitlements, and benefits at risk. The project team aims to provide

	access to the project activities and technology for every person irrespective of age, sex, gender, religion, or the socio-economic background. In addition, the project team has identified women as key stakeholders for the project and will seek to integrate female stakeholder and women groups in the project activities as well as adapt project activities, like for example community meetings, to the needs of women and girls in the community. The project team seeks to provide a safe space for women to share their experiences, issues, and thoughts on the project. Moreover, the project team sets out to provide project activities and services to the communities respecting local customs.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	The VPA aligns with Mongolia's "Law on Promotion of Gender Equality (LPGE) 2011", "Mid-term Strategy and Action Plan for Implementation of the LPGE 2013-2016" and "National Programme on Gender Equality 2017-2021" which are part of the broader regulatory framework for implementing an enabling environment for women empowerment and the achievement of gender equality as well as aimed at combating, preventing, eliminating and eradicating all forms of crimes including violence against women and girls, and promoting women's rights.

	The country's regulatory framework on gender equality has identified as amongst its top priorities: • strengthening women's participation in ensuring environmental sustainability and • the provision of basic services and infrastructure (water, sanitation, energy, transport etc. The VPA and the project team aim to realize the above priorities by: • providing equal access to efficient, cleaner and environmentally sustainable technologies for heating (CEPs) and • promoting better livelihoods by providing equal job opportunities to the local people. The VPA will help empower female stakeholders in the project region and ensure equal access to basic services and space to voice opinions for both women and men.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No expert is required to address the Gender Safeguarding Principles & Requirements assessment. The project team has experience in the implementation of interventions targeting and empowering women, addressing gender and role issues. The project shall ensure equal participation of people

	irrespective of age, gender, sex, religion and/or socio-economic background. The Safeguarding Principles assessment (see Appendix 1) has been completed by the project team.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	There is no need for an expert to assist with Gender issues at the Stakeholder Consultation. The project is prepared and implemented in line with the Gold Standard GS4GG Principles & Requirements as well as the Stakeholder Consultation and Engagement Requirements and Guidelines. The project team has experience in the implementation of community service projects for rural communities in the developing world and possesses the necessary insights to plan a gender-sensitive stakeholder consultation process based on participatory measures adapted to local customs and practices.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1. Summary of stakeholder mitigation measures

>>

The local stakeholder consultation was conducted at the VPA level. As this VPA is retroactive, implementation started prior to the completion of the local stakeholder consultation, however the feedback is relevant for this project activity. The local

stakeholder consultation process conducted is applicable for this VPA and other VPAs which employ the same technologies in the same locations. Further details are provided in the Local Stakeholder Consultation Report and VPA Passport. The consultations included:

- Residents Consultation: Residents of Chingeltei District Khoroo 12; Khoroo Governor's Office, April 6, 2011, 11am
- Organizations Consultation: DNA, MCA, GIZ, and Mon-Energy; XacBank Headquarters, October 27, 2011, 8:30am

Summary of comments received

Overall, in both meetings, the project received significant interest from stakeholders and positive feedback. The stakeholders generally felt that the project offered significant environment, development, and empowerment impacts by making proven clean energy products affordable and accessible to low-income households and microentrepreneurs. Multiple stakeholders spoke enthusiastically about the potential for such technologies to have a transformative and empowering impact on the lives of people living in extreme poverty.

The stakeholders believed the project was positive or neutral on all sustainable development indicators. No one expressed major concerns about the project. Minor concerns were expressed around ensuring product quality, the potential for improper installation to result in lowered efficiency, and that the ger blanket technology could potentially have negative impacts on indoor environment due to differences in the temperature..

Consideration of comments received

Each of the concerns raised were addressed during the consultations and did not result in alterations to project activities. In response to the comment on product quality, VPA implementer XacBank explained that they have worked closely with project partners to ensure the quality standards are met and ongoing social and environmental compliance standards are met. Further XacBank conducts ongoing monitoring of households which represents a crucial method of ensuring customer satisfaction with products.

XacBank also confirmed that end users are educated twice on how to use the energy efficient stoves properly, including at the time of purchase and when the product is installed at the household. XacBank staff members are present to ensure the training occurs and the client receives further educational material.

One stakeholder suggested that air quality inside the ger could decrease as a result of the use of improved ger insulation because the insulation does not enable any air exchange to the outside. XacBank consulted further with Munkhbayar Buyan, National Project Manager at the UNDP Building Energy Efficiency Program who was involved in conducting tests on ger blankets. He noted that while increased insulation can be a problem in reducing air circulation, the felt (non-synthetic) ger blankets that XacBank

distributes under the program do not reduce air circulation enough to make this a health issue. Therefore, this is not a negative effect of the program.

One individual also brought up that the effect on the livelihood of the poor was unknown and potentially negative in the long-term for ger blankets if the product does not continue to effectively insulate the home and reduce fuel use. XacBank again consulted with Munkhbayar Buyan, who noted that the products do continue to insulate effectively, and this would not be a negative impact on households' livelihoods.

E.2. Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	Continuous input / Grievance Expression Process Book is available at the office at the following address: XacBank HQ Building, Prime Minister Amar's Street, Post Branch No. 20A, P.O. Box – 72, Ulaanbaatar – 14200, Mongolia Stakeholders (particularly end users) are free to express their concerns and provide constructive feedback via the Grievance Expression Process Book. The grievance book is present at the local office to ensure that stakeholders that are not having access to electronic media and similar means of communication are able to share their concerns/feedback.
GS Contact (mandatory)	help@goldstandard.org
Other	-

SECTION F. Eligibility and inclusion criteria for VPAs inclusion

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No.	Eligibility Criterion	Description/ Required condition	Means of Verification/Supporting evidence for inclusion
1	Boundary and location of the VPA	The VPA is located within Mongolia. Please note that not all CEP	Location and boundary is specified in the specific VPA-DD stating that the

		installations may have been deployed at VPA inclusion stage, however the location of the CEP can also be checked during verification. In the event that any deployed CEP is found to be outside of the project boundary/location, those CEP will not be counted in the emission reduction calculation.	location is limited to Mongolia. Documentation: 1. Statement of CME that the location and boundary is within Mongolia.
2	No Double counting of CEP	A unique numbering or identification system for the CEP installed is applied.	The unique numbering or identification regime is included in the specific VPA-DD Documentation: 1. MEC Credit Tracker database 2. First Booking Record (first VPA of PoA)
3	VER ownership	End users receiving CEP under the specific VPA contractually cede their rights to claim and own emission reductions under the Gold Standard to the CME of the PoA	The default CEP Booking includes the provision that emission reductions generated by the CEP are transferred from the end-user to the PO and ultimately owned by the CME Documents: 1. Carbon rights waiver 2. First CEP Booking Record (first VPA of PoA)
4	Double counting of VPA	The VPA is exclusively bound to the PoA. Confirmation that the programme activity has not been and will not be	A statement is included in the VPA-DD that the specific VPA will not be part of another single CDM

		registered either as a single CDM or GS project activity or as a VPA under another PoA.	project activity or VPA under another PoA. Information in VPA-DD: MEC's Credit Tracker platform is used to record detailed information on each CEP installation, including the unique identification number. Using this data, MEC is able to ensure that all CEPs in the proposed VPA are uniquely defined and included in the VPA only, thereby avoiding double counting of emission reductions generated by the VPA. In addition, declaration from VPA operators as part of their contract with the CME, stating that their activities are not registered as part of another CDM/GS project activity with a different CME. Documentation: 1. Contract with CME and MFI.
5	Awareness and agreement of those operating a VPA on PoA subscription	Contractual provisions to ensure that those operating the VPA are aware and have agreed that their activity is being subscribed to the PoA.	Declaration from VPA operators as part of their contract with the CME, stating that they are aware and have agreed that their activity is being subscribed to the PoA, has been submitted to VVB

6	Non-diversion of ODA in case of Public funding	The CME and the VPA operator (in case of being different from the CME) shall confirm that in case of public funding there shall not be diversion of Official Development Assistance.	Statement of CME and the VPA operator (in case of being different from the CME) Documentation: ODA Declaration form submitted to GS
7	VPA Start Date	The start date of the VPA shall not be before the PoA start date. Please note that not all CEP installations may have been deployed at VPA inclusion stage, however the CEP start date can also be checked during verification. In the event that any deployed CEP is found not in line with VPA start date, those CEP will not be counted in the emission reduction calculation	Starting date as stated in the VPA-DD is after PoA-DD start date. Documentation: Statement from CME that no CEP under the VPA were sold prior to the PoA start date of 25/05/2011, the sales date of the first product included in the PoA
8	VPA Crediting Period	VPA starting date of the crediting period is date of inclusion into registered PoA or up to two years prior, in case of retroactive crediting. Crediting period shall not exceed the PoA end date. Each VPA shall provide verifiable evidence.	A statement is included in the VPA-DD that the crediting period starting date is date of VPA inclusion into registered PoA or up to two years prior, in case of retroactive crediting and that crediting period shall not exceed the PoA end date.
9	Approval of VPA by CME	CME approved each VPA to be included into its registered PoA.	Statement of CME giving approval for the VPA to be included into its registered PoA.
10	Baseline for Target Group	The target group shall be domestic households in	The target group for the VPA are the domestic

		urban, peri-urban, or rural areas.	households (houses/Gers) in urban, peri-urban, or rural areas of Mongolia.
11	Additionality of VPAs	All projects (VPAs) to be included under the PoA will be in compliance with item 1.1.3 of Annex B – positive list mentioned in the 'Community Services Activity Requirements'. All VPAs will be solely composed of isolated units (efficient heating technology) where the users of the technology/measure are household/SMEs/ institutions and where each unit results in <= 600 MWh of energy savings per year. Hence, according to paragraph 4.1.9 of the 'Community Services Activity Requirements', each of the VPAs, regardless of the host country in which the project activity is being implemented, is deemed additional and therefore is not required to prove financial additionality at the time of Design Certification.	1. The energy savings per year at a unit level (i.e. per stove) are clearly below 600 MWh as outlined in the ER calculation excel spreadsheet submitted to VVB
12	Sampling requirements for the VPA	Sampling approaches are set out in each VPA and will follow the Reduced Emissions from cooking and heating-TPDDTEC version 4.0	VPA-DD has incorporated the sampling procedure in section B.7.2 and sampled survey forms shall be provided to GS VVB.
13	Compliance with Environmental Impact	As stated in the PoA-DD, the EIA was conducted	Documentation:

Assessment (EIA) Requirements and relevant host countries laws and policies	at the PoA level. Each VPA complies with EIA and relevant host country laws and policies as listed in the EIA report: The Article of Environment Impact Assessment Law of 4.6.2: • The standard methods of environment impact assessments 3.2.2, Resolution of Minister of Environment and Nature's the 1st annex of resolution №236, in 2008. The Law of Nature and Environment Protection	To demonstrate compliance with the EIA, the PP shall implement the following: 6. Regular household stove's technical general requirement MNS 5216:1, hard fuel usages of household stove MNS 5216:2002, MNS 13240:2011, in the framework of this project, those type of requirements must be fulfilled on household energy efficient stoves. • **Manufacturer specifications** 7. If there is any waste from production, the project implementers should make a collaboration contract with the local waste management foundation or companies. • **Agreements with stove dismantling company(ies) to dismantle old stoves** 8. As the stove is lit from the top, it may have difficulty heating at the ground level. • **Manuals provided to end users at time of purchase provide information on**

			how to properly light and refuel stoves 9. The energy efficient products should be distributed with brochures and user manuals to the clients. • **Manuals associated with the stove disseminated** 10. Project parties should follow all of safety codes and user manuals, which is developed by producers and PIU • **Training on product use and information provided**
14	Stakeholder inclusivity	Local stakeholder consultation for VPA to be conducted prior to the VPA start date. As per the para 4.12.8 the VPA would be retroactive or Regular depending on whether the LSC is conducted before or after the start date of the project activity. This information should be mentioned at the time of inclusion of a VPA-DD	Each VPA-DD shall follow the requirements for a retroactive or regular project in the VPA-DD as per the classification.
15	Technological Requirements	The methodology that will be applied to a VPA is Reduced emissions from cooking and heating – Technologies and Practices to Displace Decentralized Thermal	. Documentation: Statement in VPA-DD confirming the methodology applied to the VPA and the

		Energy Consumption (TPDDTEC) version 4.0	justification for meeting each of the applicability criterion of the applied methodology.
16	SSC Limit for VPAs	The SSC-VPAs will remain under the thermal threshold of 180 GWh/a thermal energy savings throughout the crediting period of the VPA. Please note that not all CEP may have been deployed at VPA inclusion stage, the SSC limit for VPAs can however also be checked during verification, and in case any deployed CEP will be found not in line with VPA SSC Limit for VPAs requirement, those CEP will not be counted for emission reduction calculation.	Not applicable since this is a large scale VPA
17	Target Group	The target group shall be domestic households in uban, peri-urban, or rural homes. The distribution mechanism is direct sales and sales through distribution partners.	Following Documentation has been submitted: 1. MEC Tracker booking record, showing residential address and end user 2. Contract with VPA implementer or distribution partner.
18	Sampling requirements for the VPA	Sampling approaches are set out in each VPA and will follow the Reduced Emissions from	Documentation: 1. PoA Sampling Plan 2. VPA Sampling Plan (in VPA-DD)

		cooking and heating-TPDDTEC version 4.0	
19	SDG Outcomes	The PoA, by way of implementing its VPAs, shall demonstrate contribution towards the following SDGs and impacts therein: 4. SDG 13 Climate Action 5. SDG 7: Affordable and Clean Energy 6. SDG 8: Decent Work and Economic Growth	The SDG monitoring plan and related details are provided in the VPA-DD.
20	Safeguarding principles assessment	The safeguarding principles assessment shall be carried out at the VPA level.	Safeguarding principles assessment and related details are provided in the VPA-DD.
21	Applicability of applied methodology	The VPA should meet all the applicability conditions of the applied methodology, TPDDTEC ver 4.0 and each condition should be described and justified in the VPA-DD	The VPA-DD should meet all the applicability conditions of the methodology, TPDDTEC ver 4.0. This shall be detailed in section B.2 of the VPA-DD.
22.	Applicability of Community services Activity requirements (CSA)	The VPA should meet all the applicability conditions of the Community Services Activity requirements and each condition should be described and justified in the VPA-DD	The VPA-DD should meet all the applicability conditions of CSA and detailed justification to be done in section B.2 of the VPA-DD.
23	Applicability of Requirements and Guidelines: Usage rate Monitoring, version 2.0	The VPA should meet all the applicability conditions of the applied methodology, Usage rate Monitoring, version 2.0 and each condition should be described and justified in the VPA-DD	The VPA-DD should meet all the applicability conditions of the Usage rate Monitoring, version 2.0. This shall be detailed in section B.2 of the VPA-DD.

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into SECTION D above. Please refer to the instructions in the Guide to Completing this Form below.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/No)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	No	The VPA and CME both respect human rights and are not complicit in violence or human rights abuses.	Not Required
2. The Project shall not discriminate with regards to participation and inclusion	No	The VPA does not discriminate with regards to participation and inclusion	Not Required
Principle 2. Gender Equality			

1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women	No	The Project takes into account the Law on Promotion of Gender Equality of 2011[11]	Not Required
2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work	No	The project shall apply the principle of non-discrimination, equal treatment, and equal pay for equal work as per the Mongolian Law[12].	Not Required
3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	No	The Project is designed to empower women and improve livelihoods. No gender risks are envisaged in the PoA.	Not Required
4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	No	As discussed above the CME doesn't envisage any gender risks from the project and therefore expert opinion on the same is not required.	

[11] https://evaw-global-database.unwomen.org/-/media/files/un%20women/vaw/full%20text/asia/law%20on%20gender%20equality%20-%20february%202011%20-%20mongolian/law%20on%20gender%20equality%20-%20february%202011%20-%20mongolian.pdf?vs=2618
[12] https://www.ilo.org/dyn/natlex/docs/WEBTEXT/57592/65206/E99MNG01.htm

Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	Yes	The VPA reduces exposure to indoor air pollutants and smoke levels, further reducing incidence of respiratory illness compared to traditional fossil fuel stoves.	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	Since this is an Improved stove project distributed to households, there is no risk to cultural, historical, traditional or religious values. Not relevant	Not Required
>>			
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project is a distribution project for replacement of traditional inefficient heatingstoves with Improved stoves. The project shall not result in physical or economic relocation of people.	Not Required
>>			
Principle 4.3 Land Tenure and Other Rights			

a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership? >>	No	The project is a distribution project for replacement of traditional inefficient stoves with Improved stoves. The project shall not result in any change to land use.	Not Required
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples? >>	No	There is no risk to land/territory claimed by indigenous people. Since this is an Improved stove project the CEPs will be distributed to all willing customers within the project boundary.	Not Required
Principle 5. Corruption			

1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	The CME and the PO do not promote/ or is complicit in direct or indirect corruption.	Not Required
Principle 6.1 Labour Rights			
2. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions	No	The VPA does not involve any forced labour and the CME/VPA Implementer ensures that all employment is in compliance with local labour regulations and laws[13].	Not required
3. Workers shall be able to establish and join labour organisations	No	The CME and the PO put no constraints / limitation on employees to form a union.	Not required
4. Working agreements with all individual workers shall be	No	The CME and the PO's policies and employment contracts are compliant with the requirement	Not required

[13] https://www.ilo.org/dyn/natlex/docs/WEBTEXT/57592/65206/E99MNG01.htm

documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.			
5. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion)	No	The CME and the PO do not promote / or is complicit in child labour	Not required
6. The Project Developer shall ensure the use of	No		Not required

appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures		Since this is a distribution project it is irrelevant for the project activity	
Principle 6.2 Negative Economic Consequences			
1. Does the project cause negative economic consequences during and after project implementation?	No	No negative economic consequences are deemed applicable	Not required
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	Since the project involves improved stove technology which is energy efficient as compared to traditional stoves used in baseline scenario, the VPA reduces GHG emissions relative to baseline scenario	Not required
Principle 7.2 Energy Supply			

Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project will use fossil fuel i.e coking coal briquettes which is also used in baseline scenario.	Not Required
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity. Hence not applicable.	Not Required
Principle 8.2 Erosion and/or Water Body Instability			

a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The VPA will not cause erosion or water body instability or disturb natural pattern of erosion.	Not Required
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	The project doesn't involve the use of land or soil for production of crops. Hence not applicable.	Not Required
Principle 9.2 Vulnerability to Natural Disaster			

Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	Since this is a distribution project, this condition is not applicable.	Not Required
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The Project is not negatively impacted by the use of genetically modified organisms or GMOs. Therefore, not applicable.	Not Required
Principle 9.4 Release of pollutants			

Could the Project potentially result in the release of pollutants to the environment?	No	The beneficiaries are informed about proper waste handling and disposal of scrap material due to end of life or non-operational product and are advised to properly dispose the scrap.	Not Required
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The Project does not involve the manufacture, trade, release, and/or use of hazardous chemicals and or materials. Not applicable	Not Required
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	The project does not involve the application of pesticides and/or fertilisers. Not applicable	Not Required

Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The VPA does not involve harvesting of forests.	Not Required
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project does not involve modification to food. Hence this condition is not applicable.	Not Required
Principle 9.9 Animal husbandry			

Will the Project involve animal husbandry?	No	The project does not involve animal husbandry. Not applicable	Not Required
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project doesn't affect the biodiversity. Not applicable	Not Required
Principle 9.11 Endangered Species			

a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The project is related to distribution and does not affect the endangered species in the area. Not applicable	Not Required

APPENDIX 2- CONTACT INFORMATION OF VPA IMPLEMENTER

Organization name	XacBank LLC
Registration number with relevant authority	
Street/P.O. Box	Prime Minister Amar's Street, Post Branch – 46 , P.O. Box - 721
Building	XacBank HQ Building
City	Ulaanbaatar
State/Region	
Postcode	14200
Country	Mongolia
Telephone	+976 11 318 185
E-mail	tuul.g@xacbank.mn
Website	http://www.xacbank.mn/
Contact person	Tuul Galzagd
Title	Business Development Manager
Salutation	Ms.
Last name	Galzagd
Middle name	
First name	Tuul
Department	EcoBanking Department
Mobile	+976 11 318 185
Direct tel.	
Personal e-mail	

APPENDIX 3- LUF ADDITIONAL INFORMATION

Risk of change to the Project Area during Project Certification Period:	NA
Risk of change to the Project activities during Project Certification Period:	NA
Land-use history and current status of Project Area:	NA
Socio-Economic history:	NA
Forest management applied (past and future)	NA
Forest characteristics (including main tree species planted)	NA
Main social impacts (risks and benefits)	NA
Main environmental impacts (risks and benefits)	NA
Financial structure	NA
Infrastructure (roads/houses etc):	NA
Water bodies:	NA
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	NA
Where indigenous people and local communities are situated:	NA
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	NA

APPENDIX 3-SUMMARY OF APPROVED DESIGN CHANGES

The CME proposes to institute the following three permanent design changes to the design certified GS PoA "MicroEnergy Credits – Mongolia -Microfinance for Clean Energy Product Lines VER Project" (GS ID 2434), in line with the provisions of section 3 of the GS4GG Design Change Requirements:

a. **Methodology change** - Voluntarily changing the applied methodology of the design certified PoA (including existing and future VPAs)) from *AMS-II.E. Energy Efficiency and Fuel Switching Measures for Buildings (version 10)* to *Reduced Emissions from Cooking and Heating: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) (version 4.0)* – in line with the provisions of paragraph 3.1.6(i) of GS4GG Design Change Requirements,
b. **Technology/measure removal** - Removing the technology/measure of *Home Insulation technologies (ger blankets)* from the ambit of the design certified PoA (including existing and future VPAs) and continuing with implementation of *efficient stoves and heating technologies (space heating stoves)* only, for all future VER issuances – in line with the provisions of paragraph 3.1.6(f) of GS4GG Design Change Requirements, and
c. **Project fuel shift** – Shifting the fuel used by project technologies in the design certified PoA (including existing and future VPAs) from *pit coal* to *refined coal briquettes* - in line with the provisions of paragraph 3.1.6 (e) and (f) of GS4GG Design Change Requirements.

The above changes are deemed permanent in line with the requirements of paragraph 3.1.1 of the GS4GG Design Change Requirements as they impact the certified project design in regard to the following project aspects:

a. applicability of the methodology,
b. compliance with the registered monitoring plan and
c. sustainable development impact.

Revision History

Version	Date	Remarks
2.0	4 May 2022	
1.1	7 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption