

METHODOLOGY

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GS4GG PAA M400-07

SDG 13

SIMPLIFIED METHODOLOGY FOR CLEAN AND EFFICIENT COOKSTOVES

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SUMMARY

This methodology applies to activities that introduce clean and efficient cookstoves to reduce greenhouse gas (GHG) emissions from household cooking. The methodology is applicable only where the baseline scenario is characterized by the use of conventional cooking devices (e.g., three-stone fires) and the primary fuel is wood or charcoal. The methodology can be used only where the baseline stove unambiguously meets the 'conventional stove' definition. If baseline evidence shows heterogeneous or improved baseline devices, apply [Reduced Emissions from Cooking and Heating \(RECH\)](#) (formerly TPDDTEC).

Key Methodological Components:

- **Simplified Applicability:** This methodology is limited to micro-scale household cooking activities where the baseline is unambiguously a traditional stove using wood or charcoal as the primary fuel.
- **Deemed Additionality through Positive List:** Additionality can be demonstrated through a methodology-level positive list. Activities are deemed automatically additional if they meet defined conditions related to:
 - activity scale (micro-scale),
 - geographic context (LDCs or rural LMIC regions), and

- absence of comprehensive government subsidy programmes addressing the same baseline technology.
- **Simplified Baseline Determination:** Baseline fuel consumption may be determined using either a Baseline Kitchen Performance Test (B-KPT) or a conservative default / Minimum Service Level (MSL) approach. The default/MSL pathway simplifies MRV requirements by allowing eligible activities to apply fixed baseline values rather than conducting full baseline fuel consumption testing.
- **Suppressed Demand Provisions:** Where baseline fuel consumption is below the level required to meet basic cooking needs, the methodology allows the application of suppressed demand using conservative Minimum Service Level (MSL) defaults. These values are converted to household level using baseline household size and are subject to a mandatory conservativeness discount.
- **Usage-Adjusted Crediting:** Emission reductions are based both on baseline and activity fuel consumption, and on the number of operational stoves and the usage rate of activity technologies. Annual usage surveys are required to capture adoption, continued use, and drop-off, ensuring that crediting reflects actual use rather than distribution alone.
- **Use of Standardized Default Parameters:** The methodology incorporates a range of standardized default parameters to reduce monitoring and calculation complexity. These include:
 - default emission factors,
 - default net calorific values,
 - default Minimum Service Level fuel consumption values, and
 - standardized wood-to-charcoal conversion factors for upstream emissions.

The use of standardized parameters reduces the need for activity-specific measurement.

- **Dynamic Baseline Adjustment:** To increase mitigation ambition over time and align with national decarbonization pathways, baseline emissions are adjusted using a fixed Downward Adjustment Factor (DAF) determined using the GS4GG Methodology Tool 05 - Downward Adjustment Factor Determination. The DAF is applied as a fixed annual reduction for the crediting period and does not compound year-over-year.

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1 | KEY INFORMATION

1.1.1 | The following table describes the key information for the application of the methodology.

Table 1. Key information

Term	Description
Activity summary	The activity (also referred to as project or project activity) involves the introduction of efficient cooking technologies that reduce greenhouse gas (GHG) emissions from the thermal energy consumption of household cooking.
Mitigation Activity type	<input checked="" type="checkbox"/> Emission reductions <input type="checkbox"/> Emission removals
Applicable activity scale	Micro scale (e.g., $\leq 10,000$ tCO ₂ e per year)
Sectoral Scope	3. Energy demand
Activity Requirement	Community Services
Activity start date	The start date is the date of implementation of the first unit under the mitigation activity.
Crediting Period start date	The date of the start of use of first device distributed/installed or a maximum of two years prior to the date of activity design certification, whichever occurs later. For phased distribution, the crediting period start date is the operations start date of the first distributed/installed unit within the activity boundary. Subsequent units generate emission reductions from their respective operations start dates.
Crediting period length	The maximum crediting period is five years, renewable twice (total of 15 years). The crediting period shall not exceed the technical lifetime of the activity technology unless measures for replacement or maintenance are in place.
Geographical applicability	Global
Limitations	This methodology is strictly limited to activities where: <ol style="list-style-type: none"> The activity is micro-scale ($\leq 10,000$ tCO₂e per year). The primary baseline fuel ($\geq 90\%$) is wood or charcoal. The baseline stove unambiguously meets the 'Traditional stove' definition (e.g., three-stone fire, mud/clay stove with no grate and air vent). If baseline evidence shows heterogenous or improved baseline devices, apply Reduced Emissions from Cooking

[And Heating –\(RECH\)](#) (formerly TPDDTEC) or other relevant methodology.

2| DEFINITIONS

2.1.1 | The definitions in the [Glossary of Gold Standard for the Global Goals](#), the referenced standards and tools, as well as the definitions in [Reduced Emissions from Cooking And Heating](#) – RECH (formerly TPDDTEC) shall apply, in addition to the following outlined below:

Table 2. Terms and definitions

TERM	DEFINITION
Batch	The population of cooking devices of the same type commissioned during a specific period (e.g., month or quarter) in a calendar year. The latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch.
Downward Adjustment Factor (DAF)	A numerical coefficient applied to crediting baselines to ensure the encouragement of ambition by setting crediting baselines below Business-As-Usual (BAU) levels and increasing the ambition of crediting baselines over time. Refer to GS4GG Methodology Tool 05: Downward Adjustment Factor Determination (hereafter GS4GG MT 05), for further details on classification and default DAF.
Stove stacking	The use of multiple stoves or cooking devices concurrently or interchangeably by the same end user. Activity beneficiaries continue to use traditional or other stoves alongside the improved stove, rather than exclusively using a single stove.
Technical life	Average time for which the activity technology may continue to be operated in a safe manner and with minimal loss of performance. The technical life shall be as per manufacturer’s specification or independent study.
Traditional Stove	A cooking device without a grate or a chimney, i.e., with no improved combustion air supply or flue gas ventilation. Examples include three-stone fires or basic metal stoves (e.g., coal pots).
Wood-to-charcoal conversion factor (WCCF)	A factor expressing the amount of wood required to produce a standard quantity of charcoal. Activity developers shall apply a stratified default approach: <ul style="list-style-type: none"> - Sub-Saharan Africa (SSA) and Least Developed Countries (LDCs): A default WCCF ratio of 6:1 (approx. 17% kiln efficiency) may be applied, reflecting the dominance of traditional earth-mound kilns.

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- **Industrialised or High-Efficiency Regions:** A conservative default WCCF ratio of 4:1 (approx. 25% kiln efficiency) shall be applied.
 - **Optional conservative application:** Activity developers may apply the conservative default WCCF ratio of 4:1 irrespective of the geographic region, including SSA and LMIC contexts.

Activity-specific overrides for upstream charcoal emission factors are not permitted.

3| SCOPE, APPLICABILITY, AND ENTRY INTO FORCE

3.1 | Scope

- 3.1.1 | This methodology applies to activities that introduce technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of household cooking. The activity may involve progressive distribution of technology where implementation occurs gradually over the crediting period.
- 3.1.2 | This methodology may be implemented together with the [Tool 7: Digital Stove Monitoring, Analysis and Reporting Tool \(D-SMART\)](#) as an optional MRV add-on. Where applied, the requirements of this methodology continue to apply unless explicitly replaced by the dMRV tool requirements.

3.2 | Applicability

The methodology is applicable under the following conditions:

- 3.2.1 | **Scale Limits:** The project activity shall reduce or displace no more than 10,000 tCO_{2e} per crediting year (i.e., 365 days).
- 3.2.2 | **Baseline Scenario Criteria**
 - 3.2.2.1 | The primary baseline fuel shall be wood or charcoal, meaning it meets more than 90% of the household's thermal energy needs¹ for cooking.
 - 3.2.2.2 | The baseline stove shall be a Traditional Stove (e.g., three-stone fire). If improved or heterogeneous devices are present, this methodology is not applicable.
- 3.2.3 | **Activity Scenario Criteria**

¹ The thermal energy need (in MJ unit) of each energy source for household cooking shall be calculated as *Amount of fuel from each type of fuel per day (as determined during baseline survey in kg) * Net calorific value (NCV in TJ/Gg)*. In case the energy source is electricity, the thermal energy need is calculated as *Daily cooking time (hours) * Capacity of equipment (kW)*
* 3.6. A fuel is defined as primary baseline fuel if its thermal energy accounts for more than 90% of the total thermal energy from mixed baseline fuel.

- 3.2.3.1 | The activity stove (or retrofitted baseline stove) shall have a rated thermal efficiency, determined via standardized laboratory testing (e.g., ISO 19867-1 or WBT), of at least:
- a. Wood-burning technologies using a griddle surface (e.g., plancha cookstoves): 20% or higher.
 - b. All other wood cookstoves: 25% or higher.
 - c. Charcoal cookstoves: 30% or higher.
- 3.2.3.2 | Activities may propose a stove below these thresholds if it is verifiably the only viable option for the target population (e.g., due to extreme affordability barriers, cultural practices, or specific local Minimum Energy Performance Standards)².
- 3.2.3.3 | Technology units distributed on or before 31 December 2027 under activities submitted for design certification prior to V4.0 publication are exempt from these specific thresholds and shall comply with their design certified PDD. All units distributed on or after 01 January 2028 shall meet the minimum thermal efficiency thresholds defined in this section.
- 3.2.3.4 | New activities submitted for design certification under SMEC V4.0 or later version i.e., after 01 June 2026, shall meet the minimum thermal efficiency thresholds from the onset.
- 3.2.4 | **Baseline Technology Displacement:**
- 3.2.4.1 | The activity developer should implement mechanism(s) (e.g., user agreements, trade-ins conditional subsidies, safe decommissioning and disposal or verified awareness campaigns) to encourage the displacement of baseline technologies. Recognizing that permanent decommissioning of traditional open fires is often unverifiable, the activity shall account for any continued use of baseline stoves (stove-stacking) mathematically via the activity specific - Project Kitchen Performance Test (P-KPT).
- 3.2.5 | **Technical life and replacement:**
- 3.2.5.1 | If the expected technical life of the activity technology is shorter than the crediting period, the activity developer shall describe measures to ensure that end-users are provided replacement technology of comparable quality at the end of the technical life, by either replacing with comparable or better technology or retrofitting essential parts with a performance guarantee. No emission reductions shall be claimed after the technical life ends unless these measures are documented and verified. Emission reductions for retrofitted/repared devices may be claimed only if documented and demonstrated through a warranty, guarantee, or standardized durability test.
- 3.2.6 | **Avoidance of Double Counting:**

² Such proposals shall be reviewed on a case-by-case basis at the time of preliminary review and shall include evidence demonstrating that higher efficiency stoves are prohibitively expensive for the target users, or that past attempts to introduce them failed due to entrenched user preferences or maintenance issues.

- 3.2.6.1 | To avoid double-counting or double claiming, the activity developer shall:
- a. Explain the proposed method for distribution of the activity stove in the PDD/VPA-DD; and,
 - b. Ensure activity devices are identified with a unique physical identifier or a digital identifier and tracked in a relational database. To comply with data privacy regulations, geographic tracking may be logged at the lowest permissible administrative unit (e.g., village/ward level) rather than precise household GPS, provided unique product IDs prevent double counting.; and
 - c. Communicate ownership rights and intention to claim emission reductions to all activity participants; technology manufacturers; retailers of the technology or fuel suppliers (SMEC 2). Note: Manufacturers of raw, tier-2 components or discrete stove parts are exempt from this requirement; and,
 - d. Obtain and document Informed Consent from the end-users, ensuring transaction records (whether paper or digital) contain a verified assertion in an accessible local language that the user was informed of the carbon title waiver, notifying them that they cannot claim emission reductions from the activity (SMEC), and
 - e. Exclude stoves already included in any other voluntary or compliance carbon market mechanism such as PACM, CDM project activity/PoA and strive not to displace the cooking devices of another project/PoA. (SMEC 3).
- 3.2.6.2 | When overlapping with an SWS intervention, the SWS activity shall calculate its baseline fuel consumption by assuming the use of the efficient activity stove to prevent double-claiming fuel savings.
- 3.2.6.3 | **Overlap with Jurisdictional REDD+ Programs:** Where the activity overlaps with an implemented Jurisdictional REDD+ (J-REDD+) programme or a similar national or sub-national scheme, the developer shall demonstrate that emission reductions are not subject to double issuance risk.
- a. Overlap risk shall be considered immaterial unless the Host Country's Jurisdictional REDD+ FREL/FRL baseline explicitly incorporates and accounts for subsistence household fuelwood consumption as a quantified driver of deforestation. The activity developer shall submit a Declaration of Non-Overlap, verified by VVB against publicly available J-REDD+ registry documents. Absent explicit inclusion of subsistence fuelwood in the J-REDD+ baseline, emission sources are distinct, and no further action shall be required.
 - b. If a direct conflict exists, the activity developer shall demonstrate that the activity specific reductions are not subject to double issuance risk by providing valid documentation for one of the following options:

- i. Option 1: Accounting Exclusion: Documentation demonstrating that the jurisdictional programme's Forest Reference Emission Level, Forest Reference Level, or accounting methodology explicitly excludes the specific emission sources (e.g., degradation from wood fuel harvesting) or activity classes (e.g., clean cooking/thermal energy) addressed by the activity; OR
- ii. Option 2: Attribution Agreement: A formal statement, or Letter of No Objection from the relevant authority confirming that the specific emission reductions generated by the activity are attributed to the activity and will be deducted from (or not claimed by) the jurisdictional programme to prevent double issuance.

3.2.7 | **Indoor Air Pollution (IAP):**

- 3.2.7.1 | Adequate evidence shall be supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline.
- 3.2.7.2 | Furthermore, for activities where the activity moves from outdoor to indoor or where the activity technology reduces ventilation (e.g., changing from a stove with a chimney to an improved stove with no chimney), IAP levels, including PM 2.5 and carbon monoxide (CO) emissions, shall not worsen in the activity compared to the baseline. Standard ISO laboratory test reports (e.g., ISO 19867-1 emissions tiers) are sufficient to satisfy this requirement. Bespoke field emissions monitoring is not required unless the activity transitions users to a totally unventilated technology.
- 3.2.7.3 | To issue ADALYs, the activity developer may apply the [Methodology to Estimate and Verify ADALYS from Clean Household Air](#). Activities may claim standard observational SDG 3.9.1 impact claims in their monitoring reports based on basic usage and indoor air quality safeguards.

3.3 | **Mandatory Compliance and Safeguards**

- 3.3.1 | **GS4GG Requirements:** The activity shall adhere to the [GS4GG Principles And Requirements, Safeguarding Principles and Requirements](#), and the [Community Services Activity Requirements](#).
- 3.3.2 | **Regulatory Compliance:** The activity shall not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply or fuel supply.
- 3.3.3 | **Health and Safety:** Activities shall comply with health and safety requirements at both the organization level, and for end-users' level, in line with Principle 3 of the Safeguarding Principles & Requirements.
- 3.3.4 | **Contractual Obligation:** The developer shall, by direct ownership, contractual agreement, or other such arrangement, establish access to the required monitoring data and supporting documentation.

3.4 | Entry into force

3.4.1 | The date of entry into force is 90 days from the publication date of this methodology.

4 | NORMATIVE REFERENCES

4.1.1 | The following standards, methodologies, tools, and guidelines are normative references for the application of this methodology. Activity developers shall apply the latest valid version of these documents. References to CDM tools are valid until equivalent tools are published under Gold Standard (GS4GG) or the Article 6.4 Mechanism (A6.4)/Paris Agreement Crediting Mechanism (PACM). Upon publication of an equivalent tool, it shall supersede the corresponding CDM tool:

4.1.1.1 | GS4GG Standards and Requirements

- a. GS4GG Principles & Requirements
- b. GS4GG Safeguarding Principles & Requirements
- c. Community Services Activity (CSA) Requirements

4.1.1.2 | GS4GG Methodologies, Standards, and Tools

- a. Methodology Standard: [Requirements for Additionality Demonstration](#)
- b. Methodology Standard: [Requirements for Baseline Determination in Methodologies](#)
- c. Tool 05: [Downward Adjustment Factor Determination](#)
- d. Tool 06 – [Common Practice Analysis](#)
- e. Tool - Analysis of lock-in risk [Latest Approved Version]
- f. Tool - Technical lifetime [Latest Approved Version]
- g. Requirements and Guidelines: [Cookstove Usage Rate Guidelines](#)
- h. [Reduced Emissions from Cooking and Heating](#) –(formerly TPDDTEC)
- i. Tool 07 - [Digital Stove Monitoring, Analysis and Reporting Tool \(D-SMART\)](#)

4.1.1.3 | UNFCCC/A6.4 Tools and Standards:

- a. [A6.4-AMT-002: Investment analysis](#)
- b. A6.4 MEP012-A04: Methodological tool: Fraction of non-renewable biomass [Latest Approved Version]
- c. A6.4-AMT-006: Determination of the technical lifetime of equipment
- d. CDM Standard: Sampling and surveys for CDM project activities and programme of activities (or equivalent A6.4/PACM standard).

4.1.1.4 | Other Sources:

- a. ISO 19867-1: Clean cookstoves and clean cooking solutions -- Harmonized laboratory test protocols

- b. [Kitchen Performance Test \(KPT\) Protocol \(Latest recognized version, e.g., Clean Cooking Alliance protocol\)](#).
- c. Water Boiling Test (WBT) Protocol (Latest recognized version).

5| ACTIVITY BOUNDARY AND GHGS SOURCES/SINKS

5.1 | Activity boundary

- 5.1.1 | The activity boundary encompasses all anthropogenic emissions by sources of GHGs that are under the control of the activity developer, are related to the activity, or are significantly affected by the activity.
- 5.1.2 | The activity developer shall clearly identify the physical boundary, target area, and fuel production and collection area following the definitions below.
 - a. **Physical and Geographical Boundary:** The physical, geographical site of the baseline and activity technologies (i.e., the households).
 - b. **Fuel Production and Collection Area:** The boundary includes the areas associated with fuel sourcing and production:
 - i. **Woody Biomass:** Where the baseline or activity fuel is woody biomass (including charcoal), the boundary includes the area within which this woody biomass is grown and collected.
 - ii. **Processed Fuels:** For activities using processed fuels, this boundary includes the baseline and activity fuel production (e.g., charcoal Kilns).
 - c. **Target area:** The region(s) e.g., village(s) or town(s) where the considered baseline scenario(s) are deemed to be uniform. The target area provides an outer limit to the activity boundary in which the activity has a target population.
- 5.1.3 | **Upstream Emissions (Manufacturing/Transport):** The upstream emissions associated with the manufacture and transport of the activity devices shall be accounted for as leakage.

5.2 | GHG Sources

- 5.2.1 | The following tables identify the relevant GHG sources for the baseline scenario, the activity scenario, and leakage.
- 5.2.2 | **Materiality and Simplification Rules:**
 - a. **Baseline Simplification:** Baseline emissions of CH₄ and N₂O may be omitted for simplification, provided this results in a conservative estimate of emission reductions (i.e., total baseline emissions are not overestimated).
 - b. **Activity Emission Completeness:** All activity emissions (CO₂, CH₄ and N₂O) shall be accounted for unless demonstrably negligible.
 - c. **Fuel Transportation Emissions:** Activity emissions from the transportation of fuel/biomass (including long-distance and home

delivery transport) shall be accounted for if the total transportation distance exceeds 200 km; otherwise, they may be neglected. If baseline fuel transportation emissions are included, activity fuel transportation emissions shall also be included, regardless of distance, to ensure consistency.

- d. **Device Manufacturing/Transport (Embodied Emissions):** Indirect GHG emissions associated with the production, processing, and transport of inputs (cradle-to-gate embodied emissions of the activity devices) shall be accounted for exclusively as Leakage Emissions (See Section 9).

5.3 | Baseline Emissions

5.3.1 | The following table details the GHGs included in, or excluded from, the baseline scenario(s):

Table 3. Sources of Baseline Emissions

SOURCE	DESCRIPTION	GAS	INCLUDED?	JUSTIFICATION
Delivery of thermal energy	Combustion of fuel (wood or charcoal).	CO ₂	Yes	Major source of emissions. Only CO ₂ from the non-renewable fraction of biomass (fNRB) is included.
		CH ₄	Yes	
		N ₂ O	Yes	
Production of fuel, transport of fuel	Emissions associated with production (e.g., charcoal) and transport of the fuel.	CO ₂	Yes	Important lifecycle emissions. Included if the emission factor used incorporates these sources (e.g., charcoal production) or if transport distance exceeds 200 km.
		CH ₄	Yes	
		N ₂ O	Yes	

5.4 | Activity emissions

5.4.1 | The following table details the GHGs in the activity scenario(s):

Table 4. Sources of Activity Emissions

SOURCE	DESCRIPTION	GAS	INCLUDED?	JUSTIFICATION
Delivery of thermal energy	Combustion of fuel in activity stoves AND any continued use of baseline stoves	CO ₂	Yes	Major source of emissions. Only CO ₂ from the non-renewable fraction of biomass (fNRB) is included. Note: Changes in household fuel consumption, e.g., fuel switching, are captured directly through monitoring
		CH ₄	Yes	Significant source of emissions from incomplete combustion. Included for completeness.
		N ₂ O	Yes	
Production of fuel, transport of fuel	Emissions associated with the production and transport of the fuel used in the activity scenario.	CO ₂	Yes	Important lifecycle emissions. Included if the emission factor used incorporates these sources (e.g., charcoal production), or if transport distance exceeds 200 km.
		CH ₄	Yes	Important source of emissions
		N ₂ O	Yes	

5.5 | Leakage emissions

5.5.1 | Leakage is the net change of GHG emissions occurring outside the activity boundary, attributable to the activity.

Table 5: Sources of Leakage Emissions

SOURCE	DESCRIPTION	GAS	INCLUDED?	JUSTIFICATION
Embodied Emissions (Upstream)	Cradle-to-gate emissions associated with the manufacturing and transport of the activity devices.	CO _{2e}	Yes	Mandatory Inclusion. Accounted for using conservative defaults (See Section 9).

Market and Behavioural Leakage.	Potential upstream and downstream leakage sources (e.g., market effects on non-renewable biomass availability, compensation for lost co-benefits).	CO _{2e}	Yes	Accounted for using a mandatory conservative default deduction (See Section 9).
Reuse of Baseline Equipment	The displaced baseline stoves are reused outside the activity boundary	CO _{2e}	No	Assumed negligible due to activity design requirements for baseline stove elimination/incentives (Section 3.2.4).

6 | DEMONSTRATION OF ADDITIONALITY

6.1 | Requirements

6.1.1 | The activity developer shall demonstrate that the activity would not have occurred in the absence of the incentives provided by the carbon revenues. The demonstration of additionality shall be conducted in accordance with the GS4GG standard [Requirements for Additionality Demonstration](#).

6.2 | Additionality Approach Selection

6.2.1 | The activity developer shall demonstrate additionality by conforming to the requirements of one of the options below:

- a. **Positive List (Deemed Additionality):** The activity is deemed additional if it meets the geographic, scale, and policy criteria established in Annex 4. The Positive List applied shall be valid at the time of the activity’s submission for Design Certification.
- b. **Activity-Specific Assessment:** If the activity does not qualify for a Positive List, additionality shall be demonstrated through an Investment Analysis and/or Barrier Analysis assessment as described in this section.

6.2.2 | All activities, regardless of the approach selected (Positive List or Activity-Specific Assessment), shall successfully complete the following mandatory analyses: i. Regulatory Surplus Analysis (Section 6.3); ii. Lock-In Risk Analysis (Section 6.4); and iii. Common Practice Analysis (Section 6.6).

6.3 | Regulatory Surplus Analysis

6.3.1 | The activity developer shall demonstrate that the emission reductions achieved by the activity are regulatory surplus, meaning they are not

required by any existing laws, regulations, or mandates (legal requirements) within the host Party's jurisdiction.

- 6.3.2 | **Exemptions:** The activity developer may submit credible, authoritative, and up-to-date evidence (**e.g., independent market surveys, government implementation reports**) demonstrating that the *de facto* market conditions involve systemic non-compliance with the regulation (e.g. widespread continued use of traditional fuels despite formal restrictions), or that a government scheme lacks the operational funding, institutional capacity or enforcement mechanisms to achieve its targets independently of carbon finance. Note: For high-income countries, all legal requirements shall be deemed to be fully enforced, and this *de facto* non-enforcement exemption shall not apply.
- 6.3.3 | The analysis shall verify that legal requirements do not:
- a. Directly mandate the implementation of the mitigation activity.
 - b. Indirectly mandate the implementation of the mitigation activity by requiring a certain technological, performance, or management action, or by preventing alternative scenarios; or
 - c. Establish a support scheme (e.g., subsidy programme) designed to achieve a quantitative target for the relevant technologies that would likely result in the same amount of emission reductions if the activity were not implemented.
- 6.3.4 | The assessment shall be conducted at the start of the 1st crediting period and at each renewal of the crediting period.
- 6.3.5 | **Host Country Eligibility (Article 6 Negative List Assessment):** The activity developer shall demonstrate that the mitigation activity type is not excluded by the Host Country from participating in carbon market mechanisms.
- 6.3.6 | **Demonstration of Compliance:** Compliance with this requirement shall be demonstrated through one of the following, as applicable, at the time of Validation and Crediting Period Renewal:
- a. **Official List Review:** A citation of the Host Country's most recent official Article 6 policy framework, decrees, or public eligibility lists (e.g., a "Negative List" or "Ineligible Activity List") published by the Designated National Authority (DNA) or Article 6 Focal Point, confirming the activity is not excluded.
 - b. **Explicit Authorization:** Provision of a Letter of Authorization (LoA) or No Objection from the Host Country's DNA that explicitly authorizes the mitigation activity type or sector.
 - c. **Confirmation of No Exclusion (Default):** In the absence of a published negative list, positive list, or specific regulatory exclusion, the activity developer shall provide a formal declaration confirming that no official communication or regulation has been issued by the Host Country identifying the specific technology as ineligible for carbon crediting.

6.4 | Lock-In Risk Analysis

- 6.4.1 | The activity developer shall assess the risk that the activity may lead to a lock-in of GHG emissions, technologies, or practices inconsistent with the achievement of the host Party's NDC or the long-term goals of the Paris Agreement.
- 6.4.2 | **Methodology-Level Determinations and Exemption Conditions:** Activities are exempted from further activity-level lock-in risk assessment if they meet these specific conditions:
- 6.4.2.1 | **Full Exemption (Zero-Emission Technologies):** For solar technologies (e.g., Solar Cookers, Solar Water Heaters), although their lifespan may exceed 10 years, they pass the full assessment as zero-emission technologies fully compatible with net-zero pathways.
- 6.4.2.2 | **Conditional Exemption:** For improved biomass cookstoves (ICS) and other decentralized thermal technologies (e.g., Heat Retention Cookers), lifespans are variable (typically 3-10 years). Exemption is granted only if the activity developer provides verifiable evidence (e.g., manufacturer specifications, standardized durability tests) demonstrating that the specific model(s) being deployed have a technical or operational lifetime of 10 years or less (See Parameter SMEC 6).; The validity of the 10-year exemption is limited to activities submitted for Design Certification on or before 31 December 2030; and
- 6.4.3 | **Requirements for Full Lock-In Risk Assessment:** If the technology deployed does not meet the criteria for full or conditional exemption listed in 6.4.2, the activity developer shall conduct a Lock-In Risk Assessment following GS4GG Methodology Tool – Lock in Risk Analysis.

6.5 | Investment Analysis and/or Barrier Analysis

- 6.5.1 | If the Positive List approach is not utilized, an Investment Analysis and/or Barrier Analysis shall be conducted according to the selected additionality tool (Section 6.2.1 |).
- 6.5.2 | **Selection of Analysis Type:** The appropriate analysis type depends on the context of the activity:
- a. **Investment Analysis (Financial Viability Analysis):** This approach shall be used for: Activities implemented in industrial or large commercial/institutional facilities where standard financial investment appraisal is the norm.
 - b. **Barrier Analysis:** This approach may be used for activities implemented at individual households or small entities (e.g., schools, small enterprises) that typically do not have access to commercial or public third-party finance, or where non-financial barriers are the primary deterrent.
- 6.5.3 | **Requirements for Investment Analysis:** If Investment Analysis is selected, the activity developer shall conduct a Simple Cost Analysis,

Benchmark Analysis, or Investment Comparison Analysis in conformity with the requirements of the [A6.4-AMT-002: Investment analysis](#) . The analysis shall demonstrate that:

- a. The activity is not financially viable (e.g., fails to meet the required benchmark or is less attractive than alternatives) without carbon credit revenues; and
- b. With carbon credit revenues, the activity becomes financially viable or the most attractive option.

6.6 | Barrier Analysis (optional alternative):

6.6.1 | If a standard investment analysis cannot be applied, the activity may undertake a barrier analysis to demonstrate that significant barriers (e.g. technological, institutional, cultural, or other barriers) would prevent the implementation of the clean cooking activity in the absence of carbon finance. At least one barrier shall be substantiated with verifiable evidence.

6.7 | Common Practice Analysis

6.7.1 | All activities, including those on the Positive List, shall evaluate common practice in accordance with the [GS4GG Methodology Tool: Common Practice Analysis \(MT400-06\)](#).

6.7.2 | The activity developer shall assess the market penetration of equivalent technologies (i.e., those providing a similar or better level of service with comparable or improved efficiency and fuel types) in the applicable geographic area, applying the following mandatory parameters:

- a. **Assessment Approach and Indicator (P):** The Stock-Based Approach (assessing cumulative diffusion) shall be applied using a Count-based indicator (number of households/facilities).
- b. **Data Vintage:** Data utilized shall be the most recent authoritative data available and shall not be older than five years prior to the submission of the PDD for Validation.
- c. **Applicable Geographical Area (AGA):** The AGA shall be the Host Country. Sub-national or district-level AGA assessment (e.g., using local, regional, or district data) is permissible if justified by localized market conditions or infrastructure divides between urban, peri-urban, and rural areas or if the activity developer can justify that the target demographic's market conditions, access, and affordability differ materially from national averages.
- d. **Target Market Size (P_{all}):** Shall be defined strictly on technical applicability and regulatory boundaries. Socioeconomic segmentation is permitted if affordability is a rigorously justified primary structural barrier defining the accessible market.
- e. **Similar Activities (P_{sim}) & Attribute Matrix:** Similarity shall be defined using the Attribute Matrix below. Factors related to scale

(capacity/output), market conditions, policy incentives, or investment costs shall not be used as differentiating attributes. Activities substantially supported by international climate finance, ODA, or previously registered carbon market schemes shall be explicitly excluded from P_{sim} .

Table 6. Attribute Matrix for Improved Biomass Efficiency

Attribute	Description	Required for Similarity (Yes/No)
Primary Energy Source	Biomass (Wood, Charcoal, or Agri-residues).	Yes
Application	Used as a primary device for cooking/heating.	Yes
Efficiency Requirement	Meets or exceeds the minimum SMEC requirement (e.g., Rated thermal efficiency $\geq 25\%$) or applicable local Minimum Energy Performance Standards (MEPS). Where the activity device is permitted below the minimum thresholds with justification, comparisons shall be made against technologies of comparable efficiency.	Yes
Exclusion of Carbon Finance	Technologies distributed, subsidized, or maintained via voluntary, or compliance carbon market mechanisms shall be explicitly excluded from the count when calculating the common practice penetration rate.	Yes
Specific Technology Design	e.g., Rocket stove, gasifier, heat retention cooker.	No

Table 7. Attribute Matrix Solar Thermal Technologies

Attribute	Description	Required for Similarity (Yes/No)
Primary Energy Source	Solar radiation.	Yes
Technology Principle	Solar thermal energy capture and utilization.	Yes
Application	Water heating, cooking, drying, or space heating.	Yes

Exclusion of Carbon Finance	Technologies distributed, subsidized, or maintained via voluntary, or compliance carbon market mechanisms shall be explicitly excluded from the count when calculating the common practice penetration rate.	Yes
Specific Design	e.g., Flat plate vs. evacuated tube; Parabolic vs. box cooker.	No

6.7.3 | **Determination of the Common Practice Threshold (F_{max}):**

6.7.3.1 | Using the Stock-Based Approach, a uniform Common Practice Threshold F_{max} of 25% shall be applied across all regions and technology types.

6.7.3.2 | If the calculated Common Practice Factor $F = \frac{P_{sim}}{P_{all}}$ is $\geq F_{max}$, the activity is common practice and not additional.

6.8 | Ongoing Financial need:

6.8.1 | At renewal of the crediting period, the additionality of the activity shall be reassessed in line with Gold Standard requirements.

6.8.2 | **Positive List Exemption:** Activities that qualified for and remain eligible under a recognized GS4GG Positive List (Deemed Additionality) are exempt from the Ongoing Financial Need (OFN) demonstration at crediting period renewal.

6.8.3 | **Demonstration of OFN³:** For all other activities (those that transition from earlier versions or apply Activity-Specific Assessments), the developer shall demonstrate Ongoing Financial Need (OFN). This involves providing evidence (e.g. an updated financial analysis or funding assessment) that the activity still requires income from carbon credits to remain operational and sustainable in the renewed period.

7 | BASELINE SCENARIO

7.1 | Baseline Determination (Stepwise Approach)

7.1.1 | The crediting baseline shall be determined following the stepwise approach mandated by GS4GG:

- a. **Step 1:** Selection and Justification of the Baseline Approach (Section 7.2 |).

³ Impact of Methodology Updates: Reductions in crediting volume resulting directly from mandatory methodology updates (e.g., the application of the Downward Adjustment Factor or revised fNRB rules) shall be recognized as a valid quantitative justification for demonstrating Ongoing Financial Need.

- b. **Step 2:** Application of the selected approach prior to downward adjustment (Section 7.3 |).
- c. **Step 3:** Application of the Downward Adjustment (Uncertainty and Ambition) (Section 7.4 |).
- d. **Step 4:** Identification of a conservative Business-as-Usual (BAU) baseline (Section 7.5 |).
- e. **Step 5:** Comparison and selection of the final Crediting Baseline (BE_y) (Section 7.6 |).

7.2 | Step 1: Selection of and Justification of the Baseline Approach

7.2.1 | Selection of Baseline Approach

7.2.1.1 | This methodology utilizes approach (c) from paragraph 5.6.2 of the [Methodology Standard - Requirements for Baseline Determination in Methodologies](#): An approach based on existing actual or historical emissions, adjusted downwards.

7.2.2 | Justification for the Baseline Approach

7.2.2.1 | The selection of approach (c) is justified as follows:

- a. **Appropriateness to Activity Context:** Emissions savings from household cooking are highly dependent on site-specific factors (e.g., user behaviour, fuel characteristics, climate). Direct measurement via Kitchen Performance Tests (KPTs) is required to accurately capture the difference between historical consumption patterns and activity performance.
- b. **Ensuring Conservativeness:** The baseline is adjusted downwards by
 - i. applying statistical conservativeness (e.g., 90/10 rule) to account for measurement and sampling uncertainty, and
 - ii. applying the Downward Adjustment Factor (DAF) to encourage ambition over time.

7.3 | Step 2: Application of the Selected Approach (Prior to Downward Adjustment)

7.3.1 | Identification and Justification of the Baseline Scenario

7.3.1.1 | The baseline scenario is the continued use of Conventional Stoves (e.g., three-stone fires) utilizing wood or charcoal as the primary fuel and verified via the Baseline Scenario Survey (SMEC 7) and, if Option A is selected, Baseline KPT (B-KPT).

7.3.1.2 | The identification and description of the baseline scenario shall be informed by an ex-ante Baseline Scenario Survey. The selection shall account for all technologies that may be replaced by the activity technology considered, such as the presence and usage practices of multiple baseline technologies by the target population ("stove-stacking"). It is not legitimate to compare

the activity to only the most inefficient technology being used by the target population.

- 7.3.1.3 | Activity developers shall identify distinct baseline scenarios (b)⁴ depending on fuel type, baseline technology use patterns and target population.
- 7.3.1.4 | A different baseline scenario is not necessarily required for each different technology in the activity.⁵
- 7.3.1.5 | New baseline and activity scenarios can be added to a activity during the crediting period, by following the Design Change Requirements. When a new baseline or activity scenario is created, the baseline and/or activity studies, respectively, shall be conducted prior to verification and crediting with respect to the new scenario. Emission reductions cannot be credited for a new activity scenario, or in relation to a new baseline scenario until the respective activity studies or baseline studies have been conducted and the request for design change has been approved.
- 7.3.2 | **Consistency Check between Baseline Scenario and Activity Households:** The activity developer shall verify that the fuel mix and household characteristics determined for the baseline scenario (via SMEC 7) are representative of the actual households recruited into the activity.
- 7.3.2.1 | **Standardized Retrospective Survey:** This assessment shall be carried out using retrospective questions asked of activity households during the first usage survey conducted in each household after its inclusion in the project activity. The survey shall utilize standardized retrospective questions encompassing the following minimum parameters and the recall period for these questions shall be standardized across the activity as "the typical cooking habits during the 30 days prior to receiving the activity stove.
- a. Number of individuals utilizing the cooking/heating service (Household Size).
 - b. Primary baseline fuel type.
 - c. Secondary baseline fuel type(s).
- 7.3.2.2 | **Assessment of Material Discrepancy:** A material discrepancy occurs if the actual field population presents a "cleaner" or smaller emitting profile than the ex-ante assumptions, defined as:
- a. The actual proportion of cooking events utilizing the primary high-emitting fuel type is lower than the baseline scenario estimate, where the difference results in higher ex-ante baseline emissions; AND/OR

⁴ For example, end users using wood as primary fuel warrant a different baseline scenario from end users cooking predominantly with charcoal. One baseline scenario may represent rural end users, while a second baseline scenario may represent an urban target population.

⁵ For example, different improved wood stove models in the project activity could be compared to the same wood stove baseline scenario, and different improved charcoal stove models in the project activity could be compared to the same inefficient charcoal stove baseline scenario.

- b. The actual average household size is smaller than the baseline scenario estimate.

7.3.2.3 | **Resolutions:** Where a material discrepancy occurs, the activity developer shall apply resolve it by applying the following threshold-based approach:

- a. **Cluster Separations:** Activity developers may utilize cluster separations (e.g., stratifying the population strictly by primary single-fuel users vs. mixed-fuel users) to resolve apparent discrepancies and improve demographic matching prior to applying adjustments. However, any cluster separations utilized shall be based on objective stratifications explicitly defined ex-ante in the registered PDD or Baseline Scenario Survey.
- b. **Deviations below the Validity Threshold ($\leq 20\%$):** If the absolute deviation between the baseline estimate and the actual deployed population is 20% or less, the activity developer shall apply a conservative adjustment to the baseline emission calculations to match the empirically observed, lower-emitting household profile to prevent over-crediting.
- c. **Deviations exceeding the Validity Threshold ($> 20\%$):** If the deviation exceeds 20%, the shift is deemed a fundamental divergence from the target demographic. The original Baseline Scenario is statistically invalid for that specific cohort, and the activity developer shall formally redefine the baseline scenario via a new Baseline KPT and survey.
- d. **Prohibition on Exclusion:** Activity developers shall not arbitrarily exclude non-conforming, lower-emitting households from the monitoring sample solely to artificially force compliance with an aggressively high baseline.

7.3.3 | **Baseline Duration and Updates:** The baseline is considered fixed for the duration of the 5-year crediting period. It shall be reassessed at the renewal of the crediting period (See Section 17). In the event of a contradiction regarding baseline reassessment schedules, the requirements of this methodology shall explicitly supersede the exemptions provided in the overarching [Community Services Activity Requirements](#).

7.3.4 | **Cross-Effects:** In activities targeting multiple distributed technologies (e.g., improved cookstoves and safe water supply), cross-effects shall be accounted for. The baseline scenario shall be defined such that baseline fuel use is divided appropriately between the technologies without double counting.

7.3.5 | **Suppressed Demand Assessment**

7.3.5.1 | The methodology allows for the baseline scenario to account for suppressed demand if the pre-activity energy consumption is below the level required to meet basic human needs due to constraints such as poverty or lack of access to fuel.

7.3.5.2 | **Demonstration of Suppressed Demand:** The activity developer shall provide verifiable evidence that the target population is deprived of a humanely acceptable benchmark regarding energy access for cooking. Evidence may include official poverty statistics, baseline surveys documenting unmet basic cooking needs, or credible published literature for the activity area.

7.3.6 | **Determination of Mean Baseline Fuel Consumption ($P_{b,mean,y}$)**

7.3.6.1 | The activity developer shall determine the mean baseline fuel consumption ($P_{b,mean}$) using one of the following options:

- a. **OPTION A: Historical Consumption (B-KPT):** $P_{b,mean}$ is determined ex-ante via a statistically representative Baseline Kitchen Performance Test (B-KPT).
- b. **OPTION B: Conservative Default / Minimum Service Level (MSL):** $P_{b,mean}$ is set equal to the Minimum Service Level (P_{MSL}), calculated by multiplying the per-capita default by the baseline household size (HN_b). The per capita defaults are 0.50 tonnes/year for wood and 0.13 tonnes/year for charcoal (SMEC 12). The Applicability Criteria regarding baseline technology (Conventional Stoves) and fuel use (>90% wood/charcoal) shall be rigorously verified through the Baseline Scenario Survey (SMEC 7).

7.3.7 | **Calculation of Unadjusted Baseline Emissions ($BE_{unadj,y}$):** Unadjusted baseline emissions ($BE_{unadj,y}$) are calculated prior to downward adjustment as follows:

$$BE_{unadj,y} = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times P_{b,mean} \times NCV_{fuel} \times (EF_{fuel,CO2} \times f_{NRB,y} + EF_{fuel,non-CO2}))$$

Eq. 1

Where:

- $BE_{unadj,y}$ = Unadjusted baseline emissions in year y (tCO₂e/yr)
- $\sum_{b,p}$ = Sum over all relevant baseline b/activity p scenario pairs
- $N_{p,y}$ = Number of activity stoves of each age group operational in the monitored year y for baseline b/ activity p scenario pair
- $U_{p,y}$ = Usage rate for activity stoves in year y Refer to SMEC for usage survey requirement.
- $P_{b,mean}$ = Mean quantity of fuel in baseline in the year y (tonnes per household in year y)
- NCV_{fuel} = The net calorific value of the baseline fuel type i (TJ/tonne)
- $EF_{fuel,CO2}$ = CO₂ Emission factor of the baseline fuel i (tCO₂e/TJ)

- $EF_{fuel,non-CO_2}$ = Non-CO₂ Emission factor of the baseline fuel i (tCO₂e/TJ)
- $f_{NRB,y}$ = Fraction of biomass used in year y for Baseline scenario b that can be established as non-renewable biomass (fraction). This shall be determined by using the latest version of approved standardized tools

7.4 | Step 3: Application of the Downward Adjustment

7.4.1 | Adjustment for Uncertainty and Capping ($P_{b,adj}$)

7.4.1.1 | The baseline fuel consumption ($P_{b,adj}$) shall be adjusted downwards to ensure conservativeness as follows:

a. If OPTION A: Historical Consumption (B-KPT) is used

- i. **Statistical Adjustment:** The uncertainty associated with the B-KPT sampling results ($P_{b,mean}$) is addressed using the 90/10 Rule. If 90/10 precision is met, the mean is used ($P_{b,stat} = P_{b,mean}$). The activity developer may undertake additional sampling to meet the sampling confidence/precision requirement. If the 90/10 Rule is NOT met the Lower Bound of the one-sided 90% confidence interval $P_{b,LB90}$ shall be used to determine $P_{b,stat}$ i.e., $P_{b,stat} = P_{b,LB90}$.
- ii. **Capping:** The statistically adjusted value ($P_{b,stat}$) shall be capped if it exceeds maximum thresholds to prevent over-crediting historical inefficiencies. If $P_{b,stat}$ exceeds the threshold, the activity developer shall provide robust, context-specific justification in the PDD/VPA-DD explaining why a higher baseline is realistic:
 - Wood: Threshold 0.75 t/capita/yr; Absolute Cap 1.25 t/capita/yr.
 - Charcoal: Threshold 0.20 t/capita/yr; Absolute Cap 0.40 t/capita/yr.

(Note: Cap values are per capita and shall be multiplied by baseline household size to compare against household-level consumption).

$$P_{b,adj} = \text{MIN}(P_{b,stat}, P_{CAP} \times HN_b) \quad \text{Eq. 2}$$

Where:

- $P_{b,adj}$ = Adjusted baseline fuel consumption (tonnes/household/yr)
- $P_{b,stat}$ = Statistically adjusted baseline fuel consumption, using the Mean or Lower Bound (tonnes/household/yr)

P_{CAP} = Maximum allowable baseline fuel consumption cap for the respective fuel, converted to household equivalent by multiplying the per capita cap by HN_b (tonnes/household/yr)

HN_b = Number of individuals per household in the baseline scenario (persons)

b. If OPTION B: Conservative Default / MSL is used: Because the MSL is a conservative default, 90/10 statistical adjustments and caps do not apply. However, a mandatory 5% deduction shall be mathematically applied.

$$P_{b,adj} = P_{b,mean} * 0.95 \quad \text{Eq. 3}$$

Where:

$P_{b,adj}$ = Adjusted baseline fuel consumption (tonnes/household/yr)

$P_{b,mean}$ = MSL default baseline fuel consumption (tonnes/household/yr)

0.95 = Mandatory 5% conservativeness discount factor (fraction)

7.4.2 | Calculation of Uncertainty-Adjusted Baseline Emissions ($BE_{unc,y}$)

7.4.2.1 | Calculate $BE_{unc,y}$ by replacing $P_{b,mean}$ with the fully adjusted and capped $P_{b,adj}$ in eq 1.

$$BE_{unc,y} = \sum_{b,p} N_{b,p,y} \times U_{p,y} \times P_{b,adj} \times NCV_{fuel} \times (EF_{fuel,CO2} \times f_{NRB,y} + EF_{fuel,non-CO2}) \quad \text{Eq. 4}$$

Where:

$BE_{unc,y}$ = Uncertainty-adjusted baseline emissions in year y (tCO₂e/yr)

$P_{b,adj}$ = Adjusted baseline fuel consumption (tonnes/household/yr)

(All other parameters remain as defined in Eq. 1)

7.4.3 | **Adjustment For Ambition (DAF):** To encourage ambition over time, the Downward Adjustment Factor (DAF) shall be applied. This factor is sourced from the [GS4GG Tool 05](#), based on the host country and monitoring year. The DAF is applied as a fixed annual reduction for the 5-year crediting period and does not compound year-over-year.

$$BE_{adj,y} = BE_{unc,y} \times (1 - DAF_{NetZero}) \quad \text{Eq. 5}$$

Where:

$BE_{adj,y}$ = Downward adjusted baseline emissions in year y (tCO₂e/yr)

$BE_{unc,y}$ = Uncertainty-adjusted baseline emissions in year y (tCO₂e/yr)

$DAF_{NetZero}$ = Downward Adjustment Factor for the host country and corresponding vintage, sourced from the GS4GG DAF Tool (fraction)

7.5 | Step 4: Identification and Calculation of the Conservative BAU Scenario

- 7.5.1 | The Business-as-Usual (BAU) scenario represents the emissions that would occur in the absence of the project activity, determined conservatively.
- 7.5.2 | A conservative BAU shall account for the uncertainty of the baseline parameters but does not include the Adjustment for Ambition (DAF).

$$BAU_y = BE_{unc,y} \quad \text{Eq. 6}$$

7.6 | Step 5: Comparison and Selection of the Crediting Baseline (BE_y)

- 7.6.1 | The final Crediting Baseline (BE_y) shall be the lower value between the Downward Adjusted Baseline Emissions ($BE_{adj,y}$) and the Conservative BAU emissions (BAU_y):

$$BE_y = \text{MIN}(BE_{adj,y}, BAU_y) \quad \text{Eq. 7}$$

Where:

- BE_y = Crediting Baseline Emissions in year y (tCO₂e/yr)
- $BE_{adj,y}$ = Downward Adjusted Baseline Emissions in year y (tCO₂e/yr)
- BAU_y = Conservative Business-as-Usual emissions in year y (tCO₂e/yr)

7.7 | Quantification of the Difference between BAU and Crediting Baseline

- 7.7.1 | The difference between the Conservative BAU emissions (BAU_y) and the final Crediting Baseline Emissions (BE_y) shall be quantified and reported transparently in the Monitoring Report. The developer shall sequentially report the Unadjusted Emissions ($BE_{unadj,y}$), the Uncertainty-Adjusted Emissions ($BE_{unc,y}$), $BE_{adj,y}$, BAU_y , and Crediting Baseline (BE_y).
- 7.7.2 | The difference represents the emissions excluded from crediting due to the application of the DAF for ambition.

$$\Delta_y = BAU_y - BE_y > 0 \quad \text{Eq. 8}$$

Where:

- Δ_y = Emissions excluded from the crediting baseline due to ambition adjustment (DAF) in year y
- BAU_y = Conservative Business-as-Usual emissions in year y

BE_y = Crediting Baseline Emissions in year y

8| ACTIVITY EMISSIONS

8.1 | Calculation of total activity emissions

8.1.1 | Identification of the Activity Scenario

8.1.1.1 | The activity scenario is defined by the adoption of the activity stove and the resulting fuel consumption patterns of the end-users. If different activity technologies with significantly different performance characteristics are included in an activity, the developer shall analyse and monitor them as separate activity scenarios. Technologies whose respective thermal efficiencies do not differ by more than +/-5% in absolute terms may be grouped.

8.1.1.2 | When different activity technologies are included, the activity developer may identify multiple activity scenarios given that different types of activity stove(s) are installed in the project activity. Also, different activity scenarios can be credited against the same baseline scenario if it is deemed applicable.⁶

8.1.2 | Determination of Mean Activity Fuel Consumption ($P_{p,mean,y}$)

8.1.2.1 | Activity emissions shall account for all anthropogenic emissions of GHGs occurring within the activity boundary that are attributable to the activity. The only material source of activity emissions is the combustion of fuel in the activity scenario.

8.1.2.2 | The mean quantity of fuel consumed in the activity scenario ($P_{p,mean,y}$) shall be determined via a statistically representative Project Kitchen Performance Test (P-KPT).

- a. **Frequency:** The P-KPT shall be updated biennially (every two years).
- b. **Cohort Stratification:** To accurately account for potential performance degradation over time, the P-KPT sampling shall be stratified across technology age cohorts. The overall $P_{p,mean,y}$ shall be calculated as the weighted average of the fuel consumption across the sampled age cohorts, weighted by the proportion of the total operational stove population within each respective age cohort.
- c. **Timing and Seasonality of P-KPTs:** The P-KPT may be conducted at any representative time within the monitoring period to adequately capture seasonal variations. If seasonal variations (e.g., wet vs. dry seasons) materially impact fuel use, the KPT sampling shall be staggered or mathematically weighted to accurately account for both seasons. To ensure precise demographic and weather matching, the

⁶ For example, the same baseline scenario for inefficient stoves could be compared to separate project scenarios for different efficient stove models in the project activity or vice versa.

initial Activity KPT (P-KPT) may be conducted concurrently with the Baseline KPT (B-KPT) prior to the first verification.

- d. **Stove Stacking with baseline devices:** Activity emissions shall account for the total relevant fuel consumed by the household to meet its cooking needs. The P-KPT shall physically measure the fuel used in the activity technology AND any continued use of the baseline technology (stove stacking) operating in parallel.
- e. **Stacking with Non-Activity Improved Devices:** If the household has acquired a new improved cooking device (not attributable to the project activity) since the baseline was established, the energy consumed by this non-activity device shall be measured or conservatively estimated. To prevent free-riding and double-claiming of emission reductions generated by external interventions, the baseline fuel equivalent of the energy consumed by the non-activity device shall be mathematically added to the Activity Emissions (AE_y) for that household, OR used to proportionally adjust the household's Baseline Emissions (BE_y) downward. It shall not simply be excluded and treated as a zero-emission event attributable to the project activity.

8.1.2.3 | **Adjustment for Uncertainty**

8.1.2.4 | To ensure that activity emissions are not underestimated (conservativeness principle), the statistical uncertainty associated with the P-KPT sampling results shall be addressed using the 90/10 Rule (90% confidence level and 10% margin of error):

- a. **If the 90/10 Rule is met:** The statistical mean value shall be used.

$$P_{a,adj,y} = P_{p,mean,y} \quad \text{Eq.9}$$

Where:

- $P_{a,adj,y}$ = Uncertainty-adjusted quantity of fuel consumed in the activity scenario (tonnes/household/yr)
- $P_{p,mean,y}$ = Mean quantity of fuel consumed calculated from the P-KPT sample data (tonnes/household/yr)

- b. **If the 90/10 Rule is NOT met:** The activity developer may conduct supplementary sampling. If precision remains unmet, the Upper Bound of the one-sided 90% confidence interval shall be used.

$$P_{a,adj,y} = P_{p,UB90,y} \quad \text{Eq.10}$$

Where:

- $P_{a,adj,y}$ = Uncertainty-adjusted quantity of fuel consumed in the activity scenario (tonnes/household/yr)

$P_{p,mean,y}$ = Upper Bound of the one-sided 90% confidence interval of the measured activity fuel consumption (tonnes/household/yr)

8.1.3 | Calculation of Activity emissions (AE_y):

8.1.3.1 | The total activity emissions in the monitoring period y (AE_y) shall be calculated using the uncertainty-adjusted fuel consumption ($P_{a,adj,y}$).

$$AE_y = \sum_{b,p} (N_{p,y} \times U_{p,y} \times P_{a,adj,y} \times NCV_{fuel} \times (EF_{fuel,CO2} \times f_{NRB,y} + EF_{fuel,non-CO2}))$$

Eq. 11

Where:

AE_y	=	Total activity emissions for total project activity in year y (tCO ₂ e/yr)
$\sum_{b,p}$	=	Sum over all relevant baseline b /activity p scenario pairs
$N_{p,y}$	=	Number of activity stoves of each age group operational in the year y
$U_{p,y}$	=	Usage rate for activity stoves in year y , based on adoption rate and drop-off rate revealed by usage surveys (fraction)
$P_{a,adj,y}$	=	Uncertainty-Adjusted quantity of fuel consumed in the activity scenario in the monitoring year y (tonnes per household in year y)
NCV_{fuel}	=	Net calorific value of the fuel type in activity scenario (TJ/tonne)
$EF_{fuel,CO2}$	=	CO ₂ Emission factor of the fuel type in activity scenario (tCO ₂ e/TJ)
$EF_{fuel,non-CO2}$	=	Non-CO ₂ Emission factor of the fuel type in activity scenario (tCO ₂ e/TJ)
$f_{NRB,y}$	=	Fraction of biomass used in year y for activity scenario that can be established as non-renewable biomass (fraction).

9 | LEAKAGE EMISSIONS

9.1 | Identification of leakage emission sources

9.1.1 | Leakage (LE_y) refers to the net change of GHG emissions occurring outside the activity boundary attributable to the activity. This methodology identifies two sources of leakage that shall be accounted for using standardized defaults:

- Embodied Emissions (Upstream) (Section 9.2).
- Market and Behavioural Leakage (Section 9.3).

9.1.2 | The total Leakage Emissions in monitoring period y (LE_y) shall be calculated as follows:

$$LE_y = LE_{Embodied,y} + LE_{Market,y} \quad \text{Eq. 12}$$

Where,

- LE_y = Total Leakage Emissions in year y (tCO₂e/yr)
- $LE_{Embodied,y}$ = Leakage due to embodied emissions of the activity technology in year y
- $LE_{Market,y}$ = Leakage due to market and behavioural effects in year y

9.2 | Embodied Emissions ($LE_{Embodied,y}$)

9.2.1 | Embodied emissions associated with the manufacturing and transport of the activity devices shall be accounted for leakage.

9.2.2 | **Standardized Default Deduction:** A mandatory default deduction of 0.017 tCO₂e per unit shall be applied.

9.2.3 | Calculation and Amortization of Embodied Emissions

9.2.3.1 | The activity developer shall apply one of two pathways for the deduction of embodied emissions, contingent upon the verifiable technical lifetime of the activity device (as established via manufacturer specifications, standardized testing, or guarantees in Parameter ICS 6):

- a. **Short-Lived Technologies (Technical Lifetime < 5 years)/Optional for others:** For artisanal clay stoves, low-cost portable metal stoves, or temporary transitional devices, or durable technologies where the activity developer prefers a simplified one-time deduction the total default embodied emissions shall be deducted entirely upfront from the credits issued during the first monitoring period for that specific unit.

$$LE_{Embodied,y} = N_{disseminated,y} \times EM_{EF} \quad \text{Eq. 13}$$

Where,

- $LE_{Embodied,y}$ = Leakage due to embodied emissions in year y (tCO₂e/yr)
- $N_{disseminated,y}$ = Number of new activity technology units disseminated in year y
- EM_{EF} = Embodied emission factor per device (0.017 tCO₂e/unit default, or activity specific technology embodied emission factor value) (tCO₂e/unit)

- b. **Durable Technologies (Technical Lifetime ≥ 5 years):** The total default embodied emissions shall be annualized (distributed evenly) over the duration of the 1st Crediting Period (5 years). The annual deduction per operational unit is

$$LE_{Embodied,y} = N_{disseminated,y} \times \left(\frac{EM_{EF}}{5} \right) \quad \text{Eq. 14}$$

Where,

- $LE_{Embodied,y}$ = Leakage due to embodied emissions in year y (tCO₂e/yr)
- $N_{disseminated,y}$ = Number of new activity technology units disseminated in year y
- EM_{EF} = Embodied emission factor per device (0.017 tCO₂e/unit default, or activity specific technology embodied emission factor value) (tCO₂e/unit)
- 5 = Duration of 1st crediting period over which emissions are amortised (years)

9.2.3.2 | **Mandatory True-Up Provision:** If an activity utilizing approach 2 ceases verification or permanently terminates prior to the completion of the 5-year, 1st Crediting Period, the activity developer shall conduct a true-up calculation at the final issuance event. Any remaining unamortized embodied emissions for the active device fleet shall be deducted in full from the final issuance request to prevent unpaid carbon debt.

9.3 | Market and Behavioural Leakage ($LE_{Market,y}$)

9.3.1 | This category addresses potential leakage sources such as the reuse of baseline equipment outside the boundary, market effects on fuel availability, adverse technology selection, and impacts on other mitigation activities. To simplify the methodology, activity-specific assessments are not permitted. A mandatory, conservative default deduction of 2% shall be applied to the preliminary emission reductions.

$$LE_{Market,y} = (BE_y - AE_y) \times 0.02 \quad \text{Eq. 15}$$

Where,

- $LE_{Market,y}$ = Leakage due to market and behavioural effects in year y (tCO₂e/yr)
- BE_y = Final Crediting Baseline Emissions in year y (tCO₂e/yr)
- AE_y = Total Activity Emissions in year y (tCO₂e/yr)
- 0.02 = Mandatory 2% conservative default leakage penalty factor (fraction)

10| NET GHG EMISSION REDUCTIONS

10.1 | Calculation of Net GHG Emission Reductions

10.1.1 | The Net Emission Reductions (ER_y) are the final result of the quantification process. This calculation incorporates adjustments for observer bias Hawthorne Effect and Leakage:

$$ER_y = ((BE_y - AE_y) \times HE_{ind}) - LE_y \quad \text{Eq. 162}$$

Where:

ER_y = Net emission reductions during the monitoring period y (tCO₂e)

BE_y = Final Crediting Baseline Emissions in monitoring period y (tCO₂e)

AE_y = Total Activity Emissions in monitoring period y (tCO₂e)

HE_{ind} = Adjustment index for the Hawthorne Effect (fraction)

LE_y = Total leakage emissions in the monitoring period y (t CO₂e/yr)

10.1.2 | **Adjustment for Hawthorne Effect (HE_{ind})** To account for the potential bias where end-users may alter behaviour during the P-KPT observation period (the Hawthorne Effect), an adjustment index (HE_{ind}) shall be applied.

10.1.2.1 | **Phased implementation and review mechanism:** The application of the Hawthorne Effect adjustment index follows a phased implementation schedule designed to encourage the market's transition toward objective digital monitoring. The default values listed in Table 9 shall be apply for each respective phase.

Table 7. Phased Default Adjustment Factors for Hawthorne Effect

Phase	Applicable Vintage	Default Factor (HE_{ind})
Phase 1	2026 & 2027	0.90
Phase 2	2028 & 2029	0.85
Phase 3	2030 or after	0.75

10.1.2.2 | **Condition for Revision⁷:** The scheduled escalations to Phase 2 and Phase 3 represent conservative safeguards. The Secretariat shall conduct a formal review of the latest peer-reviewed empirical evidence (e.g., paired continuous monitor vs. manual survey studies) prior to the activation of

⁷ The Secretariat invites activity developers, researchers, and stakeholders to submit actual observation data (e.g., paired studies using SUMs and KPTs) and peer-reviewed literature regarding the magnitude of the Hawthorne effect. The Secretariat invites interest from activity developers for discussion on such studies during Phase 1.

Phase 2. If definitive scientific consensus demonstrates a lower magnitude of observer bias in modern contexts, the default factors shall be adjusted accordingly via a methodology update. Absent such peer-reviewed consensus, the scheduled defaults in Table 7 shall automatically apply.

10.1.1.2.3 | **Determination of HE_{ind} :** The activity developer shall determine the HE_{ind} using one of the following two options:

- a. **Option 1: Default Adjustment:** If the activity quantifies usage and fuel consumption primarily through manual P-KPTs and in-person usage surveys (without continuous electronic monitors), the default adjustment index corresponding to the vintage Phase (as defined in Table 7) shall be strictly applied.

$$HE_{ind} = HE_{default} \tag{Eq. 173}$$

- b. **Option 2. SUMs-based Adjustment:** If the project activity complements P-KPTs with continuous Stove Use Monitors (SUMs) to empirically quantify the magnitude of the Hawthorne Effect for their specific user base, the adjustment index is calculated based on the ratio of usage during a normal monitoring period compared to usage during the P-KPT period. Rigorous protocols for SUMs deployment and data analysis (meeting 90/10 precision) shall be followed.

$$HE_{ind} = \text{MIN}(1, PTC_m / PTC_{KPT}) \tag{Eq. 18}$$

Where,

- HE_{ind} = Empirically derived adjustment index for the Hawthorne Effect (fraction)
- 1 = Mathematical cap to ensure the index cannot exceed 1.0 (preventing artificial inflation if $PTC_m > PTC_{KPT}$)
- PTC_m = Average number of activity technology cooking events per day measured over a normal 1-month unobserved period utilizing continuous SUMs data (events/day). This 30-day period shall be collected contiguous to (immediately before, after, or overlapping) the P-KPT period to ensure seasonal comparability but shall strictly exclude the specific days enumerators were physically present.
- PTC_{KPT} = Average number of activity technology cooking events per day measured concurrently during the physical P-KPT observation period (events/day).

- c. **Option 3: Digital MRV / Continuous Sensor Exemption:** Activities quantifying long-term usage via Continuous Stove Monitors (SUMs) or robust Digital MRV (dMRV) systems are exempt from the Hawthorne Effect penalty ($HE_{ind} = 1.0$). This exemption applies ONLY IF the continuous monitoring covers a statistically representative

sample (meeting the 90/10 rule) and is deployed contiguous to, and directly overlapping with, the physical P-KPT measurement period, or if the activity relies entirely on continuous monitoring for crediting.

11 | MEETING METHODOLOGICAL PRINCIPLES

11.1 | Encouraging ambition over time

11.1.1 | The methodology ensures that credited emission reductions are business-as-usual and encourage increasing ambition through:

- a. **Mandatory Downward Adjustment Factor (DAF):** The application of the DAF ensures that the crediting baseline (BE_y) is systematically lowered annually, based on the host country's long-term Net-Zero trajectory or the established Ambition Floor.
- b. **Dynamic Performance Monitoring:** Biennial Project KPTs ensure actual field performance (including degradation) is accurately captured, incentivizing the continuous maintenance or replacement of technologies.

11.2 | Equitable sharing of mitigation benefits

11.2.1 | The methodology promotes the equitable sharing of benefits by operating under the [GS4GG Community Services Activity \(CSA\)](#). Adherence to the [Safeguarding Principles & Requirements](#) and mandatory [Stakeholder Consultation Requirements](#) ensures end-users rights and interests of local stakeholders are protected.

11.2.2 | The activity itself provides direct co-benefits to households, including improved health through reduced Indoor Air Pollution (IAP) and time or monetary savings related to fuel acquisition.

11.3 | Avoidance of double counting

11.3.1 | The methodology includes explicit requirements to mitigate the risk of double counting (double issuance, double use, and double claiming). This includes mandatory contractual ownership assertions, explicit end-user informed consent regarding carbon waivers, unique database tracking for all devices (Section 14|), and registry-level checks against overlapping Safe Water Supply (SWS) activities and Jurisdictional REDD+ programs.

11.4 | Aligning with NDC and LT-LEDS

11.4.1.1 | The mitigation activity inherently aligns with national climate goals. The mandatory Lock-In Risk Analysis (Section 6.4 |) ensures the activity accelerates the transition away from inefficient technologies without creating infrastructural path dependencies. Furthermore, the mandatory DAF structurally links the activity's baseline trajectory to the host country's

published NDCs or Long-Term Low-Emission Development Strategies (LT-LEDS).

11.5 | Encouraging Broad Participation

11.5.1 | This methodology is designed to encourage broad participation by reducing barriers for micro-scale activities ($\leq 10,000$ tCO₂e/yr). It utilizes standardized approaches for complex parameters (e.g., fNRB, Embodied Emissions defaults) to materially reduce transaction costs and allows for seamless aggregation under Programmes of Activities (PoA) (Section 16|)

11.6 | Including Data Sources, Accounting for Uncertainty, and Monitoring

11.6.1 | The methodology ensures robustness in data use, uncertainty management, and monitoring:

- a. **Data Sources:** The methodology mandates the use of high-quality data. Core parameters (P_{baui} , P_a) shall be determined via direct field measurement (KPTs). Other parameters (fNRB, NCV, EFs) shall use approved standardized tools or conservative IPCC defaults.
- b. **Uncertainty management:** Uncertainty is explicitly addressed and quantified. Mandatory statistical conservatism (Lower/Upper Bounds via the 90/10 rule) is automatically applied if strict precision targets are not met.
- c. **Rigorous Monitoring:** A rigorous monitoring plan is required (Section 16|), including biennial P-KPTs to track performance and annual usage surveys (utilizing cohort sampling and tiered conservativeness) to accurately capture adoption and drop-off rates.

11.7 | Taking into Account Policies, Measures, and Relevant Circumstances

11.7.1 | The methodology continuously accounts for the *de facto* policy environment. The mandatory Regulatory Surplus Analysis (Section 6.3 |) guarantees the activity is genuinely additional to existing laws and enforced mandates. The baseline determination relies strictly on empirical local realities, utilizing the B-KPT to capture the exact cooking practices, fuel availability, and socio-economic circumstances specific to the target population.

12 | REVERSALS

12.1 | Assessment of Reversal Risks

12.1.1 | The activity generates GHG emission reductions by avoiding the combustion of non-renewable biomass, thereby relieving pressure on existing carbon stocks in the relevant greenhouse gas reservoirs (forests and woodlands).

The methodology does not generate credits for quantified carbon stock sequestered or its avoided loss.

- 12.1.2 | While the avoidance of the specific combustion event is immediate and permanent, the biomass stocks preserved by the activity remain subject to potential future depletion due to natural disturbances (e.g., fires, pests) or anthropogenic drivers (e.g., land clearance).
- 12.1.3 | In the context of decentralized thermal energy service activities, the activity developer operates the technology distribution and data management infrastructure but possesses no legal control, land tenure, or management authority over the physical greenhouse gas reservoir (the forest or land area). Consequently, the activity is formally classified under the "No Control" exemption regarding the carbon reservoir. Non-permanence buffer pool deductions are therefore fundamentally inappropriate for avoidance activities applying this methodology and shall not be required.

12.2 | Mitigation and Management of Reversal Risks

- 12.2.1 | Pursuant to the "No Control" status of the activity developer over the reservoir, this methodology applies an alternative approach to address non-permanence risk through dynamic monitoring replacing the requirement for Reversal Risk Buffer Pools.
- 12.2.2 | The non-permanence risk to the biomass reservoir shall be mitigated and managed through the mandatory periodic updating of the fNRB parameter and the baseline fuel scenario, subject to the following safeguards at the time of crediting period renewal (Section 17|):
- a. **Dynamic fNRB Updating:** The fNRB parameter shall be periodically updated utilizing the latest versions of approved standardized science-based tools (e.g., MoFuSS or A6.4 fNRB Tool – default values) to accurately reflect the current physical reality of the biomass reservoir. The updated fNRB value shall be applied to the subsequent crediting period. If the updated fNRB value decreases, the lower value shall be applied without further justification. If the updated fNRB value increases, the activity developer shall justify the continued use of the higher value by demonstrating that users still source wood from the same area.
 - b. **Catastrophic Disturbance & Biomass Availability Check:** The activity developer shall conduct a qualitative assessment of the biomass supply area using available evidence (e.g., satellite imagery, government forestry reports). If a catastrophic disturbance event (e.g., severe wildfires or rapid mass land-use conversion to agriculture/urbanization) has effectively depleted the historic biomass reservoir, OR if the updated fNRB calculates a mathematically higher fraction of non-renewability than the previous crediting period, the Baseline Fuel Scenario (Section 7.3.1) shall be formally re-evaluated.

- c. **Baseline Validation:** If the assessment confirms that the historic woody biomass resource is no longer physically available or accessible to the target population due to severe depletion, the activity developer shall empirically demonstrate (via an updated baseline survey) the actual alternative fuels the population has been forced to adopt (e.g., renewable agricultural residues, dung, or fossil fuels). The baseline scenario shall be formally updated to reflect these alternative fuels, thereby organically adjusting the crediting baseline to match post-disturbance realities and preventing over-crediting for non-existent resources.

12.3 | Addressing Reversals

- 12.3.1 | Because the mitigation outcome is generated via avoidance (not sequestration), and the risk of macro-level non-permanence is addressed ex-ante for future crediting periods via the dynamic updating of the fNRB and baseline fuel scenario, retrospective cancellation of credits or contributions to a Reversal Risk Buffer Pool are not required.

13 | UNCERTAINTY QUANTIFICATION

13.1 | Approach to Uncertainty Management

- 13.1.1 | This methodology establishes a structured framework to quantify and mitigate uncertainty, ensuring the calculated Net GHG Emission Reductions remain strictly conservative. This approach combines methodological standardization for minor parameters with mandatory statistical quantification for core empirical parameters. [Note: The management of statistical and measurement uncertainty detailed in this section is structurally distinct from, and applied prior to, the DAF. Uncertainty adjustments correct for empirical sampling variance, whereas the DAF addresses macroeconomic policy ambition].
- 13.1.2 | **Standardization and Defaults:** Uncertainty for non-measured parameters (e.g., fNRB, Net Calorific Value (NCV), Emission Factors (EFs), Leakage) is managed using conservative defaults or approved standardized proxies (Section 14.2 |).
- 13.1.3 | **Statistical Conservativeness:** Uncertainty for core parameters (Baseline, Activity Fuel Consumption, Usage rate) is managed by applying mandatory statistical adjustments if required precision targets (90/10) are not met (Section 7.4.1 & Section 8.1|). This rule requires utilizing the Lower Bound of the one-sided 90% CI for baseline/savings parameters to prevent over-estimation, and the Upper Bound of the one sided 90% CI for activity consumption parameters to prevent under-estimation.

13.2 | Sources of Uncertainty and Mitigation

13.2.1 | Key uncertainty sources and their mandated mitigation measures are summarized in the following table. This matrix shall serve as the normative reference for Validation and Verification Bodies (VVBs) when auditing uncertainty.

Table 8. Key uncertainty sources and mitigation measures

Source of Uncertainty	Parameter(s) Affected	Mandatory Mitigation Measure(s)
Measurement and Sampling Uncertainty (KPTs)		
Variability in user behaviour, fuel characteristics, sampling error, and measurement precision during KPTs.	$P_{b,mean,y}$ (Baseline Fuel Consumption). $P_{p,mean,y}$ (Activity Fuel Consumption)	<ol style="list-style-type: none"> 1. Robust sampling requirements (Section 14.5). 2. If 90/10 precision is not met, mandatory use of the Lower Bound for $P_{b,mean,y}$ and the Upper Bound for $P_{p,mean,y}$. 3. Rigorous QA/QC procedures, including scale calibration and enumerator training (Section 14.4).
Parameter Uncertainty (Usage Rate)		
Potential overestimation of stove usage due to survey bias or recall error, and uncertainty in determining drop-off rates.	$U_{p,y}$ (Usage Rate)	<p>Tiered Conservatism and Cohort Sampling:</p> <ol style="list-style-type: none"> 1. Application of conservative caps on the claimable usage rate based on the rigor of the monitoring method (SMEC). 2. Mandatory cohort sampling to accurately capture adoption curves over time (Section 14.5.3.2). 3. Mandatory application of statistical conservatism (Lower Bound) if 90/10 precision is not met (Section 14.5)
Parameter Uncertainty (Defaults)		
Uncertainty in the values of standardized parameters.	fNRB, NCV, EFs, Leakage	<p>Standardization and Conservativeness:</p> <p>Mandatory use of approved standardized tools (e.g., for fNRB) or conservative IPCC/methodology</p>

default values. Activity-specific assessments are disallowed.

Behavioural Uncertainty (Rebound/Stacking)

Changes in user behaviour (e.g., stove stacking, compensation for lost co-benefits) that increase activity emissions.

Activity Emissions (AE_y)
 Market Leakage ($LE_{Market,y}$)

Internalisation via Monitoring Design: Mandatory requirement that P-KPTs measure total relevant fuel consumption to internalise these effects (Section **Error! Reference source not found.**).

14 | MONITORING METHODOLOGY

14.1 | Requirements

14.1.1 | **Monitoring plan:** The activity developer shall develop and implement a Monitoring Plan, included in the PDD/VPA-DD, detailing the procedures for data collection, management, and quality control.

14.1.2 | **Core Monitoring Activities and Frequency:**

- a. **Baseline KPT (B-KPT):** Conducted ex-ante (if Option A is selected); fixed for the 5-year crediting period.
- b. **Project KPT (P-KPT):** Conducted biennially (every 2 years).
- c. **Usage Survey:** Conducted annually.
- d. **Sales/Distribution Records:** Continuous tracking.

14.1.3 | **Activity Database:** The activity developer shall maintain a comprehensive electronic database containing records for every activity stove distributed. This database shall include, at a minimum: a. Unique identification number for each stove/household. b. Stove model/type. c. Date of commissioning (or Batch date). d. Geolocation and contact information of the end-user. To comply with data privacy regulations, exact GPS coordinates are optional, provided alternative location descriptors (e.g., village, ward) are used alongside unique product identifiers to ensure traceability and prevent double counting. e. Records of participation in KPTs and Usage Surveys.

14.2 | Data and parameters not monitored

14.2.1 | The following parameters are determined ex-ante and remain fixed for the duration of the crediting period, unless otherwise noted.

Parameter ID	SMEC 1
Data/parameter:	Activity technology description and thermal efficiency
Description	The detailed description of the activity stove or retrofitted baseline stove shall include as a minimum: Manufacturer/retrofitting entity name, product name (if applicable), technology type, capacity characteristics and rated

	<p>thermal efficiency</p> <p>Any performance certifications from the national standards body or certification body recognised by the national standards body also shall be provided.</p>
Data unit:	%
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions <input checked="" type="checkbox"/> Applicability
Value(s) applied:	To be determined at activity level
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source <p>Manufacturer specifications AND standardized laboratory test reports (WBT or ISO 19867-1) conducted by an independent authorized testing body. Professional opinion or expert opinion is not accepted as a source for this parameter.</p>
Choice of data or measurement methods and procedures:	<p>Thermal efficiency shall be determined using the Water Boiling Test (WBT) protocol or ISO 19867-1.</p> <p>Any of the following sources shall be used for Activity technology description:</p> <ul style="list-style-type: none"> • Manufacturer specifications • Certifications by a national standards body or an appropriate certification party recognized by a national standards body • Commercial guarantee • Technical reports from the installer • For stoves built on-site at the end-user location, reports of Standard WBT⁸ by stove manufacturer or installer or independent authorized testing body.
Treatment of uncertainty	N/A
Comments:	<ul style="list-style-type: none"> • Efficiency values are used only to verify applicability criteria (Section 3.2.3) and not for calculating emission reductions. • If technical information is unavailable at validation, the VVB shall raise a Forward Action Request (FAR). The developer shall provide this information to the VVB before verification is complete.

Parameter ID	SMEC 2
Data/parameter:	Avoidance of double counting or double claiming among activity participants

⁸ <https://cleancooking.org/research-evidence-learning/standards-testing/protocols/>

Description	Evidence of avoidance of double counting or double claiming with other parties directly involved with the project or programme (e.g., manufacturers, retailers).
Data unit:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Applicability
Value(s) applied:	N/A
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source
Choice of data or measurement methods and procedures:	<p>Written assertions from the activity developer confirming ownership rights and the intention to sell emission reductions. These assertions shall be directed to or signed with all applicable parties, including:</p> <ul style="list-style-type: none"> • All other activity participants; • Activity technology producers; and • Retailers of the activity technology or the renewable fuel. <p>Note: Manufacturers of raw, tier-2 components or discrete stove parts are exempt from this requirement.</p>
Treatment of uncertainty	N/A
Comments:	The written assertions shall be provided and verified before the first verification.

Parameter ID	SMEC 3
Data/parameter:	Avoidance of double counting or double claiming with other mitigation actions
Description	Review and analysis of mitigation actions in other national or international voluntary or UNFCCC/compliance mechanisms
Data unit:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Applicability
Value(s) applied:	N/A
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source Publicly available information from Gold Standard, other voluntary standards (e.g., Verra), and UNFCCC/A6.4 databases.
Choice of data or measurement methods and procedures:	<p>Requirement</p> <ul style="list-style-type: none"> • Identify any mitigation actions of similar technology operating in overlapping spatial boundaries. Undertake due diligence to ensure the project activity does not include stoves already included in other mitigation actions. • To prevent double-counting and displacement, the activity developer shall conduct a systematic overlap assessment.

- The VVB is required to validate this assessment at the initial design review and verify its continued accuracy at every subsequent VPA inclusion review or design change review.

Assessment Procedure

The activity developer shall perform the following, which the VVB shall validate/verify:

- Identify and list all mitigation actions of similar technology (i.e., providing the same output and using the same equipment or conversion process) that are operating within overlapping spatial boundaries of the project activity.
- Use, at a minimum, publicly available information from the following registries: i. Gold Standard ii. Verra iii. UNFCCC CDM / future mechanisms (Project & PoA/VPA databases) iv. Any recognized national or regional standards in the activity location.

Required Timing of Assessment

This assessment and its validation/verification shall be undertaken at: a. The initial design review; b. Each VPA inclusion review; and c. Any design change review, specifically when the activity or VPA boundary changes.

Actions Required if Overlap is Identified

If one or more overlapping actions are identified, the activity developer shall document, and the VVB shall approve, the following:

- **Quantification Practices:** A description of the practices that will be implemented to ensure the activity quantifies emission reductions only from the technology it has implemented.
- **Displacement Avoidance:** A description of the practices to ensure the activity does not displace the technology of other mitigation actions.
- **Monitoring & Discounting:** A monitoring approach and method designed to discount emission reductions if the activity is found to displace or operate alongside another mitigation action.

Treatment of uncertainty	N/A
Comments:	N/A

Parameter ID	SMEC 4
Data/parameter:	Indoor air pollution (IAP) Assessment

Description	Evidence demonstrating that IAP levels (PM 2.5 and CO) are not worsened compared to the baseline.
Data unit:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Applicability
Value(s) applied:	N/A
Source of data:	<input checked="" type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source <p>Manufacturer's test reports (lab or field), independent modelling, or recent (≤ 5 years old) published literature/reports by independent agencies relevant to the specific technology and context.</p> <p>Exception: References older than 5 years may be accepted if the activity developer provides a verifiable declaration that the fundamental design, dimensions, and materials of the technology have remained unchanged since the study was published.</p>
Choice of data or measurement methods and procedures:	<p>Acceptable Data Sources for IAP Level</p> <ol style="list-style-type: none"> Primary Sources (Activity and Baseline) The following sources shall be used to determine the IAP level for both the activity technology and the baseline scenario: <ul style="list-style-type: none"> Certification resulting from a manufacturer's test (e.g., ISO 19867-1 emissions tiers); Report of field testing of the technology; Report of lab testing of the technology; or Results of modelling the technology's operation under field conditions. Additional Sources <ul style="list-style-type: none"> For Activity Technology: For stoves built on-site at the end-user location, existing reports of lab or field testing of similar technology are also accepted. For Baseline Scenario: "Expert opinion" is also an acceptable source, provided the expert is a certified or authorized professional qualified to conduct IAP assessments as per the Host Party standard body or applicable energy or air quality testing standard. Fallback Provision If no sources from above lists are available for a given technology (activity or baseline), references from published literature or reports by independent agencies may be used. Such references shall not be more than 5 years old.
Treatment of uncertainty	N/A
Comments:	Required to demonstrate compliance with Applicability Criteria 3.2.7.

Parameter ID	SMEC 5
Data/parameter:	Regulatory framework analysis
Description	Evidence that the activity 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 for household cooking
Data unit:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Applicability
Value(s) applied:	N/A
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source Official regulatory documents, government publications.
Choice of data or measurement methods and procedures:	The activity developer shall: <ul style="list-style-type: none"> Identify and summarize all national, sub-national, and local regulations and guidance applicable to the thermal energy services or devices provided within the activity boundary. Describe and demonstrate how the activity complies with this regulatory framework.
Treatment of uncertainty	N/A
Comments:	Used to demonstrate compliance with Safeguard 3.3.2 and the Regulatory Analysis (Section 6.3).

Parameter ID	SMEC 6
Data/parameter:	Expected technical life of activity technology
Description	The expected technical life of an individual activity technology.
Data unit:	Operating hours (e.g., "5,500 hours") or time period (e.g., "five years")
Purpose of data:	<input checked="" type="checkbox"/> Activity emissions <input checked="" type="checkbox"/> Safeguarding
Value(s) applied:	N/A
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source Manufacturer specifications, commercial guarantees, or certification by a recognized national standards body. For on-site built stoves, robust field reports of the average technical life of the same stove type under similar conditions.
Choice of data or measurement methods and procedures:	Requirement: The technical life of the activity technology shall be fixed and recorded at the time of registration or distribution. Acceptable Data Sources for Technical Life:

	<p>Any of the following sources shall be used:</p> <ul style="list-style-type: none"> • Manufacturer specifications; • Certification by a national standards body (or an appropriate party recognized by one); • Commercial guarantee or a guarantee from the installer; or • For stoves built on-site: Field reports on the average technical life of the same stove type under similar (socioeconomic and cultural) conditions. These reports shall comply with sampling requirements (Section 14.5). Simulation modelling may be used in conjunction with such field reports. <p>Note: Professional or expert opinion is not accepted as a source for this parameter.</p>
Treatment of uncertainty	N/A
Comments:	<p>Used to define the maximum period for claiming emission reductions for a specific unit unless replacement is verified (Section 3.3.4).</p> <p>Claiming Reductions for Retrofitted/Repaired Devices</p> <ul style="list-style-type: none"> • If the expected technical life is shorter than the crediting period, the activity developer shall describe measures to ensure end-users are provided with replacement technology of comparable or higher quality at the end of the technical life. • The activity shall ensure units are replaced (with comparable or better technology) or retrofitted (with a performance guarantee) at the end of their technical life to continue claiming emission reductions. A new activity cannot be registered for replacement/retrofitted stoves. <p>Claiming Reductions for Retrofitted/Repaired Devices</p> <p>Emission reductions may be claimed for retrofitted/repared devices during the extended lifetime only if the following conditions are met:</p> <ol style="list-style-type: none"> Documentation: The details of the retrofits/repairs (e.g., parts replaced, specifications, personnel, date) for each device are documented. AND - One of the following. Warranty/Guarantee: The extended lifetime is demonstrated through a warranty from the original manufacturer OR a guarantee from an experienced cookstove repair company, assuring performance (efficiency, safety, emissions) comparable to the original device. Durability Test: The extended lifetime or durability of the retrofitted device is demonstrated through a test performed

	according to ISO 19867-1 requirements or a comparable national standard. Certification based on sample tests specified by the standard is acceptable
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Parameter ID	SMEC 7
Data/parameter:	Baseline Scenario Survey Results
Description	Report detailing the baseline cooking practices, stove types, and fuel mix in the target population.
Data unit:	N/A
Equations referred:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions
Value(s) applied:	N/A
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source Ex-ante household surveys conducted in the target area. The survey shall confirm that the baseline stove unambiguously meets the definition of a Conventional Stove (Section 2). It shall quantify the proportion of fuels used. The primary fuel (wood or charcoal) shall account for >90% of the thermal energy needs (Applicability Criteria 3.2.2).
Choice of data or measurement methods and procedures:	<p>Applicability and Timing</p> <ul style="list-style-type: none"> • A baseline survey shall be conducted for each distinct baseline scenario identified and included in the activity. • The survey shall be undertaken at the start of the first crediting period. <p>Methodology</p> <ul style="list-style-type: none"> • The survey shall follow a justified sampling approach (e.g. simple random, stratified, cluster or multi-stage sampling approach) selected to ensure representativeness of the target population, and shall meet the required CI and minimum sample size required. • Information collected shall be in accordance with the sample survey questionnaire (Survey Format A) provided in Annex A. <p>Minimum Sample Size</p> <p>The minimum sample size is determined by the activity target population for the specific baseline scenario being surveyed:</p> <ul style="list-style-type: none"> • Population < 500: Minimum sample size of 50 • Population 500 to 1000: Minimum sample size of 10% of the population • Population > 1000: Minimum sample size of 100.

Treatment of uncertainty	N/A
Comments:	N/A

Parameter ID	SMEC 8
Data/parameter:	EF_{fuel,CO_2}
Description	CO ₂ emission factor arising from use of fuel (in baseline or activity scenario, as applicable)
Data unit:	tCO ₂ /TJ
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions
Value(s) applied:	For wood and charcoal, the following defaults derived from the IPCC shall be applied: <ul style="list-style-type: none"> • Wood: 112 tCO₂/TJ • Charcoal: <ul style="list-style-type: none"> ○ Default: 112 tCO₂/TJ (combustion only) ○ WCCF 6:1 – 355.36 tCO₂/TJ (includes charcoal production emissions) ○ WCCF 4:1 – 236.91 tCO₂/TJ (includes charcoal production emissions)
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source
Choice of data or measurement methods and procedures:	IPCC default values.
Treatment of uncertainty	N/A
Comments:	N/A

Parameter ID	SMEC 9
Data/parameter:	$EF_{fuel,non-CO_2}$
Description	Non-CO ₂ (CH ₄ and N ₂ O) Emission factor of the fuel used in the baseline and activity scenarios, weighted by the applicable GWPs.
Data unit:	tCO ₂ /TJ
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions
Value(s) applied:	For wood and charcoal, the following defaults derived from the IPCC (AR5 GWP) shall be applied: <ul style="list-style-type: none"> • Wood: 9.46 tCO₂e/TJ • Charcoal:

	<ul style="list-style-type: none"> ○ Default: 5.87 tCO₂/TJ (combustion only) ○ WCCF 6:1 – 89.68 tCO₂/TJ (includes charcoal production emissions) ○ WCCF 4:1 – 61.74 tCO₂/TJ (includes charcoal production emissions))
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source
Choice of data or measurement methods and procedures:	IPCC defaults.
Treatment of uncertainty	N/A
Comments:	N/A

Parameter ID	SMEC 10
Data/parameter:	<i>NCV_{fuel}</i>
Description	The net calorific value of the fuel used in the baseline and activity scenarios.
Data unit:	TJ/tons of fuel
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions
Value(s) applied:	For wood and charcoal, the following defaults derived from the IPCC shall be applied: <ul style="list-style-type: none"> • Wood: 0.0156 TJ/ton • Charcoal: 0.0295 TJ/ton
Source of data:	<input type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source IPCC defaults (latest applicable guidelines) or official national/regional data if demonstrably more conservative.
Choice of data or measurement methods and procedures:	Hierarchy for non-standard fuels: <ol style="list-style-type: none"> i. IPCC defaults. ii. Activity-specific testing by a qualified/accredited entity. iii. Activity-relevant measurement reports by a qualified entity. If activity-specific/relevant results are used, they shall be cross-checked with IPCC defaults and differences justified.
Treatment of uncertainty	N/A
Comments:	The methodology default emission factor shall be applied when the methodology default NCV is applied.

Parameter ID	SMEC 11
Data/parameter:	$P_{bau,mean}$, $P_{b,mean}$, $P_{bau,adj}$, $P_{bau,stat}$, P_{CAP}
Description	Quantity of fuel consumed in the Baseline scenario. (Mean and Uncertainty-Adjusted values).
Data unit:	tonnes/household/year
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input type="checkbox"/> Activity emissions
Value(s) applied:	
Source of data:	<input checked="" type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source <ul style="list-style-type: none"> • Baseline Kitchen Performance Test (B-KPT). .
Choice of data or measurement methods and procedures:	<p>If Option A (B-KPT) is selected: Determined via a statistically representative B-KPT conducted ex-ante (Section 14.5). $P_{bau,adj}$ is determined based on the 90/10 rule (Section 7.4.2): If 90/10 precision is not met, the Lower Bound of the one-sided 90% CI ($P_{bau,LB90}$) shall be used.</p> <p>If Option B (MSL/Default) is selected: B-KPT is not required; based on defaults (SMEC 12, 13).</p> <p>If the values resulting from the baseline KPTs are higher than the following threshold value (on equivalent terms), then the results shall be further substantiated by independent third-party studies that are specific to the activity region, including but not limited to government publications, peer-reviewed literature, third party assessments (for example – WISDOM, FAO, UN and similar organizations) and/or official data or statistics about cooking technologies and fuel use. In any case, the value applied shall not be higher than the cap value (on equivalent terms).</p> <p>a. Primary Fuelwood Users:</p> <ol style="list-style-type: none"> i. Threshold value: 0.75 tonnes/person/year of air-dried wood (or equivalent energy). If exceeded, substantiation by independent third-party studies is required. ii. Cap value (P_{CAP}): 1.25 tonnes/person/year of fuelwood (or equivalent energy). <p>b. Primary Charcoal Users or Mixed Baselines:</p> <ol style="list-style-type: none"> i. Threshold value: 0.20 tonnes/person/year of charcoal (or equivalent energy). ii. Cap Value (PCAP): 0.40 tonnes/person/year of charcoal (or equivalent energy).
Treatment of uncertainty	N/A

Comments:	Fixed for the 5-year crediting period.
Parameter ID	SMEC 12
Data/parameter:	$P_{MSL, capita}$
Description	Minimum Service Level (MSL) Default Fuel Consumption per capita. Represents the satisfied demand level used when Suppressed Demand is claimed (Baseline Option B).
Data unit:	tonnes/capita/year
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input type="checkbox"/> Activity emissions
Value(s) applied:	Default values (i.e., Minimum Service Level): <ul style="list-style-type: none"> • Wood; 0.50 tonnes per capita per year • Charcoal; 0.13 tonnes per capita per year
Source of data:	<input checked="" type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source <ul style="list-style-type: none"> • Methodology default
Choice of data or measurement methods and procedures:	Fixed methodology default value.
Treatment of uncertainty	The mandatory 5% downward conservativeness discount shall be applied.
Comments:	Fixed for the 5-year crediting period.

Parameter ID	SMEC 13
Data/parameter:	HN_b
Description	Number of individuals per household in baseline scenario
Data unit:	Number
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> SDG baseline
Value(s) applied:	Activity specific
Source of data:	<input checked="" type="checkbox"/> Measured <input checked="" type="checkbox"/> Other source Baseline survey
Choice of data or measurement methods and procedures:	N/A
Treatment of uncertainty	N/A

Comments:	<p>Fixed ex-ante based on the initial baseline survey or official census data matching the target demographic.</p> <p>The ex-ante value shall be structurally validated against the demographic consistency check mandated in Section 7.3.2. Material deviations require downward mathematical adjustment; deviations >20% invalidate the baseline for that cohort.</p>
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Parameter ID	SMEC 14
Data/parameter:	$f_{NRB,y}$
Description	Fraction of biomass used in the baseline and activity scenarios that can be established as non-renewable biomass.
Data unit:	Fraction (%)
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions
Value(s) applied:	As per activity specific
Source of data:	Determined using the latest version of approved standardized tools i.e., MoFuSS, or approved A6.4 fNRB tool.
Choice of data or measurement methods and procedures:	Determined ex-ante and fixed for the crediting period OR updated biennially. The choice shall be fixed at Design Certification. (Mandatory update at CP renewal)
Treatment of uncertainty	Managed through the conservativeness of the standardized tools or validated activity-specific assessment
Comments:	Fixed ex-ante for the crediting period, using the latest available version of the selected tool at the time of validation.

Parameter ID	SMEC 15
Data/parameter:	WCCF
Description:	Wood-to-Charcoal Conversion Factor (WCCF); The factor expressing the amount of wood required to produce a standard quantity of charcoal.
Data unit:	Ratio (kg wood per kg charcoal)
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions Standardized calculation of upstream wood extraction for charcoal-consuming households.
Value(s) applied:	Sub-Saharan Africa/LMICs: 6:1 (approx. 17% kiln efficiency). Industrialized Regions: 4:1 (approx. 25% kiln efficiency). Option to apply 4:1 is allowed.

Source of data:	-
Choice of data or measurement methods and procedures:	-
Treatment of uncertainty	-
Comments:	Activity-specific overrides are strictly prohibited to maintain environmental integrity and prevent adverse selection.

14.3 | Data and parameters monitored

14.3.1 | The following parameters shall be monitored during the crediting period.

Parameter ID	SMEC 16
Data/parameter:	Notification to end-users
Description:	Evidence that end-users' users have been informed that they have transferred their rights to the carbon credits and cannot claim emission reductions from the activity.
Data unit:	N/A
Purpose of data:	<input checked="" type="checkbox"/> Safeguarding
Measurement and updating frequency	At the time of stove distribution/sale. Spot-checked during verification.
Measurement methods and procedures:	<p>Transaction paperwork, end-user agreements, or recorded assertions during distribution/installation (in verifiable paper, digital or audio form).</p> <p>Requirement The activity developer shall provide verifiable evidence that end-users were informed about, and agreed to, the waiving of their carbon rights in exchange for the activity technology (e.g., for discounted pricing below true cost).</p> <p>Acceptable Forms of Evidence Evidence includes, but is not limited to, the following (or equivalents):</p> <ul style="list-style-type: none"> • Signed Forms: Carbon title waiver forms or end-user agreements signed by the end-user. • Transactional Records: Transaction paperwork or recorded assertions made during distribution/installation confirming the user was notified. The transaction records (whether paper or digital) shall contain a verified assertion in an accessible local language that the user was informed

	<p>of the carbon title waiver, constituting Informed Consent.</p> <ul style="list-style-type: none"> • Digital or Audio Confirmations: e.g. app-based acceptance, stored in a verifiable form. <p>VVB Verification</p> <p>The VVB shall:</p> <ul style="list-style-type: none"> • Validate (at initial review) the developer's proposed system for notifying end-users and collecting this evidence. • Verify (at each verification) that the system was implemented as validated by: <ul style="list-style-type: none"> i. Reviewing the collected evidence (e.g., signed forms, leaflets). ii. Cross-checking a sample of this evidence against distribution records and/Read-only monitoring surveys (if applicable) to confirm the notification and waiver process is effective and documented. • Validate Novel Evidence Types: If the developer proposes a form of evidence not listed above, the VVB shall validate its use only after confirming it meets all the following criteria: <ul style="list-style-type: none"> i. Unambiguous: The evidence shall clearly and unambiguously in an accessible local language demonstrate that the end-user was informed of the waiver <i>and</i> provided their consent. ii. Verifiable: The evidence shall be auditable and its authenticity ascertainable by the VVB. iii. Durable: The evidence shall be recorded and stored in a manner that ensures its integrity and availability for VVB review throughout the crediting period. 	
Entity/person responsible for the measurement:	CME/activity developer/Third party contracted by CME/Activity developer	
Measuring instrument(s):	Type of instrument	N/A
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	VVB shall verify a sample of the documentation.	

Treatment of uncertainty	N/A
Comments:	N/A

Parameter ID	SMEC 17	
Data/parameter:	$N_{p,y}$	
Description:	Cookstove in the activity database for activity scenario p through year y	
Data unit:	Number of activity stoves operational in the year y, segmented by age group (cohort/batch).	
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions	
Measurement and updating frequency	Continuous	
Measurement methods and procedures:	Sales records shall be transferred to the sales database. The activity database is arranged based on the activity scenario and batch to create the activity database and if applicable shall exclude the stoves that have completed the technical life if not replaced/retrofitted before the end of life.	
Entity/person responsible for the measurement:	CME/activity developer	
Measuring instrument(s):	Type of instrument	N/A
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	<p>The activity developer shall maintain a complete, accurate, and electronically backed-up sales and distribution record throughout the entire crediting period.</p> <p>The record shall be organized at the household/end user level. The following information shall be recorded for each transaction:</p> <p>a. End user Information: (Required for <i>all</i> end-users, e.g., households, and <i>all</i> bulk purchasers, e.g., retailers)</p> <ul style="list-style-type: none"> i. Name ii. Address 	

	<ul style="list-style-type: none"> iii. Telephone number (if available) iv. Type of end-user (household, institutional, commercial) <p>b. Transaction and Product Details:</p> <ul style="list-style-type: none"> i. Date of installation ii. Geographic area of sale iii. Model/type of activity stove(s) sold iv. Quantity of activity stove(s) sold v. Unique identification of the product(s) (e.g., serial number) and the end-user's location (GPS coordinates). To comply with data privacy regulations, exact GPS coordinates are optional, provided alternative location descriptors (e.g., village, ward, point-of-sale district) are used alongside unique product identifiers to ensure traceability and prevent double counting. <p>The VVB shall:</p> <ul style="list-style-type: none"> • Validate (at initial review) the activity developer's proposed system for collecting, managing, and backing up the sales and distribution record. • Verify (at each verification) that the record is complete, accurate, and maintained as required by: <ul style="list-style-type: none"> i. Inspecting the sales and distribution record for completeness and compliance with all data points listed in above. ii. Cross-checking a sample of record entries against other evidence (e.g., monitoring data, end-user agreements, distribution reports) to confirm the accuracy and authenticity of the sales data.
Treatment of uncertainty	N/A
Comments:	-

Parameter ID	SMEC 18
Data/parameter:	$U_{P,y}$
Description:	Cumulative Usage rate for activity stoves in year y, reflecting the adoption rate and drop-off rate.
Data unit:	Fraction (%)
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> Activity emissions

Measurement and updating frequency	Annual								
Measurement methods and procedures:	<p>Usage rate is an estimate of the fraction of activity stoves that are in use to exclude stoves that may not be adopted or may be disposed off and potentially replaced by a baseline stove again. A usage rate assessment of each activity stove age-group⁹ is required annually. The usage survey/monitoring shall be conducted at least within 6 months before the end of monitoring period, provided the sample is drawn exclusively from the finalized activity database representing that specific monitoring period</p> <p>There are three levels to the Usage Monitoring Requirements, each increasing in rigor and maximum claimable usage rates. To apply a higher level of usage rate, all the Monitoring Requirements from the levels beneath shall be followed. For example, if a activity claims up to 90%, the monitoring requirements provided for both the 'mandatory' and 'good practice' levels shall be complied with. The three levels and their applicability are summarized in the table below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #00a696; color: white;"> <th>Level</th> <th>Applicability</th> <th>Claimable usage rate</th> <th>Requirements</th> </tr> </thead> <tbody> <tr> <td>Mandatory</td> <td>Mandatory</td> <td>Up to maximum 75%</td> <td> <ul style="list-style-type: none"> • Define use and non-use • In-person household usage survey • Verification of accuracy of results </td> </tr> </tbody> </table>	Level	Applicability	Claimable usage rate	Requirements	Mandatory	Mandatory	Up to maximum 75%	<ul style="list-style-type: none"> • Define use and non-use • In-person household usage survey • Verification of accuracy of results
Level	Applicability	Claimable usage rate	Requirements						
Mandatory	Mandatory	Up to maximum 75%	<ul style="list-style-type: none"> • Define use and non-use • In-person household usage survey • Verification of accuracy of results 						

⁹ 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.

Since the parameter of interest is the usage proportion for each age cohort, the sample size is defined for each age cohort must be minimum of 30 samples for project technologies of each age cohort being credited, except where the age cohort comprises fewer than 30 units, in which case all units shall be sampled.

	Good practice	Optional	Up to maximum 90%	<ul style="list-style-type: none"> • Field team training and supervision • End-user training and follow-ups • Awareness campaign
	Best practice	Optional	Above 90%	<ul style="list-style-type: none"> • Continuous use monitoring
	<p>For detailed guidelines and requirements, refer to Requirements and Guidelines: Usage Rate Monitoring</p> <p>Should there be a conflict in the requirements provided in this methodology and Requirements and Guidelines: Usage Rate Monitoring, the requirements of this methodology supersede.</p> <p>For the purpose of this methodology.</p> <p>a. Usage survey: An in-person usage survey shall be conducted following the sampling requirements in Section 14.5. The survey shall target 90/10 precision (90% confidence, 10% precision). A minimum of 50 households per age group shall be sampled. If the achieved sample does not meet the 90/10 precision target ex-post, the Lower Bound of the one-sided 90% confidence interval for the usage rate shall be used for that cohort. The usage survey may be combined with other annual monitoring activities as long as the minimum sample size requirement i.e., 50 households per each age group is complied with. The usage rate estimated for a particular age group may be applied to the stove of the same age group in subsequent years¹⁰ of the crediting period, if it can be shown that there is no material change in the usage behaviour, stacking or device condition, or where a conservative downward adjustment is applied when evidence of change is not available.</p> <p>b. Continuous monitoring: The Activity technology use may be monitored in randomly selected representative sample households with temperature-sensing data loggers known as Continuous</p>			

¹⁰ For example, if only stoves in the first year of use (age 0-1) are being credited (as part of 1st issuance request), a usage parameter must be established for age-group 0-1, through a usage survey for stove age0-1. If cookstoves of age-group 0-1 and age-group 1-2 are being credited (as part of 2nd request for issuance), usage parameter must be established for age-group 1-2 only through usage survey and the usage rate established for stoves age group 0-1 can be applied from the previous monitoring period. If cookstoves of age 0-1 and age 1-2 are being credited (as part of first request for issuance), usage parameter must be established for age-group 0 -1 and 1-2, respectively through usage survey.

	<p>Stove Monitors (CSMs)¹¹ or other advanced monitoring devices which can log the operation of the activity stove i.e., recording the situation of the activity stove being used or not during any day 'd' of the measurement campaign, in order to determine usage rate. In such cases, how the monitored data will be used to confirm the user or non-user shall be described in the PDD at the time of validation.</p> <p>The continuous use monitoring shall be conducted for a minimum of 50 households for at least 90 days, with at least 30 samples for activity stove of each age being credited.</p>	
Entity/person responsible for the measurement:	CME/activity developer /Third party contracted by CME/Activity developer	
Measuring instrument(s):	Type of instrument	N/A
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	-	
Treatment of uncertainty	N/A	
Comments:	A usage parameter is derived for each age group of activities cookstove being credited. The activity shall also monitor the physical conditions of the cookstoves.	

Parameter ID	SMEC 19
Data/parameter:	$HN_{p,y}$
Description:	Number of individuals per household in year y
Data unit:	Number
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions <input checked="" type="checkbox"/> SDG baseline
Measurement and updating frequency	Biennial (aligned with P-KPT).

¹¹ CSM is a generic term for devices that monitor and log stove usage time, usually through tracking stove temperature.

Measurement methods and procedures:	Monitoring Surveys or P-KPT data collection.	
Entity/person responsible for the measurement:	CME/activity developer/Third party contracted by CME/Activity developer	
Measuring instrument(s):	Type of instrument	N/A
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	-	
Treatment of uncertainty	N/A	
Comments:	Primarily used for normalization of KPT data (e.g., per capita comparison) and Sustainable Development Goal reporting. Not directly used in ER equations.	

Parameter ID	SMEC 20
Data/parameter:	$P_{a,mean,y}$, $P_{a,adj,y}$, $P_{a,UB90,y}$
Description:	Quantity of fuel consumed in the Activity scenario. (Mean, Uncertainty-Adjusted and Upper Bound values).
Data unit:	tonnes/household/year
Purpose of data:	<input checked="" type="checkbox"/> Activity emissions
Measurement and updating frequency	Biennial (every two years). The results are valid for a maximum of two years, from date of collection. If the monitoring period extends beyond 2 years, additional KPT shall be conducted for valid data. .
Measurement methods and procedures:	Determined via a statistically representative P-KPT (Section 14.5). $P_{a,adj,y}$ is determined based on the 90/10 rule (Section 8.1.2.3): If 90/10 precision is not met, the Upper Bound of the one-sided 90% CI ($P_{a,UB90,y}$) shall be used. The P-KPT measures total household fuel consumption, inherently accounting for stove stacking.
Entity/person responsible for	CME/activity developer/Third party contracted by CME/Activity developer

the measurement:		
Measuring instrument(s):	Type of instrument	N/A
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	See Section 14.4. Calibration of scales, standardized protocols, oversight of field teams.	
Treatment of uncertainty	N/A	
Comments:	-	

Parameter ID	SMEC 21	
Data/parameter:	$LE_{Market,y}$ (Market and Behavioral Leakage)	
Description:	Quantification of leakage from market effects and behavioural changes outside the activity boundary.	
Data unit:	tCO ₂ e/yr or % of $(BEy - AEy)$	
Purpose of data:	<input checked="" type="checkbox"/> Leakage Emissions	
Measurement and updating frequency	Biennial (if Option 3 is selected)	
Measurement methods and procedures:	Default: Application of the 2% default deduction (0.02).	
Entity/person responsible for the measurement:	CME/activity developer/Third party	
Measuring instrument(s):	Type of instrument	Survey instruments (if Option 3).
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	If Option 3, adherence to robust survey and quantification protocols. VVB verification of the assessment and data.	

Treatment of uncertainty	Managed by conservative justification (Option 1), conservative default (Option 2), or rigorous assessment (Option 3).
Comments:	-

Parameter ID	SMEC 22	
Data/parameter:	$DAF_{NetZero,y}$	
Description:	Downward Adjustment Factor for Ambition	
Data unit:	Fraction (%)	
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions (Adjustment)	
Measurement and updating frequency	Annual (based on the calendar year of the monitoring period).	
Measurement methods and procedures:	Sourced from the latest version of the GS4GG Methodology Tool: Downward Adjustment Factor (DAF) Determination, corresponding to the host country and the monitoring year.	
Entity/person responsible for the measurement:	CME/activity developer	
Measuring instrument(s):	Type of instrument	NA
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	VVB verification that the correct DAF value has been applied based on the host country and monitoring period year.	
Treatment of uncertainty	N/A	
Comments:	N/A	

Parameter ID	SMEC 23	
Data/parameter:	$HE_{ind/def}$	
Description:	Hawthorne effect adjustment factor	
Data unit:	Fraction (%)	
Purpose of data:	<input checked="" type="checkbox"/> Baseline emissions (Adjustment)	

Measurement and updating frequency	Annual (based on the calendar year of the monitoring period).	
Measurement methods and procedures:	The applicable value shall be selected according to the monitoring period vintage.	
	Phase	Applicable Vintage
	Phase 1	2026 & 2027
	Phase 2	2028 & 2029
	Phase 3	2030 or after
		Default Factor (HE_{default})
		0.90
		0.85
		0.75
Entity/person responsible for the measurement:	CME/activity developer	
Measuring instrument(s):	Type of instrument	NA
	Accuracy class	N/A
	Calibration requirements	N/A
	Location	N/A
QA/QC procedures:	VVB verification that the correct HE value has been applied based on the monitoring period year.	
Treatment of uncertainty	Uncertainty is conservatively addressed through methodology default values.	
Comments:	N/A	

14.4 | QA/QC and Data Management

14.4.1 | The activity developer shall establish and implement Quality Assurance (QA) and Quality Control (QC) procedures to ensure the accuracy, reliability, and validity of the monitored data.

14.4.2 | KPT QA/QC:

- a. **Protocols:** All KPTs shall adhere to standardized, internationally recognized KPT protocols (e.g., Clean Cooking Alliance protocol or equivalent).
- b. **Training:** Enumerators conducting KPTs and surveys shall receive rigorous training.
- c. **Calibration:** All measurement equipment (e.g., weighing scales used in KPTs) shall be calibrated according to the manufacturer's instructions

or relevant standards. Weighing scales shall be checked frequently (at least weekly during field campaigns) using a certified calibration weight. Calibration records shall be maintained and available for verification.

- i. If the calibration check reveals an error of $\leq 1\%$, the data is accepted as is.
- ii. If the calibration check reveals an error $> 1\%$ but $\leq 5\%$, the recorded data is not discarded; instead, the measured fuel weights shall be mathematically corrected by applying the exact percentage of the identified variance in the most conservative direction.
- iii. If the error is $> 5\%$, all data collected since the last successful check shall be strictly excluded from the analysis.

- d. **Data Cross-Checks:** Procedures for cross-checking data entry and identifying outliers shall be implemented.

14.4.3 | **Data Management:** All data collected shall be stored securely. The activity database (Section 14.1.3) shall be maintained throughout the crediting period and for at least two years after the end of the last crediting period.

14.5 | Sampling requirements

14.5.1 | All sampling efforts (B-KPT, P-KPT, and Usage Surveys) shall be conducted in accordance with the latest version of the CDM Standard: Sampling and surveys for CDM project activities and programme of activities or the equivalent GS4GG/A6.4 standard if made available. A comprehensive Sampling Plan shall be developed.

14.5.2 | KPT Sampling Requirements (B-KPT and P-KPT)

14.5.2.1 | **Sampling Approach:** The activity developer may use independent samples or paired samples for the B-KPT and P-KPT. The choice shall be justified in the Sampling Plan.

14.5.2.2 | **Precision Target (90/10 Rule):** The required precision target for KPT sampling is a 90% confidence level with a 10% margin of error (90/10).

14.5.2.3 | **Minimum Sample Size:** A minimum sample size of 50 households is required for any KPT campaign.

14.5.2.4 | **Mandatory Conservativeness (Uncertainty Adjustment):** If the achieved sample size does not meet the 90/10 precision target ex-post, the application of statistical conservatism is mandatory: a. B-KPT: Use the Lower Bound ($P_{bau, LB90}$) (Section 7.4.1 |). b. P-KPT: Use the Upper Bound ($P_{a, UB90,y}$) (Section 8.1.2.3 |).

14.5.3 | Usage Survey Sampling Requirements

14.5.3.1 | **Precision Target:** The required precision target for Usage Surveys is a 90% confidence level with a 10% margin of error (90/10).

14.5.3.2 | **Cohort Sampling (Mandatory):** To accurately capture the drop-off rate as stoves age, Usage Surveys shall employ cohort sampling (sampling

stratified by age group/batch). A representative sample (minimum 50 households) shall be drawn from each operational age group.

14.5.3.3 | **Digital MRV (dMRV) Sampling Substitution:** If an activity developer utilises objective, continuous dMRV telemetry (e.g., smart meters, SUMs) on a statistically representative sample of the operational fleet (meeting the 90/10 rule), the telemetry data shall supersede and replace the requirement to conduct manual annual usage surveys.

14.5.3.4 | Technologies aged beyond their technical life, and not replaced or retrofitted, are removed from the activity database, and no longer credited under the activity. Where replacements are made, monitoring shall also ensure that the efficiency of the new cookstove is similar to the appliances being replaced.

15| MONITORING REQUIREMENTS FOR ACTIVITIES WITH REVERSAL RISKS

15.1 | Exemption from Continuous Reversal Monitoring

15.1.1 | As established in Section 12.1 | of this methodology, decentralized thermal energy activities generate mitigation outcomes via the avoidance of emissions (not sequestration) and operate under the "No Control" exemption regarding the physical biomass reservoir. Consequently, the physical reversal of credited mitigation outcomes is structurally impossible. The activity developer is exempt from continuous Reversal Risk monitoring requirements and is not required to contribute to or monitor a Reversal Risk Buffer Pool.

15.2 | Dynamic Baseline Management

15.2.1 | The risk of macro-level non-permanence (depletion of the baseline carbon stock) is managed structurally rather than through continuous ex-post monitoring. The activity developer shall manage this risk exclusively through the mandatory ex-ante reassessment of the baseline fuel scenario, the Catastrophic Disturbance Check, and the updating of the fNRB parameter at each crediting period renewal, in strict accordance with Section 12.2 | and Section 17 |.

16| APPLICATION TO PROGRAMME OF ACTIVITIES

16.1 | General Requirements

16.1.1 | This methodology is applicable to Programmes of Activities (PoA).

16.1.2 | The CME shall define clear, objective eligibility criteria for the inclusion of VPAs in the PoA Design Document (PoA-DD). These criteria shall ensure that each VPA explicitly meets all Applicability Conditions defined in Section 3.2 |.

16.2 | Baseline and Additionality Demonstration

- 16.2.1 | **Additionality:** Additionality shall be demonstrated at the VPA level. A VPA may utilize the Positive List (Deemed Additionality) defined in Annex 4 provided the VPA explicitly meets all geographic, scale, and policy criteria at the time of its inclusion in the PoA.
- 16.2.2 | **Baseline Scenarios:** If the PoA encompasses heterogeneous VPAs (e.g., targeting different geographic regions, utilizing different primary baseline fuels, or serving socio-economically distinct demographics), the baseline scenario shall be determined and justified individually for each homogenous VPA grouping in accordance with Section 7 |.

16.3 | Monitoring and cross VPA sampling

- 16.3.1 | The CME shall establish a comprehensive monitoring system detailing data collection, GDPR-compliant archiving, and verification across all VPAs.
- 16.3.2 | **Sampling Across VPAs:** Across-VPA sampling for P-KPTs and Usage Surveys is permitted, provided the CME demonstrates that the sampled population is homogeneous and the sampling plan meets the requirements of Section 14.5 | and the relevant Sampling Standard.
- 16.3.3 | **A Cross-VPA** sampling is not allowed across groups larger than 10 VPAs, unless specific justification for homogeneity across a larger group is provided and validated by the VVB.

17 | RENEWAL OF CREDITING PERIOD

17.1 | Crediting Period Renewal Requirements

- 17.1.1 | The renewal of the crediting period (every 5 years) shall be conducted in accordance with the latest GS4GG requirements. At the time of renewal, the activity shall comply with the latest version of this methodology.

17.2 | Reassessment of the Baseline Scenario

- 17.2.1 | The baseline scenario shall be reassessed to determine if it remains valid, considering changes in technology adoption, market conditions, and policies.

17.3 | Update of Fixed Ex-Ante Parameters

- 17.3.1 | **Baseline Fuel Consumption (Mandatory):**
- 17.3.1.1 | **If Baseline Option A (B-KPT) was used:** This requires conducting a new Baseline KPT (B-KPT) (SMEC 11). If the activity has achieved high saturation (>95%) within the activity boundary such that a representative internal baseline sample cannot be established, the procedures below for Saturated Activity Areas shall be followed.

- 17.3.1.2 | **If Baseline Option B (MSL/Default) was used:** The activity shall continue to use the MSL/Default baseline for the renewed crediting period in line with updated values as per latest version of applied methodology.
- 17.3.2 | **Procedures for B-KPT Update in Saturated Activity Areas (Option A only):** If the project activity has achieved high market penetration (e.g., >95%) or total saturation (100%) within the defined activity boundary (e.g., a specific commune or village), identifying a representative sample of baseline technology users internally is not feasible.
- 17.3.3 | In such cases, the baseline fuel consumption shall be updated using the hierarchical approach defined below. The activity developer shall justify the selected approach, and the VVB shall validate its appropriateness.
- 17.3.3.1 | **Prohibited Approach:** Asking activity participants to revert to using baseline technologies (e.g., reconstructing three-stone fires) for the purpose of the B-KPT is not permitted.
- 17.3.3.2 | **Mandatory Approach: Conservative Carry-Forward with Autonomous Improvement Factor (AIF).** If an internal B-KPT sample is infeasible due to saturation, the activity developer shall carry forward the Adjusted Baseline Fuel Consumption ($P_{b,adj}$) established at the start of the previous crediting period. This value shall be adjusted by an Autonomous Improvement Factor (AIF) to conservatively account for improvements that likely would have occurred in the absence of the activity over the preceding 5 years.
- 17.3.3.3 | Application of Autonomous Improvement Factor (AIF): A mandatory, conservative AIF of 5% per 5-year crediting period shall be applied.
- $$P_{b,mean,renewal} = P_{b,adj (Previous CP)} \times (1 - AIF)$$
- Where $AIF = 0.05$
- 17.3.3.4 | This adjusted value $P_{b,mean,renewal}$ shall then be used as the basis for the baseline calculation for the renewed crediting period, subject to the standard uncertainty adjustments (Section 7.4.1).
- Note: If the activity utilized the MSL/Default baseline (Option B or C) in the previous crediting period, this fallback approach (AIF) is not applicable, and the activity shall continue to use the MSL/Default baseline for the renewed crediting period.
- 17.3.4 | **fNRB (Mandatory):** The fNRB value (**SMEC 14**) shall be updated using the latest available data and versions of the approved standardized tools.

17.4 | Reassessment of Additionality

- 17.4.1 | The Regulatory Analysis (Section 6.3 |) shall be updated. If new, fully enforced, and funded legal mandates have come into force that legally require the activity, the crediting period shall not be renewed.
- 17.4.2 | The activity developer shall conduct an Ongoing Financial Need (OFN) assessment and update the Regulatory Surplus analysis, as required by Section 6.3 |.

Annex -1| SUPPRESSED DEMAND AND SATISFACTORY LEVEL OF SERVICE

Refer to Annex -1 of [Reduced emissions from cooking and heating](#)

Annex -2| COMPLEMENTARY GUIDELINES FOR KITCHEN PERFORMANCE TESTING (KPT)

Refer to Annex -2 of [Reduced emissions from cooking and heating](#).

Annex -3| MONITORING SCHEDULE

ID	Parameter Description	Minimum Frequency	Stage (Ex-Ante / Ex-Post)	Key References (SMEC)
Data and Parameters Not Monitored (Section 14.2)				
SMEC 1	Activity technology description and thermal efficiency	Once	Ex-Ante	Sec 14.2, 3.2.3
SMEC 2	Avoidance of double counting (Participants)	Before 1st Verification	Ex-Ante	Sec 14.2, 3.2.6
SMEC 3	Avoidance of double counting (Other Actions)	At Design Cert. (and VPA inclusion/design change)	Ex-Ante	Sec 14.2, 3.2.6
SMEC 4	Indoor air pollution (IAP) Assessment	Once	Ex-Ante	Sec 14.2, 3.2.7
SMEC 5	Regulatory framework analysis	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 6.3
SMEC 6	Expected technical life of activity technology	Once (at registration or distribution)	Ex-Ante	Sec 14.2, 3.2.5
SMEC 7	Baseline Scenario Survey Results	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.1
SMEC 8	EF_{fuel, CO_2} (CO ₂ Emission Factor)	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.5
SMEC 9	$EF_{fuel, non - CO_2}$ (Non-CO ₂ Emission Factor)	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.5

SMEC 10	<i>NCV_{fuel}</i> (Net Calorific Value)	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.5
SMEC 11	<i>P_{b, mean}</i> (Baseline Fuel Consumption - B-KPT or Default/MSL)	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.5
SMEC 12	<i>PMSL, capita</i> (Minimum Service Level Default)	Once (Methodology default)	Ex-Ante	Sec 14.2, 7.3.4
SMEC 13	<i>HN_b</i> (Household size baseline)	At Design Cert. (and CP renewal)	Ex-Ante	Sec 14.2, 7.3.2
SMEC 14	<i>f_{NRB, y}</i> (Fraction of Non-Renewable Biomass)	Fixed Ex-Ante (Mandatory update at CP renewal)	Ex-Ante	Sec 14.2, 7.4.1
SMEC 15	WCCF (Wood-to-Charcoal Conversion Factor)	Once (Methodology default)	Ex-Ante	Sec 14.2, 2

Data and Parameters Monitored (Section 14.3)

SMEC 16	Notification to end-users	Continuous (spot-checked at verification)	Ex-Post	Sec 14.3, 3.2.6
SMEC 17	<i>N_{p, y}</i> (Number of operational stoves)	Continuous/Annual	Ex-Post	Sec 14.3, 14.1
SMEC 18	<i>U_{p, y}</i> (Usage Rate)	Annual	Ex-Post	Sec 14.3, 14.5
SMEC 19	<i>HN_{p, y}</i> (Household size activity)	Biennial (aligned with P-KPT)	Ex-Post	Sec 14.3
SMEC 20	<i>P_{a, mean, y}</i> (Activity Fuel Consumption - P-KPT)	Biennial	Ex-Post	Sec 14.3, 8.1
SMEC 21	<i>LE_{market, y}</i> (Market Leakage)	Annual (calculated)	Ex-Post	Sec 14.3, 9.3
SMEC 22	<i>DAF_{netZero, y}</i> (Downward Adjustment Factor)	Annual (Sourced from Tool)	Ex-Post	Sec 14.3, 7.4.3
SMEC 23	<i>HE_{ind/ def}</i> (Hawthorne effect adjustment factor)	Annual (based on vintage phase)	Ex-Post	Sec 14.3, 10.1

Annex -4| METHODOLOGY-LEVEL ADDITIONALITY AND BARRIER ANALYSIS FOR DECENTRALIZED THERMAL ENERGY ACTIVITIES

Refer to Annex - 4 of [Reduced emissions from cooking and heating](#).

DOCUMENT INFORMATION

VERSION	DATE	DESCRIPTION
4.0	May 2026	Alignment with Paris agreement
3.0	July 2022	<ul style="list-style-type: none">Alignment with currently updated methodologies (TPDDTEC, SDWS) Scope expansion of SMEC methodology to the improved charcoal stoves projects
2.0	April 2022	Version for consultation. Not formally published.
1.1	March 2020	<ul style="list-style-type: none">Correction in the testing protocol for determination of project stove efficiencyCorrection in emission reduction calculation equationUpdate of the value of the ex-ante parameter "NonCO2 emission factor arising from use of firewood in baseline scenario". Other miscellaneous edits
1.0	Feb 2013	First version

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