

GUIDELINE AND REQUIREMENTS

REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING

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VERSION **2.0**

RELATED DOCUMENTS

- Gold Standard Technologies and Practices to Displace Decentralized Thermal Energy Consumption*
- Methodology to Estimate and Verify ADALYs from Cleaner Household Air
- Gold Standard Quantification of Climate Related Emission Reductions of Black Carbon and Co-emitted Species due to the Replacement of Less Efficient Cookstoves with Improved Efficiency Cookstoves

* Also included (below) the previous versions of this methodology:

- Technologies and Practices to Displace Decentralized Thermal Energy Consumption v.1.0
 - Methodology for Improved Cook-stoves and Kitchen Regimes v.01 & 0.2
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SUMMARY

The aim of these requirements is to improve monitoring of usage rates of improved cooking technologies and to help project developers ensure increased adoption and sustained use of these technologies to achieve the intended benefits. The monitoring requirements are built on current monitoring practices and based on findings from published peer reviewed literature and inputs from monitoring experts.

The requirements are also supplemented with guidelines to assist project developers. Please contact us at help@goldstandard.org for any questions or clarifications.

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1| SCOPE AND APPLICABILITY

- 1.1.1 | The requirements and guidelines are applicable to projects activities or Programme of Activities (PoAs) applying the Gold Standard methodology 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption' (hereafter "TPDDTEC"), Averted Mortality and Disability Adjusted Life Years (ADALYs) methodology and Black Carbon methodology, and that involve solid, gaseous fuel based improved cooking technologies, for example firewood, charcoal based improved cookstoves, household biogas digesters, solar cookers, etc. Since the ADALYs and Black Carbon methodology refers to the TPDDTEC methodology for usage rate requirements, the TPDDTEC methodology, where mentioned in this document, collectively refers to these methodologies.
- 1.1.2 | The projects activities and PoAs/VPAs that apply the [simplified methodology for efficient cookstoves](#) or a CDM methodology are not required to apply the requirements and guidelines outlined in this document. Instead, such projects shall follow the monitoring requirements and guidelines provided in the applied methodology(ies).
- 1.1.3 | The requirements and guidelines presented in this document shall be followed when carrying out usage surveys to determine the parameter usage rate (Up,y). In case of any conflict with the TPDDTEC methodology, the requirements outlined in this document shall be followed.

2| REQUIREMENTS AND GUIDELINES

2.1 | Levels of Usage

- 2.1.1 | There are three levels to the Usage Monitoring Requirements, each increasing in rigour and maximum claimable usage rates. In order to apply a higher level of usage rate, all of the Monitoring Requirements from the levels beneath must be followed. For example, if a project claims upto 90%, the monitoring requirements provided for both the 'mandatory' and 'good practice' level shall be complied with. The three levels and their applicability is summarised in the table 1 below.

Table 1: Usage rate monitoring requirements

Level	Applicability	Claimable usage rate	Requirements
Mandatory	Mandatory	Upto maximum 75%	<ul style="list-style-type: none"> Define use and nonuse In person household usage survey Verification of accuracy of results
Good Practice	Optional	Upto 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

2.1.2 | The project may change the level of usage, for example from 'mandatory' to 'good practice' or vice versa during a given monitoring period, provided that the project can demonstrate compliance with the corresponding monitoring requirements. If any change in usage level is made, it shall be documented in the monitoring report with reasons for change.

2.2 | Mandatory Monitoring Requirements

2.2.1 | The mandatory requirements are applicable to all project activities, irrespective of their claimable usage rates. The project developer can claim up to a maximum 75% usage rate by meeting the mandatory monitoring requirements. An exception is provided for household biogas digester projects, which can claim upto 90% by following the mandatory monitoring requirements.

2.2.2 | The stepwise approach with associated requirements are provided below;

Step 1. Defining stove use and non-use:

2.2.3 | The project developer shall define project technology "use" versus "non-use" to determine who should be considered eligible for crediting. The definition and criteria applied to define "use" and "non-use" shall be documented in the Project Design Document (PDD) and may be amended with justifications during a given crediting period. Any revisions made shall be documented in the monitoring report along with the justifications.

2.2.4 | To define the use and non-use of project technology, the project developer should use the criteria such as time since last used, frequency of use, duration of use of cooking device, extent to which the traditional technology is displaced etc. The project developer should refer to baseline survey, project survey and Kitchen Performance Tests (KPTs) results to determine the representative cooking practices in the project boundary and identify the criteria for defining use and non-use of project technology.

Step 2. Household Usage Survey:

2.2.5 | The project developer shall carry out an in-person usage survey to determine the project technology use.

2.2.6 | The minimum sample size for the usage survey shall be determined as per methodology requirements.

2.2.7 | At minimum, the usage survey shall include the following activities:

i. Kitchen observation

2.2.8 | The surveyor shall visit the household to gather objective information to support the usage survey findings (e.g. if the cooking device is warm to touch, ashes present etc.). This is to counter against survey bias from the respondent answering questions in a way that they think the interviewer wants to hear.

ii. Interview with the primary cook

2.2.9 | The surveyor shall interview the primary cook of the household to gather information on project technology use patterns, including information on duration and frequency of use, as well as information on multiple stove use ('stove stacking') and seasonal trends.

iii. Photos of the cooking area(s)

2.2.10 | The surveyor shall take photographs of the project technology to gather visual data on the status of the project technology; whether the stove is abandoned, damaged, or being actively used shall all be shown using clear photographs. A photo should show the whole kitchen, including all the stoves in use. The photos should be clear and in good light. Photos also serve to provide confirmation that the household was visited.

2.2.11 | Consent should be taken from primary cook prior to taking photos in the kitchen.

iv. GPS coordinates

2.2.12 | The surveyor shall record the GPS coordinates of the household as they provide verification that the household was visited. Alternatively, date stamped, and location specific photos of the household shall be taken as a verification of the household visit. Photographs taken may also be used to meet this requirement.

Step 3. Verification checks:

- 2.2.13 | The verification checks of survey data shall be performed by the project developer prior to verification by the Verification/Validation Body (VVB). At the conclusion of the data collection phase of the survey, the project developer representative shall telephone a randomly selected 5-10% of the surveyed households to verify that homes were visited by surveyors and the recorded responses are correct.
- 2.2.14 | The project developer shall record the details of the households and responses provided that have been reached via telephone.

2.3 | Good Practice Monitoring Requirements

- 2.3.1 | Project developer can claim up to a maximum 90% usage rate following the below monitoring requirements, in addition to the mandatory requirements described in 2.2 |above.

v. Field team training and supervision:

- 2.3.2 | The project developer shall provide training and supervision necessary to ensure field teams have the capacity required to complete usage survey successfully. The training of the field team is key to obtain a complete and accurate stove use dataset. In some cultures, it may be imperative to have female field workers.
- 2.3.3 | The training workshop shall be conducted immediately before the fieldwork commences. The aim of the training workshop is to ensure that all team members have the knowledge and skills to carry out the required work with confidence and to a high standard. The team members need to understand the usage survey objectives and be proficient with the recruitment procedures, data collection and management processes, and protocols for troubleshooting.
- 2.3.4 | Detailed written guidelines and instructions for all procedures shall be provided and updated as necessary. There should be close supervision, including direct observations, of the field team members, particularly at the onset of the usage survey.
- 2.3.5 | Regular review of the collected data should be carried out, especially in the first days of data collection, to assess enumerator performance and re-train/supervise those that fall below the expected standard.
- 2.3.6 | To demonstrate compliance with this requirement, the project developer shall keep records of all trainings including the dates, details of the staff trained and other relevant information.

vi. End-User Training and follow up visits:

- 2.3.7 | The project developer shall provide locally appropriate end-user training on project technology use via demonstrations and follow-up visits. It includes demonstrations, training at the point-of-sale and post-sale follow-up visits. These visits are critical to ensure correct and sustained use of the project stove.
- 2.3.8 | To demonstrate compliance with this requirement, the project developer shall keep records of all demonstrations, training and follow up visits.

vii. Awareness campaign:

- 2.3.9 | The developers shall organise the campaign to make end-user aware about the benefits of continuous use of project technology and key product attributes. The awareness campaigns can be carried out together with the sales promotions and end-user training.
- 2.3.10 | To demonstrate compliance with this requirement, the project developer shall keep records of all awareness campaigns organised.

2.4 | Best Practice Monitoring Requirements

- 2.4.1 | The project developer can claim above 90% usage rate by applying the following monitoring requirements, in addition to both the mandatory and good practice monitoring requirements.

viii. Continuous use monitoring:

- 2.4.2 | Project technology use shall be monitored in randomly selected representative sample of households with temperature-sensing data loggers known as Continuous Stove Monitors (CSMs). CSM is a generic term for devices that monitor and log stove usage time, usually through tracking stove temperature.
- 2.4.3 | Projects that involve household biogas digesters may use other monitoring technologies such as gas meters to monitor continuous use of biogas stoves. Alternatively, the project shall demonstrate that for all the biogas units:
- a. Maintenance procedures are followed in compliance with manufacturer prescribed specifications (e.g. gas valve and pipeline testing for leakage and rectification, lubrication of gas tap, cleaning and upkeep of the slurry pit etc.); and
 - b. Downtime of the biogas units is recorded at minimum on a monthly basis by the project developer and/or end-user.

To demonstrate compliance with this requirement, the project developer shall provide the maintenance records.

2.4.4 | The continuous use monitoring campaign shall be conducted for a minimum of 100 households for at least 90 days, with at least 30 samples for project technologies of each age being credited.

2.4.5 | Due care shall be taken to install the devices in a manner that minimizes influencing the behaviour of the stove users. The resulting stove temperature profiles can be analysed to determine the frequency and duration of project technology use for all of the cooking devices.

2.4.6 | The sensor data from the monitored household sample group shall then be used to determine the usage rates to provide an estimate of stove usage (drop-off) for all homes.

3| DETERMINATION OF USAGE RATE ($U_{p,y}$)

3.1.1 | The usage monitoring requirements mentioned above and corresponding cap shall apply to each monitored cookstove age group. The usage rate quantification approach is further demonstrated in the examples below.

Example – 1 Cooking device project meeting the mandatory level (usage rate capped at 75%) monitoring requirements

Age group	Cooking device population in each age group	Survey results	Values applied for weighted average assessment
0 - 1	5000	70%	70%
1 - 2	3000	90%	75%
2 - 3	2000	95%	75%
Total cooking devices	10000	Weighted average usage rate ($U_{p,y}$)	72.5%

Example – 2 Cooking device project meeting the good practice (usage rate capped at 90%) monitoring requirements

Age group	Cooking device population in each age group	Survey results	Values applied for weighted average assessment
0 - 1	5000	70%	70%
1 - 2	3000	90%	90%
2 - 3	2000	95%	90%
Total Cooking devices	10000	Weighted average usage rate ($U_{p,y}$)	80%

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CHECKLIST FOR ASSESSMENT BY VERIFICATION/VALIDATION BODIES (VVBs)

The following checklist is meant to be used by the VVBs carrying out performance certification and contains the criteria for evaluating the compliance of the project/PoA & VPA with the requirements and guidelines of these Requirements and Guidelines

Section	Sub-section	Criteria	VVB Response
1. Scope and Applicability	N/A	a. Does the project/PoA undergoing certification involve any one or more of the following technologies: solid, gaseous fuel based improved cooking technologies for example firewood, charcoal based improved cookstove, household biogas digesters, solar cookers, etc.?	
		b. If there is any conflict with the TPDDTEC methodology, are all the rules and requirements contained in this Annex given precedent and followed by the project/PoA?	
2. Requirements and Guidelines	2.1 Levels of Usage	a. Has the project/PoA clearly specified the usage monitoring requirement level in the PDD/VPA-DD?	
		b. Has the project/PoA correctly applied the level of usage and associated monitoring requirements in accordance with the claimable usage rates?	
		c. In case the project/PoA applies a different level of usage as compared to the registered PDD, have the monitoring requirements from the levels below been followed?	
	2.2 Mandatory Monitoring Requirement	a. Has the project/PoA defined project technology "use" and "non-use" (Step 1) and documented the criteria applied for defining them in the PDD(s)?	
		b. Is the project's definition of "use" and "nonuse" correct and their documentation of the criteria applied for defining this done correctly?	
s	c. Has the project/PoA correctly identified criteria to define use and non use considering the representative cooking practices and likely project technology use?		

	d. Has the project developer carried out in-person household usage surveys (Step 2) by: <ul style="list-style-type: none"> i. Determining the minimum sample size for the survey as per the methodology requirements? ii. Performing the following monitoring activities, at minimum, as per the requirements of this Annex: Kitchen observation, interview of the primary cook, taken photos of the cooking areas and recorded the GPS coordinates of the household? 	
	e. Has the project developer performed the verification checks (Step 3) prior to the verification by the VVB?	
	f. Has the project developer kept a record of the verification checks containing the details of households and their responses?	
	g. Does the evidence establish a clear relationship between the usage claimed by the project and observations made during the in-person household surveys?	
	a. Has the project/PoA successfully met all the mandatory usage rate requirements?	
	b. Is the project/PoA eligible to apply the good practice monitoring requirements?	
2.3 Good Practice Monitoring Requirements for Improved cooking devices (if applicable)	c. Has the project developer carried out the following monitoring activities as per the relevant requirements: <ul style="list-style-type: none"> i. Field team training and supervision ii. End-user training and follow-up visits? Awareness campaign? 	
	d. Has the project developer provided evidence for trainings, follow up site visits, awareness campaign?	
	e. In VVB’s opinion, <ul style="list-style-type: none"> i. Can the effectiveness of the trainings, follow up site visits and awareness campaigns be confirmed? ii. Should project developer make changes in registered trainings, site visits and awareness campaigns to enhance the effectiveness? 	
	a. Has the project/VPA successfully met all the mandatory & good practice usage rate requirements?	
	b. Is the project/PoA eligible to apply the best practice monitoring requirements?	

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<p>2.4 Best Practice Monitoring Requirements</p>	<p>c. Has the project developer carried out stove use monitoring activities as per the relevant requirements?</p>	
	<p>d. Has the project developer correctly calculated the stove use based on the stove use monitoring?</p>	
<p>3. Determination of Usage Rate ($U_{p,y}$)</p>	<p>a. Has the project developer applied the applicable cap at individual age-group?</p>	
	<p>b. Has the project developer appropriately applied the weighted-average usage rate quantification approach to each monitored project technology age group?</p>	