Carbon Market Watch Submission A6.4-MEP013-A02

Carbon Market Watch welcomes the opportunity to submit input to the Draft Methodology: Energy Efficiency Measures in Household Cooking (Version 01.0). Committed to ensuring this new mechanism methodology is grounded in robust science and avoids the pitfalls of its predecessors, we commissioned a detailed technical analysis of the proposed draft to researchers Annelise Gill-Wiehl and Barbara Haya, whose extensive expertise in cookstove carbon crediting is globally recognised. Our submission below synthesises their critical findings with Carbon Market Watch's own recommendations to advocate for a methodology that truly delivers on the high-integrity promise of Article 6.4.

Introduction to the methodology

This draft methodology emerges in the context of the Methodological Expert Panel's (MEP) ongoing revision of CDM methodologies AMS-II.G and AMS-I.E, integrating the proposed PMM004 (CLEAR) methodology. Following the public consultation of the CLEAR methodology last year, the MEP now aims to establish streamlined procedures for improved cookstove distribution in rural areas, ensuring alignment with Article 6.4 standards. This draft mechanism methodology is based on the CDM methodology AMS-II.G, while also incorporating components of the proposed CLEAR methodology (where relevant for AMS-II.G).

The CDM small-scale methodology AMS-II.G has faced substantial criticism for enabling systematic over-crediting in cookstove carbon crediting projects. According to our report "Recipe for Greenwashing" of April 2025, the methodology's reliance on unverified and aggressive assumptions - particularly those related to fNRB values, baseline & project fuel wood consumption, usage, adoption, and stacking values - allowed project developers to inflate emission reduction claims without appropriate robust monitoring.

In February 2025, the ICVCM rejected this popular cookstoves methodology on similar grounds, finding them "insufficiently rigorous" for the Core Carbon principles label (as a comparison, other cookstoves methodologies were conditionally approved

if they were to apply marginal changes, but this was apparently not an option for AMS-II.G). As of May 2026, almost 37 million cookstoves credits were generated on the VCM using this flawed methodology.

In March 2025, we wrote "The implications go beyond day-to-day carbon trading. The ICVCM's credibility also affects the perception of Article 6 of the Paris Agreement. Notably, the first ever credits to be issued under the Paris Agreement Crediting Mechanism, supposedly a high-quality benchmark mechanism for international carbon credits, will be from an AMS-II.G project that would fail to meet the CCP label standard." We found that this project was likely over-crediting by a factor of 26 times, based on analysis CMW conducted last year and which might have been subject to changes in the meantime.

For this reason, it is critically important that this revised methodology gets it right. As the PACM is intended to establish a new global norm for high-integrity carbon crediting, it must decisively wash away the legacy of over-crediting associated with the CDM era. Any breach of the principles of ambition and conservativeness in this draft would not only perpetuate the past flaws but also directly undermine the integrity of the PACM itself. Given that the PACM is designed to be a benchmark for international cooperation under Article 6, the choices made for cookstoves crediting in their entirety – including the draft methodological tool for fNRB – will determine whether the mechanism can restore legitimacy or is repeating errors that have plagued previous market systems.

Technical input

Overall, the draft demonstrates tangible progress compared to the legacy AMS-II.G methodology. For instance, the requirement of Kitchen Performance Tests (i.e., actually weighing fuel in participant's homes), the introduction of overall stricter sampling protocols, the explicit accounting for the Hawthorne effect, and the geographic restriction to rural areas are all especially welcome safeguards. However, three critical flaws remain that threaten to perpetuate the risk of over-crediting which the PACM was designed to eliminate:

The fraction of non-renewable biomass (fNRB)

The methodology permits the use of the revised fNRB tool, despite the fact that its public consultation only closed recently on May 6th, and its robustness is uncertain. As we flagged in our submission to the fNRB tool, the tool draws on the robust Ghilardi & Bailis 2024 MoFuSS model, but selectively deviates from these conservative national values: 46 out of 72 national values are inflated relative to the MoFuSS data without justification. In fact, they are transposed from the outdated CDM TOOL33, which was meant to be revised and which was one centerpiece in a wave of criticism about CDM cookstoves procedures.

Since higher fNRB values directly increase credit issuance, this current approach undermines the principle of conservativeness. We strongly recommend that the fNRB tool or the revised AMS-II.G methodology adopt the Ghilardi & Bailis 2024 values exclusively. The fNRB default values must be updated with an appropriate frequency; in sync with the development of improved MoFuSS values. Furthermore, in the absence of MoFuSS data, we recommend giving project participants the option to apply a 30% default value. This reflects a cautious global average, but should only be used in case no MoFuSS value is available for a regional context, avoiding cherry-picking high fNRB values from various sources.

Arbitrary 'Usage' figure

Usage is defined as the frequency of operation of stoves, and is distinct from adoption, which typically measures whether a stove is used at all or operational in general among households in a certain timespan. This draft methodology, as many do, refers to usage as "using the stove at least once per week" which is more similar to the literature's definition of adoption. Current literature indicates household stove adoption and usage rates hovers around 50% to 75% (Gill-Wiehl et al., 2024; Gould, 2026). However, the draft allows projects to claim usage rates as high as 90% without any stove use monitors (SUMs), based solely on the existence of "customer support" mechanisms, such as the distribution of flyers with hotline numbers, and consequently the surveying of a statistically dubious sample). This creates a perverse incentive where minimal administrative efforts justify maximal credit generation.

Survey-based reporting is fundamentally flawed due to social desirability bias, where recipients of free or subsidised stoves are prone to overreporting usage when asked once-off if they have used the stove at all by the organisation who provided the stove. In the draft methodology, there is currently no incentive to deploy physical monitoring to determine adoption rates, which is the only way to capture real-time usage data. We strongly recommend that survey-only methods be disallowed, or if permitted, they must be subject to a conservative cap of 50%, and robust SUM deployment must be incentivised as the norm.

Insufficient frequency of Kitchen performance tests

Kitchen Performance Tests (KPTs) are assessments in which the thermal efficiency of cookstoves as well as fuel consumption are measured, with both indicators directly influencing the amount of credits issued. While introducing KPTs into the revised methodology is an improvement, conducting them biennially is inappropriate for a mechanism claiming high integrity. As the primary source for determining thermal efficiency and fuel consumption, KPTs must capture the reality of stove degradation and seasonal variety. Given that stove efficiency declines over the years, a two-year gap creates a significant window for over-crediting. We recommend mandating annual KPTs, ideally conducted quarterly as proposed by Gill-Wiehl and Haya to account for seasonal fuel patterns.

Other points to raise

For the uncertainty analysis, the MEP asks for stakeholder input regarding the two proposed approaches: error propagation or a Monte Carlo analysis. In line with Gill-Wiehl and Haya, we recommend not pursuing either of these time- and investment-intense options because they take resources and the project participant's effort away from investing into stove monitoring, more frequent KPTs and other more sensible options for project development. Alternatively, and parallel to increasing stove monitoring and KPT requirements, projects could be mandated to work with either a deduction from the total issued credits that accounts for uncertainty, or with the lower-bound estimates of the 95/10 uncertainty analysis.

The draft methodology introduces a provision for non-permanence risk to address a historical gap in cookstoves methodologies' treatment of biomass. While we support the introduction of a provision to account for non-permanence risk, which is mostly unaccounted for in other cookstove methodologies on the voluntary carbon market, we remain skeptical of

buffer pools as effective safeguards against non-permanence due for example to inadequate buffer pool contributions tied to underestimated risk assessments – widespread among REDD+ projects (though not limited to this project type) – which can lead to undercapitalisation. Given that the reversal risk assessment tool is currently under development, we urge that the final reversal risk tool takes precedence over this methodology's provision if it establishes a more ambitious or rigorous approach for managing reversal risks.

Submission template (ready to fill)

Section no. (as indicated in the document)	Paragraph/ Table/ Figure no. (as indicated in the document)	Comment (including justification for change)	Proposed change (including proposed text)
	General	Committed to ensuring this new mechanism methodology is grounded in robust science and avoids the pitfalls of its predecessors, we commissioned a detailed technical analysis of the proposed draft to researchers Annelise Gill-Wiehl and Barbara Haya, whose extensive expertise in cookstove carbon crediting is globally recognised. Our submission below	We trust that the MEP will treat the submission by Barbara Haya and Annelise Gill-Wiehl with the gravity it, being a science-based assessment, deserves and integrate its recommendations into the framework.

		synthesises their critical findings (which will be submitted separately) with Carbon Market Watch's own recommendations to advocate for a methodology that truly delivers on the high-integrity promise of Article 6.4.	
Section 15	Data/Parameter Table 10 (fNRB)	The methodology permits the use of the revised fNRB tool, despite the fact that its public consultation only closed recently on May 6th, and its robustness is uncertain. As we flagged in our submission to the fNRB tool, the tool draws on the robust Ghilardi & Bailis 2024 MoFuSS model, but selectively deviates from these conservative national values: 46 out of 72 national values are inflated relative to the MoFuSS data without justification. In fact, they are transposed from the outdated CDM TOOL33, which was meant to be revised and which was one centerpiece in a wave of criticism about CDM cookstoves procedures.	Since higher fNRB values directly increase credit issuance, this current approach undermines the principle of conservativeness. We strongly recommend that the fNRB tool or the revised AMS-II.G methodology adopt the Ghilardi & Bailis 2024 values exclusively. The fNRB default values must be updated with an appropriate frequency; in sync with the development of improved MoFuSS values. Furthermore, in the absence of MoFuSS data, we recommend giving project participants the option to apply a 30% default value. This reflects a cautious global average, but should only be used in case no MoFuSS value is available for a regional context, avoiding cherry-picking high fNRB values from various sources.
Section 7.4.1	Para. 62-64 (usage caps, Option 1)	Usage is defined as the frequency of operation of stoves, and is distinct from adoption, which typically measures whether a stove is used at all or operational in general among households in	Survey-based reporting is fundamentally flawed due to social desirability bias, where recipients of free or subsidised stoves are prone to overreporting usage when asked once-off if they

		a certain timespan. This draft methodology, as many do, refers to usage as "using the stove at least once per week" which is more similar to the literature's definition of adoption. Current literature indicates household stove adoption and usage rates hovers around 50% to 75% (Gill-Wiehl et al., 2024; Gould, 2026). However, the draft allows projects to claim usage rates as high as 90% without any stove use monitors (SUMs), based solely on the existence of "customer support" mechanisms, such as the distribution of flyers with hotline numbers, and consequently the surveying of a statistically dubious sample). This creates a perverse incentive where minimal administrative efforts justify maximal credit generation.	have used the stove at all by the organisation who provided the stove. In the draft methodology, there is currently no incentive to deploy physical monitoring to determine adoption rates, which is the only way to capture real-time usage data. We strongly recommend that survey-only methods be disallowed, or if permitted, they must be subject to a conservative cap of 50%, and robust SUM deployment must be incentivised as the norm.
Section 14 (Monitoring)	Table 5 / Para. 112	Kitchen Performance Tests (KPTs) are assessments in which the thermal efficiency of cookstoves as well as fuel consumption are measured, with both indicators directly influencing the amount of credits issued. While introducing KPTs into the revised methodology is an improvement, conducting them biennially is inappropriate for a mechanism claiming high integrity. As the primary source for determining	We recommend mandating annual KPTs, ideally conducted quarterly as proposed by Gill-Wiehl and Haya to account for seasonal fuel patterns.

		thermal efficiency and fuel consumption, KPTs must capture the reality of stove degradation and seasonal variety. Given that stove efficiency declines over the years, a two-year gap creates a significant window for over-crediting.	
Section 11 (Uncertainty)	Para. 48 (Cover Note) / Para. 105	The MEP asks for stakeholder input regarding the two proposed approaches: error propagation or a Monte Carlo analysis.	In line with Gill-Wiehl and Haya, we recommend not pursuing either of these time- and investment-intense options because they take resources and the project participant's effort away from investing into stove monitoring, more frequent KPTs and other more sensible options for project development. Alternatively, and parallel to increasing stove monitoring and KPT requirements, projects could be mandated to work with either a deduction from the total issued credits that accounts for uncertainty, or with the lower-bound estimates of the 95/10 uncertainty analysis.
Section 10 (Non-Permanence)	Para. 44 / Section 10.2	The draft methodology introduces a provision for non-permanence risk to address a historical gap in cookstoves methodologies' treatment of biomass. While we support the introduction of a provision to account for non-permanence risk, which is mostly unaccounted for in other cookstove methodologies on the voluntary	Given that the reversal risk assessment tool is currently under development, we urge that the final reversal risk tool takes precedence over this methodology's provision if it establishes a more ambitious or rigorous approach for managing reversal risks.

		carbon market, we remain skeptical of buffer pools as effective safeguards against non-permanence due for example to inadequate buffer pool contributions tied to underestimated risk assessments – widespread among REDD+ projects (though not limited to this project type) – which can lead to undercapitalisation.	
	General	As stated above, CMW commissioned an analysis of this draft methodology by Barbara Haya and Annelise Gill-Wiehl.	We trust that the MEP will treat the submission by Barbara Haya and Annelise Gill-Wiehl with the gravity it, being a science-based assessment, deserves and integrate its recommendations into the framework.