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Date of submission	21/08/2026

Document reference number and title: (Recommendation from the MEP to SBM020) **Draft mechanism methodology: Cooking energy transition**				
Item	**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)

1	Cover note	Overall	I would like to thank everyone involved in this draft methodology, Cooking energy transitions (A6.4-MEP0150A01). I appreciate the work required to update this methodology and the additional conservative decisions from other versions of CLEAR. I applaud the requirement of stove use monitors (starting in 2028), the inclusion of LPG, metering or project KPTs, the Hawthorne adjustment, the 5:1 charcoal: firewood conversion, and the specific requirements for deploying improved biomass stoves (e.g., firewood stoves only in rural areas). Further, I am pleased to see stricter sampling requirements and discussion of overlapping claims. Other conservative elements of the methodology include (1) the baseline downward adjustment as annual clean stove adoption is often less than 1% and (2) the 5:1 charcoal-firewood conversion. However, four core issues remain that will likely lead to over-crediting: (1) fraction of non-renewable biomass, (2) usage rates without SUM requirements (until 2028), (3) frequency of KPTs, and (4) sampling requirements. These are the major concerns that would outweigh any under-crediting from the points above. I believe these aspects should be highlighted and addressed before this methodology can be adopted. We underline the four most important changes needed to avoid over-crediting and highlight them below. Ghilardi & Bailis in 2024 provided updated fNRB estimates from the most robust dynamic landscape model available to date, MoFuSS. This methodology allows for the use of the UNFCCC fNRB Tool currently under revision. The current proposed fNRB tool is based “in substantial part” off Ghilardi & Bailis’ 2024 estimates, but includes fNRB values that are higher than Ghilardi & Bailis 2024 for 46 out of 72 national values (i.e., less conservative) without providing explanation for the divergence. This will continue to lead to over-crediting. We recommend that Ghilardi & Bailis (2024) values be used, with the option of choosing a default 30% rate if the country or territory is not covered within Ghilardi & Bailis (2024). Until 2028, there is no incentive to monitor stove use via stove use monitors. Metering project stove usage is the most	N/A

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			objective unobtrusive method, but not every stove can be metered (e.g., improved stoves and/or the baseline stove). In that case, kitchen performance tests (KPTs) and SUMs must be required immediately or have conservative usage caps. KPTs and SUMs are needed as KPTs are only conducted on a sample of participants to obtain fuel consumption values and then are applied to the entire active customer base. SUMs are needed to establish the usage rate. That is, KPTs give fuel consumption when the project stove is used, while SUMs tell us whether the project/baseline stove is used. Survey methods are problematic to determine project cookstove adoption and usage due to well established biases (Gill-Wiehl et al. 2024 and the article webpage which summarizes this literature). Participants who have been given a free or subsidized stove are likely to claim to use it when asked on a one time basis. Literature shows that on average adoption rates hover around 58-75% (percent that use the stove at all) and usage rates hover around 52-55% (percent they use the project stove for cooking) within research studies (Gill-Wiehl et al. 2024; Gould 2026). Research studies triangulate between multiple rigorous methods and often longitudinal follow-up with participants to determine their estimates and still find issues with survey based reporting. Further, research studies may represent the higher end of adoption/usage as studies have multiple touch points with participants that increase the likelihood of social desirability to increase project stove usage. We appreciate that projects may need time to order and implement SUMs, but then implementing stricter usage caps even with “customer support” must be implemented in the meantime.	

2	Cover note	Overall	The methodology allows projects to claim up to 90% usage without stove use monitors on a sample (let alone universal monitoring), as long as there is some form of "customer support." That is, if I am a stove company I can hand out a flyer in the local language with a number to call with the stove, survey a sample of the customers, and claim up to 90% usage. With no flyer attached, I can claim up to 58% usage (Gill-Wiehl et al. 2024; Gould 2026). We appreciate that the 58% is aligned with literature, but allowing projects to implement minimal customer support and 90% usage is not aligned with best practice. We note that until 2028 over-crediting will continue from survey-based usage rates without SUM requirements. While the requirement for KPTs for non-metered stoves is best practice, allowing them to only be conducted every two years is not high quality monitoring. To avoid over-crediting, KPTs should be required quarterly to ensure seasonality is captured. Projects that meter the project fuel consumption are being held to this standard under some buyers. Non-metered projects should as well. This is the only form of establishing project scenario fuel consumption without metering and thus project emissions. This methodology requires 100% metering for clean stoves (fuel switching), but then is inconsistent in applying that standard to all project stoves. If the MEP deems 100% coverage is necessary for project stoves, then all pathways under the methodology should be of equal quality. As it stands, metered stoves would be producing a much higher quality offset than those from improved stoves (improved efficiency without fuel switching). Even when SUMs are used, they only tell you temperature and time. The idea that fuel consumption in the project stove will remain constant for two years is not supported by the literature. Survey, KPT, and even SUM based methods are further troubling when based on a limited sample. While I applaud the change to 95/10 (compared to 90/10) for sample size determination, sample size calculations are based in large part on assuming the distribution is normal and what the project expects the usage rate to be in the population and in the selected sample. Thus, sample sizes are only as	N/A

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			rigorous as the assumptions made and the data you base the calculation on. For instance, even under 95/5 (i.e., more stringent than 95/10), a 50,000 stove project may only need to survey 200 customers if they expect to have high usage rates in the population and sample. The limitations in survey methods often leads to finding high usage, whether because of limitations in the tool, social desirability bias or recall bias. Thus, even though the sample size selection standard has been increased to 95/10, it still does not necessarily produce robust sampling that truly reflects the population. Strict minimum sample sizes for large cookstove projects (i.e., at least 2000 or 5% of the fleet (Wilson 2024)) should be enforced. I provide comments for sections where further refinement is necessary:	
3	Cover note	Para. 23	Applaud that the presence of government subsidies or public support schemes for clean cooking does not automatically render an Article 6.4 activity ineligible, and instead triggers the Comprehensive (Option 2) additionality demonstration. This appropriately recognizes that subsidies are frequently insufficient to drive adoption on their own.	No change proposed. Commend this design choice.
4	7. Baseline scenario	Para. 29 (Cover Note) / Paras. 114-117	Until the 1 January 2028 transition to mandatory SUMs, survey-only usage determinations may claim up to 90% usage (with minimal "customer support" – a flyer in the local language plus a toll-free number) or 58% without it. The 90% cap with customer support remains too permissive and does not create a strong enough incentive to adopt SUMs early. Literature-based usage rates average 52-55% (Gill-Wiehl et al. 2024; Gould 2026), so a 90% cap for minimal customer support is not conservative.	Lower the default survey-only cap to 58% regardless of customer support actions, consistent with the literature. This is a high priority recommendation.

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5	7. Baseline scenario	Section 7.5.1.1 (Uncertainty)	Requiring error propagation or Monte Carlo simulation to determine the initial downward adjustment based on uncertainty is a welcome advance of this methodology. All of these calculations have uncertainty and it is also worthwhile to ensure we are not pursuing multiple conservative choices and being unduly conservative. However, it is likely to be very difficult for most project developers to implement without specialist academic support. Any uncertainty analysis must be done at the level of the methodology or PACM. Selecting appropriate probability distributions and conducting error propagation is technically demanding even for researchers, particularly given how uncertain, potentially correlated, and non-normally distributed many of the underlying parameters are. If project developers are responsible, this risks becoming either a rubber-stamp exercise or a barrier to entry for smaller project proponents. It is not clear to me given the current language whether the Monte Carlo is conducted by the MEP or the project. It seems to be the project: "Activity participants shall document the uncertainties assigned to each parameter, specify assumptions made, and include any associated references for estimating the uncertainties of parameters in the PDD or CP-DD. This documentation and the derivation of the overall uncertainty through error propagation or Monte Carlo simulation methods, shall be provided together with the PDD or CP-DD (e.g., in a spreadsheet)." Or :Activity participants shall consider uncertainty in all parameters used to calculate the baseline energy consumption, following the guidance in Volume 1, Chapter 3 of the 2019 Refinement to the IPCC Guidelines through the error propagation method or Monte Carlo simulation." These seem to imply the projects would be conducting the uncertainty analysis.	The Monte Carlo simulation should be retained but conducted by the MEP rather than at the project level.

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6	Cover note	Para. 33 (Cover Note)	The 1% annual downward adjustment is an improvement over earlier, higher default rates, but may still be arbitrary in either direction: research (e.g., Stoner et al. 2021) shows that in many target countries autonomous adoption of improved cookstoves is well below 1% per year, in some cases below 0.1%, meaning a flat 1% deduction can over-penalize activities in slow-changing contexts while under-penalizing others.	Consider a country- or region-specific downward adjustment rate derived from evidence on clean cookstove adoption trends (e.g., Stoner et al. 2021) rather than a single fixed default, or retain 1% only as a floor/default where no better evidence exists.
7	Cover note	Para. 38 (Cover Note)	Applaud the two-tier Hawthorne effect approach: a conservative 75 per cent cap where only KPTs and usage surveys are used, and an activity-specific adjustment factor where SUMs are used to bracket the KPT period.	No change proposed. Commend this design choice. This is a high priority recommendation.
8	Cover note	Para. 42 (Cover Note)	Applaud the update to a 5:1 wood-to-charcoal conversion ratio for upstream emission factors (for activities demonstrating the charcoal is artisanal). This aligns with the Floess et al. estimate (~5:1) and the CLEAR methodology review recommendation, addressing the concern I raised previously that a 4:1 ratio understated upstream charcoal emissions.	No change proposed. Commend this design choice. This is a high priority recommendation.
9	3. Normative and informative references	Para. 43 (Cover Note)	Support retaining the current leakage treatment, including the 5 per cent leakage deduction and the finding that reductions in biomass consumption are not expected to cause significant market leakage through increased consumption by neighbouring households. We do not yet have evidence for urban contexts and our own results may be vulnerable to confounding, so a conservative deduction remains appropriate.	Support keeping the 5 per cent leakage deduction.
10	-	Para 44. (Cover Note)	Applaud that cookstove projects are not held responsible for the GHG reservoirs as the methodology rightly points out the activities do not have control over the reservoir.	No change proposed. Commend this design choice.

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11	Cover note	Para 45 (Cover Note)	My thinking on this has changed after a conversation with some members of the MEP and Rob Bailis. There is a risk of reversal, and I appreciate the contribution to a buffer pool. I think perhaps it is not necessary to account for that risk because of the conservative nature of fNRB from MoFuSS. That being said, there is definitely a scientific basis for reversal risk and accounting from non-permanence.	No change proposed.
12	2. Definitions	Para. 7(i) / Question 1 (Gasifier stoves)	Gasifier stoves should be included – they are more fuel-efficient and better for health than improved charcoal stoves, which are already permitted under this methodology, so excluding gasifiers while allowing improved charcoal is inconsistent. Safety and tar-management concerns are legitimate but should be addressed through performance tiers rather than exclusion.	Include gasifier stoves, but limit eligibility to gasifier models that meet at least Tier 5 for CO and Tier 4 for PM2.5 under ISO standards to address the safety and health concerns raised in Question 1. This is a high priority recommendation.
13	4. Applicability	Paragraph 11	I very strongly recommend making both gasifier stoves and LPG stoves eligible. See comment 9 below justifying the inclusion of gasifier stoves. Removing LPG as an eligible stove type under this methodology limits access to clean energy for individuals in low and middle income settings. LPG transitions from firewood and charcoal have net climate benefits ((Floess et al. 2023)), and the IEA includes LPG in its 2050 NetZero plan for meeting cooking demand in LMICs (International Energy Agency (IEA) 2021). This is an opportunity to enable carbon markets to fund clean cooking solutions for populations who otherwise lack economic access to them. Most importantly – LPG is the only other stove type besides electricity shown to consistently reduce personal exposures in field settings to levels that reduce the risk of disease. Removing LPG would further strip the methodologies ability to impact poor women's health at all.	Take out the brackets around "[including gasifier stoves]" and "[or liquefied petroleum gas (LPG) cookstoves]" so these stoves are eligible for crediting. This is a high priority recommendation.

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14	4. Applicability	Para. 11(a-b)(ii)	Applaud the guidance of where which stoves should be implemented. However, it is not clear how activity participants will confirm the absence of LPG distribution networks in practice. In refilling contexts, this is easier; however, under the cylinder recirculation model, LPG dealers can pop up and are hard to track/confirm. Further, it is not clear to me why paragraph a and b are needed – rather than only paragraph a. Improved charcoal should also be only deployed in settings without clean fuels such as LPG and electricity.	Retain the threshold but specify the evidence activity participants must provide to demonstrate the absence of LPG distribution networks. This is a high priority recommendation.
15	4. Applicability	Para. 11(d)(i)-(iii)	Individuals that have access to electricity still use polluting fuels, as do those living in cities with high rates of LPG use (e.g., Accra). The carbon market should still be used to help expand access to cheaper clean fuel for the remaining households, rather than treating any LPG/electricity presence as disqualifying. Further, (iii) is inconsistent with the reality of electricity access in LMICs. There are many places across SSA that may have 12 hrs of electricity access but do not have grids with capacity for cooking. First, I have lived in areas of Tanzania that have 12 hrs of electricity between the hours of 7pm and 7am. This is not uncommon. These hours are not practical for cooking demand. Second, grids are not prepared to handle widespread electric cooking.	Remove these conditions. LPG stoves should always be eligible. This is a high priority recommendation.
16	4. Applicability	Para. 11(d)(iv)-(v)	I understand the intent of conditions (iv) and (v) – avoiding LPG infrastructure or production being built solely to serve carbon-financed cooking – but I think this risk is currently very distant given the scale of most cookstove activities. I would rather see the carbon market help expand LPG (an undeniably low carbon fuel) into lower-income communities, which is exactly the kind of outcome the Article 6.4 mechanism should support. Poor households are tired of poor solutions.	Remove conditions (iv) and (v), or narrow them to restrict new LPG production capacity specifically, while still allowing carbon finance to support expansion of LPG distribution infrastructure to underserved communities.

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17	5. Activity Boundary	Paras. 22-23	Applaud the multi-national, sub-national, and national hierarchy for determining the fNRB geographical boundary for charcoal and fuelwood. The fNRB tool referenced (A6.4-AMT-XXX) is still under development. It is noted that the current CDM Tool 33 made changes that were largely opaque and moved towards higher fNRB values (less conservative). The 2024 Ghilardi & Bailis study provides updated and more geographically granular fNRB estimates and should be incorporated as a key reference in the forthcoming Article 6.4 fNRB tool.	Ensure the A6.4 fNRB tool explicitly uses the Ghilardi & Bailis 2024 values. This is one of the most important changes needed to avoid over-crediting. If a country does not have an estimate in Ghilardi & Bailis 2024, then allow the 30% default or regional default to be implemented. This is a high priority recommendation.
18	6. Demonstration of additionality	-	Household energy projects involve technology adoption across many households and the main decisions that reduce emissions are at the household level; yet, additionality is handled at the project level like a large infrastructure project. Additionality should instead be handled at the household level. More objective metrics for additionality can help ensure blanket statements based on a small number of projects do not end up excluding additional projects and including non-additional ones.	Handle additionality at the household level. In a comprehensive review of methods used to assess additionality of household energy offset projects, we lay out a framework for assessing the additionality of household energy projects. We'd be happy to share a draft. The article was just sent out for review.
19	Cover note	Para. 40 (Cover Note) / Para. 40(b)	The poverty thresholds (national/sub-national poverty index, MPI ≥ 0.20, or World Bank income line) may be too restrictive as the sole additionality gate. Even households above these thresholds frequently use polluting fuels because clean fuels are unaffordable across a much wider income range. In Ghana, for example, we find that households up to the 40th percentile are spending over 5 per cent of expenditure on cooking fuel. Were households to switch to LPG/electricity and use 2MJ-delivered/capita-day, the bottom 20th percentile would spend well over 5 per cent of their expenditure (Gill-Wiehl et al. 2026, in review at Energy Policy).	Supplement the poverty criteria with a demonstrated affordability/market-failure criterion (e.g., clean fuel expenditure share, or absence of reliable clean fuel distribution) rather than relying on poverty indices or income thresholds alone.

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20	6. Demonstration of additionality	-	I recommend a 70 per cent common practice threshold for similar technologies, rather than a lower value. Over 50 per cent already meets the standard definition of common practice, and research indicates social influence is unlikely to meaningfully affect cookstove adoption1.	Set the common practice threshold (F) at 70 per cent for both urban and non-urban households, rather than leaving [X]/[Y] undefined or set lower.
21	7. Baseline scenario	Para. 89 / Table 3	The caps equate to approximately 12.9 MJ-delivered/capita/day (rural, flag 6.3) and 8.1 MJ-delivered/capita/day (urban/peri-urban, flag 4.1). These are notably higher than our suggested (~2-4 MJ-delivered/capita/day).	Make the flags the caps. This would still be generous for unique conditions. This is a high priority recommendation.
22	14. Monitoring requirements	Para. 202	Survey, KPT, and even SUM based methods are further troubling when based on a limited sample. While I applaud the change to 95/10 (compared to 90/10) for sample size determination, sample size calculations are based in large part on assuming the distribution is normal and what the project expects the usage rate to be in the population and in the selected sample. Thus, sample sizes are only as rigorous as the assumptions made and the data you base the calculation on. For instance, even under 95/5 (i.e., more stringent than 95/10), a 50,000 stove project may only need to survey 200 customers if they expect to have high usage rates in the population and sample. The limitations in survey methods often leads to finding high usage, whether because of limitations in the tool, social desirability bias or recall bias. Thus, even though the sample size selection standard has been increased to 95/10, it still does not necessarily produce robust sampling that truly reflects the population. Strict minimum sample sizes for large cookstove projects (i.e., at least 2000 or 5% of the fleet (Wilson 2024)) should be enforced.	Strict minimum sample sizes for large cookstove projects (i.e., at least 2000 or 5% of the fleet (Wilson 2024)) should be enforced.
23	Appendix 5. Requirements and best practices for kitchen…	Para 5	Paragraph 5 states that data collection “shall” be independent, but then says “at a minimum,” creating some ambiguity about which elements are mandatory versus best practice.	Clarify that surveyors must be third party.

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24	Appendix 5. Requirements and best practices for kitchen…	Para 12	Minor drafting/grammar corrections are needed in this paragraph	Proofread para. 12 against the clean source file and correct any typographical errors.
25	Appendix 6. Requirements and best practices for use of stove…	Para. 196	Same comment as on A6.4-MEP013-A02: requiring KPTs only every two years, within the last four months of the monitoring period, does not capture seasonal variation in fuel consumption and is not high-quality monitoring. This is one of the most important changes needed to avoid over-crediting. Same comment as on A6.4-MEP013-A02 (Appendix 5, para. 9): the fuel-provision guidance appropriately raises legitimate concerns about measurement bias. However, the proposed alternative of excluding households that cannot collect and store a full day's fuel in advance may itself bias the sample toward wealthier or better-resourced households.	Increase KPT frequency to at least annually, and require that KPTs are conducted seasonally (e.g., if 100 KPTs are required, conduct 25 every three months) rather than clustered within a four-month window. On fuel provision, a cleaner approach would be to use the weight-addition method (recording the weight of fuel added to the cookstove directly) rather than household fuel storage as the measurement basis, which avoids both provision bias and sample exclusion. This approach is well-established in KPT methodology and avoids the behavioural distortions associated with external fuel provision. Putting citations here: References Beltramo, T., Blalock, G., Levine, D. I. & Simons, A. M. Does peer use influence adoption of efficient cookstoves? Evidence from a randomized controlled trial in Uganda. Journal of Health Communication 20, 55–66 (2015). de Janvry & Sadoulet 2021, Development Economics, Theory & Practice, 2nd Edition. Ghilardi & Bailis (2024). Updated fNRB Values for Woodfuel Interventions. Gill-Wiehl et al. 2024. Pervasive over-crediting from cookstove carbon offset methodologies. https://www.nature.com/articles/s41893-023-01259-6 Gill-Wiehl, A., Kar, A., Lambon-Quayefio, M. & Jack, D. Fuel Full of Doubt/Transition Full of Promise: Documenting Energy Poverty in Accra, Ghana. 2026. Gould 2026. Aligning science, rulemaking, and practice to strengthen carbon crediting. https://doi.org/10.31223/X5PH96 Stoner et al. 2021. Household cooking fuel estimates at global and country level for 1990 to 2030. https://www.nature.com/articles/s41467-021-26036-x Wilson 2024. https://carbon.geocene.com/carbon/sums/2024/03/28/how-many-sums