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CDM Executive Board
c/o UNFCCC Secretariat
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Subject: Response to the EB call for public inputs at its 53rd meeting regarding small-scale energy efficient lighting and solar water heating methodologies.

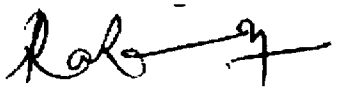
Honorable Members of the CDM Executive Board,

We welcome the opportunity to provide our inputs to the proposed modifications to the approved small scale methodologies for energy efficient residential lighting and the draft methodologies for energy efficient exterior lighting and domestic solar water heating (SDWH) system.

With reference to the paragraph 9 (b)-(d) of the simplified modalities and procedures for small-scale projects[1], it is critical that the SSC-WG, in creation and modification of any methodologies, ensures that "9(c) Baseline methodologies by project category are simplified to reduce the cost of developing a project baseline" and "9(d) Monitoring plans are simplified, including simplified monitoring requirements, to reduce monitoring costs". Pursuit of the perceived highest level of accuracy through complex measurement, imposition of standards and independent testing requirements can result in high costs of monitoring for project proponents. With the flexibility provided by the COP/MOP and the EB, we urge the SSC-WG to explore and adopt simplified approaches to adjust emission reductions based on the realistic levels of accuracy and uncertainty that projects can achieve in developing country environment.

We will be glad to provide any further information and clarifications as necessary.

With kind regards,



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[1] http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=43

I. Updating Small Scale Energy Efficiency Lighting Methodologies and New Exterior Lighting Methodology. Questions for public comments

Exterior Lighting Methodology

1. Does the methodology represent appropriate emissions calculation and monitoring approaches for small scale-scale methodologies including compliance with CDM modalities and procedures and requirements for determining the amount of real, additional, measurable and verifiable reductions in greenhouse gas emissions associated with exterior lighting systems.

The methodology, as proposed is complex and restrictive. Please find below general inputs on the methodology.

- It is important to include Greenfield activities and installation of light controls and other such efficient measures to allow development of projects in newly electrified areas or for expansion of street-lighting and security lighting to new parts of urban areas. Baseline for Greenfield projects can be established as business-as-usual scenario i) using national/local data, survey, etc; ii) using comparison of prices and technical specification of available technologies or recent purchases by the project entity (e.g. municipalities, corporations).

- Design based approach for Greenfield activities should be allowed in the methodology. Under this, the project developer uses the kW/km of lighting load in the project scenario and compares with the kW/km for similar kind of roads in the city or the region for the baseline scenario.

- The extensive requirement of adherence to national or international standards for illumination levels, testing and rating should be relaxed as it is not available or practical in most countries.

- We also suggest that the SSC-WG to look into relevance and applicability of present rated life determination approach used for CFLs, for the street lighting, as these are completely different technologies.

- The estimation of operating hours is not clear and should allow for alternative approaches such as the use of values from the baseline log-sheets maintained by the project entities or operators of the baseline equipment. It is also not clear on how to estimate the operating hours in absence of any of the controls (timers, sensors) mentioned in the methodology.

- It is also not clear if any municipality or corporation has energy meters installed for each lighting circuit and should this be considered for calculation of energy savings.

- For these technologies, Luminaire Failure Rate (LFR) should not be applied. The methodology could require continuous replacement of luminaires of the same

technical specifications as the initial installations, as this is closer to the common practice for the application of this technology. There are several inconsistencies in the methodology, particularly in the monitoring section, which includes, Para 16 (a) point 1 - recording of luminaire distribution data, and para 16 (a) point 3 - which refers to the "recipient of equipment", both of which imply a distribution mechanism similar to CFLs, whereas typically these projects will involve direct installation.

2. Are the project definition and applicability conditions appropriate? Is it appropriate for the methodology to be applicable to be both street lighting and other exterior lighting applications, such as building outdoor security lighting?

The definition of "outdoor luminaire" is not clear and should be clarified.

3. Will the methodology be applicable to and support the development of both projects and POAs?

Yes

4. What changes are suggested to the methodology to make it more accurate and/or more usable?

Please see point 1.

5. Should there be a limit to the number of years allowed for crediting?

Not necessary. With technological advancements, better operating conditions, the life time of the lamps have been increasing drastically. It may be more appropriate for the methodology to allow for replacement of project luminaries with an equivalent luminaire.

6. Can the methodology be used for new construction lighting projects and if so, what modifications are needed. How would baseline systems be determined?

The methodology should be expanded to include new construction lighting projects. Please see point 1

7. How often (every year, every three years, etc.) should the savings determination be updated with field verification of system operation and/or analyses of operating hours?

The present approach is appropriate. "The methodology should, however, also allow for metering, similar to provision in AMS II.C to determine system level energy consumption.

8. How should measure life be determined?

The survey will periodically provide an account of the number of operating lamps and therefore, there is no need to determine measured life.

9. What standards should the exterior lighting comply with, if any? Should a testing standard for how (and where, for example at ground level) illumination for exterior or street lamps is determined (for service level determination). Should such standards refer to photopic, scotopic, and mesopic requirements? Should the methodology reference certain standards for minimum lighting? Are such standards readily available

in non annex I countries? Would the standards apply only at the time of installation or continuously? Lighting quality may also be an issue.

Any requirements, in terms of adherence to international standards or independent testing, should be avoided in the methodology, as they are not always available. Please see point 1

10. Are the indicated ex-ante default lamp operating hours appropriate? Can a default ex-post operating hours value be defined? If so, what sources should be used to determine such a value and what specifications must the project comply with for the value to applicable?

The operating time could be determined based on (1) historical practice of the project entity with the baseline technology, or (2) sample monitoring based on the on/off system used, neither of which should be higher than sunset and sunrise published for the region in which the project area is located.

11. Are there other suggestions and comments associated with the draft methodology?

Please see point 1

Modifications to AMS-II.C

1. Should AMS-II.C be modified so to eliminate residential CFLs as an applicable measure, and thus require the use of only AMS-II.J for this type of measure?

This is not advisable. Project proponents should continue to have the option of using a simplified approach or a metered approach. It would be useful to extend AMS II.J to cover green-field projects.

Modifications to AMS-II.J

The original submission for methodology AMS II.J included a justification document, attached for quick reference. This document elaborated the submission of a simplified and conservative new methodology (see SSC_1402 till SSS_1923) based on a widely-used "deemed savings" approach. We would like to request the SSC-WG to reconsider the principles behind the approach and its relevant submissions.

The following questions, if responded to, should include documentation of any recommendations.

1. Should AMS-II.J be modified to eliminate the net to gross (NTG) ratio?

It is not clear why its elimination is suggested and how will AMS II.J be modified to address the factors, such as free-riders, leakage and permanence (table 5 in the attached, Attachment 1_Justification document SSC_140), that NTG sought to address.

[2] http://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/66736
[3] http://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/41712

2. What language should be added and/or modified so that AMS-II.J can be used for replacement of incandescent lamps with LEDs or other efficient lighting technologies?

The possibility of inclusion of LEDs and other fluorescent lighting technologies (e.g., tubular) was considered during the discussions on AMS II.J4, however it was pointed out that several outstanding technical and commercial issues prevented the inclusion of LEDs into this methodology. As per the recent CFL toolkit published by the Energy Sector Management Assistance Program (ESMAP), 20105, "LED for household lighting is still about 3 to 4 years away from achieving commercial maturity, as suggested by industry practitioners and analysts. On the other hand, FTLs, especially with electronic ballasts, are more efficient than ILs and have penetrated many developing country markets. The focus of this document is in CFLs which is considered an ideal technology to replace the incandescent lamps, and is more efficient even as compared to FTLs."

3. Are there recent credible documentation on the residential operating hours of lamps in non annex I country households?. Such information could be used to confirm the conservativeness of the default value used in AMS-II.J or be used to update the value.

Though various projects have carried out pre-installation survey to identity type, wattage and operating hours of the lamps in each household, the information collected on operating hours is subjective. However 3.5 hours is a conservative value for household lighting applications in urban areas and those using off-grid renewable energy technologies such as solar lighting systems. For rural areas or areas with very poor quality power supply, if necessary, this value can be cross-checked with the average electricity supply hours during evenings. It is also important to take into account the potential increase in usage of lamps, due to its better light quality as well as reduced electricity consumption (also addressed in NTG).

As CFL projects using both AMS II.J and AMS II.C are registered and undertake monitoring and verification, a body of information and experience will emerge that can subsequently be used to revise this default value.

4. Are there recent credible documentation on the validity of the table in paragraph 2 for use in establishing minimum service levels for both CFL and LED replacements?

This information should be cross checked with the standard information available at a cross-section of local and international manufacturers, especially for ICLs, which are manufactured locally and rarely adhere to any standards.

5. Is there language that can be used in AMS-II.J to ensure CFLs are of a high quality when used in CDM projects? Should the methodology prescribe minimum level of power factor and rated lifetime for the CFLs?

No, the methodology should not specify technical characteristics as this would be an additional constraint on the project entity. Quality related specifications are generally associated also with the lifetime, and consequently ERs, so the PE is already incentivized to choose high quality.

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[4] http://cdm.unfccc.int/UserManagement/FileStorage/AM_REQ_9K93K09PZFBJVWRUNP2W7USQAAW7O1

[5] http://www.esmap.org/pubs/results.asp

6. How can rated lifetime (50% failure) be reliably documented? Such language should be conservative, applicable to lamp operation and grid characteristics in non annex I countries, and able to be verified by a DOE. Such language should be based on credible documentation of current standards, practices, costs, etc. What procedures should be defined for constructing a mortality curve? Should more time built in for lifetime tests by manufactures or testing labs? Should such tests be done by independent labs? Such information could possibly be used for updating AMS-II.J paragraph 5.

There is very little need for the methodology to go into these details. We strongly suggest the SSC-WG to revisit the original submission. We need to identify alternatives to the lamp mortality curve or keep it as simple as possible. Expectation of grid specific lamp operation, technical characteristics, use of high standards and independent testing, are unrealistic and do not have a significant impact on the overall emission reduction calculation and should be excluded from all SSC methodologies.

Tests required by national standards and conducted as per common industry practice should suffice. Rated lifetime is a manufacturer-declared value and should continue to remain so. Ex-*post* sample surveys will provide the necessary failure information that will result in estimation of ERs. Incidentally, not allowing replacement of failed lamps is an added restriction that could be lifted to make this methodology more practical.

7. Is there information on the costs and techniques for validating operation of household lamps with respect to their continued operation (monitoring)? Such information should be based on credible documentation. Such information could be used to update language in existing AMS-II.J paragraph 13.

The present procedure based on sampling is adequate and appropriate to contain the monitoring costs. High failure-rate during the first year, if occurs, may be caused by manufacturing related issues. As CFLs are covered by an initial warranty period, there is no requirement for any change in the technique for validation of operation of CFLs. Information on costs will become available once projects initiate the process of ex-post surveys. It would be more appropriate for this issue to be revisited in 2 years once more information is available. Till such time, current practice should continue.

8. Are the existing criteria for debundling check1 adequate for the purpose for which it was developed in the context of distributed lighting energy efficiency activities or more in general distributed renewable energy generation or energy efficiency activities? If a modification is deemed necessary what would be criteria that may be revised or additionally applied?

Considering that development and implementation of Programme of Activities is still quite complex, bundling is an important tool for dispersed small-scale project activities. It would be useful to undertake case-specific analysis of the current criteria (EB47, Para 9) and undertake appropriate modification, if any.

II. Solar Water Heating CDM Methodology: Questions for public comments

1. Does the methodology represent appropriate emissions calculation and monitoring approaches for small scale-scale methodologies including compliance with CDM modalities and procedures and requirements for determining the amount of real, additional, measurable and verifiable reductions in greenhouse gas emissions associated with solar water heating systems.

It is not clear why a separate methodology is required when solar water heating is covered under AMS I.C. Though this particular methodology tries to be clear on emission reduction calculation procedures by suggesting four different options, in fact, a similar approach can be suggested for other renewable energy technologies allowed under AMS I C.

2. Are the project definition and applicability conditions appropriate? Is it appropriate for the methodology to be applicable to be both single and multifamily residential as well as commercial facilities?

The methodology should be made applicable to single, multifamily and commercial facilities. However, if deemed saving approach is preferred, these should be different for commercial facilities. In fact, out of four methods, computer simulation method and system metering methods are most appropriate for commercial facilities and other two for residential facilities considering their easiness and cost of monitoring.

3. Will the methodology be applicable to and support the development of both projects and POAs?

Yes. The deemed savings approach is most suitable for PoAs.

4. What changes are suggested to the methodology to make it more accurate and/or more usable?

Adoption of computer simulation method for household SWH applications might not a good choice. A choice between Control Group Method and Deemed Savings value method based on their conservativeness makes this methodology more usable for real cases, though deemed saving approach limits the monitoring and verification requirements.

5. Should there be a limit to the number of years allowed for crediting?

A fixed 10 year crediting period is appropriate for these kinds of projects.

6. For new construction facilities (*e.g.,* homes) are there suggestions for more detailed language on determining baseline systems for domestic water heating?

The baseline systems for new facilities should be based on (a) BAU through national/local data if available or survey and (b) prove what other technology would have been used instead (e.g. comparative price/technical specifications etc)

7. Are all four methods described for calculating CERs appropriate? Should the method to be selected be prescriptive based on specific project conditions or discretionary to be selected by the PP and/or DOE?

In our opinion, first two methods are appropriate for commercial applications and last two for residential applications with deemed savings one as a first choice. As far as possible, the criteria for justifying the selection of one of the options should be provided in the methodology.

8. For all four methods described, how often (every year, every three years, etc.) should the savings determination be updated with field verification of system operation and/or analyses of savings? Are there different criteria, then what is specified, appropriate for field verification?

The verification should only relate to checking whether the system is in operation or not for residential applications. No. of operating hours and days of usage can be conservatively determined based on the local weather conditions. Checking whether the system is following manufacturer maintenance requirements is difficult to check and hence should be dropped for household and small application. Field verification should be clearly differentiated for household and commercial users.

9. For the calibrated simulation model method: (a) what specific criteria should be established for any specific computer simulation model to be considered .approved. and who should provide this approval? (b) What specific criteria should be established for a model to be considered calibrated? (c) What parameters should be required as project specific inputs to the model? (d) For large numbers of project SDHW systems, does each individual system have to be modeled?

Developers and users of such simulation models would be the appropriate sources of these details.

10. For metering approach method and other field data collection requirements: (a) what parameters should be metered? (b) what time period and time interval metering requirements should be established? (c) what metering accuracy and calibration requirements should be established?

The variables proposed in the methodology are correct, however a flow-meter is not necessarily required if the total volume can be defined and the temperature measured. Alternatively, the thermal installed capacity could be converted to equivalent electrical installed capacity, adjusted for a default operational efficiency and based on expected annual hours of operation, used to calculate the avoided energy consumption and emission reductions.

11. For the control group method: what criteria should be used for defining an appropriate control group?

This method is not advisable.

12. For the deemed savings approach: (a) What should be the basis for the deemed savings values and what solar system and/or applicability criteria should be defined in order for a deemed savings value to be allowed to be used? (b) How and what sources can be used to determine the deemed savings values? (c) How extensive a list of deemed savings values should be determined and what geographic areas, system types, end user demographics, etc. should they cover?

It would be useful for the methodology development team to research the efforts and experiences of solar water heater promotional activities in various countries, to arrive at the deeming values.

13. Are there other suggestions and comments associated with the draft methodology?