



CDM: Recommendation Form for Small Scale Methodologies (version 01)

(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)

Date of SSC WG meeting:	10–12 November 2008, SSC WG 18
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on application of the lamp failure rate from bench-tests to the field failure rate for calculating emissions reduction in AMS-II.J
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	AMS-II.J
Name of the authors of the query:	Mr. Srinivasan Ramaswamy Institution: Indo German Energy Programme, GTZ GmbH, New Delhi srinivasan.ramaswamy@gtz.de

Summary of the query:

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

Original text from Stakeholder:

Use of lamp failure rate

AMS-II.J, version 01, Demand Side activities for efficient lighting technologies states:

“A relevant national or international testing standard shall be followed to determine the rated lifetime¹ of the lighting equipment; the project design document shall cite the standard² used to determine the rated lifetime of efficient lamps distributed under the project activity.”

The electricity saved by the project activity in year y is calculated as follows:

$$NES_y = \sum_{i=1}^n Q_{PJ,i} \times (1 - LFR_{i,y}) \times ES_i \times TD_y \times BP \times NTG$$

$LFR_{i,y}$ is the Lamp Failure Rate for equipment type i in year y (fraction)

Further

The Lamp Failure Rate (LFR_y) is the % of lamps that have failed during a year. The rated lifetime is used to calculate the *ex ante* Lamp Failure Rate as follows:

$$y * X_i < L_i, LFR_{i,y} = y * X_i * (100 - R_i) / (100 \times L_i)$$

$$\text{If } y * X_i \geq L_i, LFR_{i,y} = 1$$

Where:

$LFR_{i,y}$ Lamp Failure Rate for equipment type i in year y (fraction)

L_i Rated average life for equipment type i (hours)

R_i % of lamps of type i operating at the rated lifetime (use a value of 50)

X_i Number of operating hours per year for equipment type i (hours)

y Counter for year

Clarification

Clarification is sought on taking lamp failure rates from the bench-tests for correcting the field failure rate for calculating the CERS.

Analysis and Justification:

The concept of the lamp failure rate is derived from the international standards for testing life of the lamps. As per the test procedure, 20 lamps are put on test rack and are switched on on/off cycle as determined by the standard. This actually means that all the lamps are either on or off as per the switching cycle.

However, in a CDM project area, these lamps are operated at different switching cycles. This means some lamps are expected to operate for probably 10 hours in a day, typically rural household and in some cases 2 hours a day typical urban household. Hence some lamps are likely to age much faster and some are used little, thereby leading to differential ageing.

Hence comparing the field failure rates with laboratory life failure rates is not correct since the hours of operation is not same. Some bulbs would have accelerated use and may reach end of life, which can not be equal to premature life. Hence, *“Use of equating field failures with ex-ante life is not correct and justified. Only the field failures should be taken into account for calculating the CERS.” At best the life time testing at the laboratory could be used to project CERS and the failure rates need to be verified through appropriate field surveys.*

Recommendation by the SSC WG:

Please use the space below to provide amendments/change (in your expert view, if necessary).

Please refer to paragraphs 8 and 25 of the meeting report of the SSC WG 18
(http://cdm.unfccc.int/Panels/ssc_wg).

Answer to authors of query by the SSC WG:

Please use the space below to provide answer to the authors of the above query

The small-scale working group of the CDM Executive Board would like to thank the author for the submission.

The SSC WG clarified AMS-II J makes simplifications, e.g. data on utilization hours of the lamps, in exchange for conservative approach to calculation of emission reductions. The cited standards in the methodology are widely accepted methods to capture the variability in the influencing parameters on lifetime of equipment. Further, AMS-II J specifies use of field failure rates (based on sampling) to verify the data from the lamp mortality curve and make further adjustment for conservative estimation of energy savings. Given the precision ($\pm 10\%$) and confidence interval (90%) specified for the sampling in the methodology, the SSC WG agreed the submission does not make convincing arguments to propose changes in this area and the methods of AMS-II.J are sufficiently conservative and should be maintained.



Signature of SSC WG Chair

(Ulrika Raab)

Date: 12/11/2008



Signature of SSC WG Vice-Chair

(Kamel Djemouai)

Date: 12/11/2008

Information to be completed by the secretariat

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