



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:	16–19 February 2010, SSC WG 24
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on calculation of baseline emissions for retrofitted boilers in AMS-I.C
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	AMS-I.C
Name of the authors of the query:	Sachin Yadav Institution: Hardayal Milk Products Private Limited sachin@hardayalgroup.com , verve@verveconsult.com

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 PP:

Background

Hardayal Milk Products Private Limited, had installed a coal based 6 TPH boiler to meet its energy requirements at its unit at Shikohabad, District Firozabad, Uttar Pradesh. The steam generated from boiler is used for milk processing operations such drying of milk, production of milk powder and butter etc.

The coal based boiler was commissioned in November 2006. It was later retrofitted to rice husk based boiler and was commissioned on 5th of December 2007.

Though costs of energy from rice husk is higher as compared to that from coal, still project proponent switched to rice husk because of associated CDM benefits. Currently, the project is under validation stage.

As a result of retrofit of boiler there is no effect on net thermal output of the boiler. The crediting period for emission reductions claimed by project proponent ends before *DATE_{Baseline Retrofit}*.

Considering the above project participant would like to request ask following questions in reference to calculations of baseline emissions:

1. If Paragraph 25 is used for calculating baseline emissions for retrofit project:

- a. Equation 7 and equation 8 of the methodology when used in combination gives a tool to calculate baseline emissions in case:
 - i. There is a net increase in thermal output of boiler
 - ii. Crediting period extends beyond *DATE_{BaselineRetrofit}*

Since the cases are not applicable for the proposed project activity, **we would like to ask CDM-SSC-WG whether Paragraph 25 is to be used for calculating baseline emissions or can paragraph 11, 15 and equation (2) be instead used for calculating baseline emissions?**

Since, the activity is a renewable energy technology which displaces coal based boiler, a fossil fuel based

technology, hence as paragraph 11 states: 'For renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity times an emission factor for the fossil fuel displaced.'

Hence baseline emissions using equation 2 of Paragraph 15 will be calculated as

$$BE_{thermal,CO_2,y} = (EG_{thermal,y} / \eta_{BL,thermal}) * EF_{FF,CO_2}$$

$EG_{thermal,y}$ will be the net quantity of thermal energy generated by the project activity in an year, which would have been generated using fossil fuel in the absence of project activity.

EF_{FF,CO_2} will be the emission factor of fossil fuel which would have been used in absence of project activity. In this case since coal based boiler was retrofitted, hence emission factor of coal will be used.

2. If Paragraph 25 is used for calculating baseline emissions for retrofit project:

In equation 7, for calculating $EG_{historical,thermal,y}$, a three year historical data is required. So in case if only 1 year historical data is available, then is a revision in methodology is required or a new methodology need to be proposed?

We will be thankful to you if you could help us in clarifying our doubts and guide us on appropriate method to calculate baseline emissions for the project.

Additional information was requested from the PP:

1. It is not clear from your submission whether the project activity displaces coal based boiler and coal would no longer be used during the crediting period?

PP response:

Project activity displaces coal based boiler. Changes were made in the boiler and furnace, so as to convert coal based boiler to rice husk based boiler. Coal can no longer be used as a fuel and the boiler is operated using only rice husk.

2. You are requested to provide information on what modifications have been done (e.g. replacement/modification of burners in existing boilers and does it involve substantial investments)?

PP response:

As per the definition of retrofit provided in CDM glossary version 5: a retrofit is defined as:

Retrofit: To modify existing industrial, commercial and residential facilities, automobiles, energy conversion systems etc., which are already in service using new, improved or more efficient parts and equipment developed or made available after the time of original manufacture or installation of the facility. The retrofit should also be consistent with the current guidance by the Board on the lifetime of plants and equipment. In the proposed project, modifications were made in the existing coal based boiler only to enable a switch from coal to rice husk. A list of modifications along with costs and final drawing of the boiler is provided along with the mail. As a result of retrofit, there is no change in the efficiency and lifetime of plants and equipment. With a life time of 20 years original boiler was commissioned in 2006 and could have been operated till 2026. Even after carrying out the modifications, boiler can only be operated till 2026.

A substantial amount was spent on modifying the boiler:

Total costs of modification made in boiler: 11 lakh

Cost of original coal based boiler: 22.5 lakh

Hence, modifications made in the boiler were approximately 50% of the costs of the original boiler.

List of modifications made in Coal based boiler to convert it to Rice husk based boiler

Following changes were made in original coal based boiler, so as to convert it to rice husk based boiler:

S.No.	Changes made	Costs incurred
1.	Removal of bed tubes from the boiler	1.5 lakh
2.	Reinstatement of the furnace height (Height of furnace was reduced as a result of removal of bed tubes from the boiler)	2.5 lakh
3.	Rebuilding of refractory lining and re-sealing by new refractories.	3 lakh
4.	Other modification such as hooking up the different systems as per new configuration	1 lakh

In addition to these modifications, boiler was shutdown for a month for trial runs which costed 2 lakh.

Hence, total costs: 11 lakh

Total costs of original boiler: 22.5 lakh

Recommendation by the SSC WG:

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

Please refer to paragraph 23 of the meeting report of the SSC WG 24
(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.

With reference to the methodological issues raised by the submission, the SSC WG agreed that the proposed project activity can be considered as a retrofit of an existing fossil fuel based boiler to enable the use of biomass, however paragraph 25 of AMS I C is not applicable to the described situation and equations 7 and 8 are aimed to cover cases where an existing renewable energy generation equipment is retrofitted to increase its energy generation efficiency and is not meant to cover fuel switch..

It further agreed to clarify that the equation 2 of paragraph 15 of AMS-I.C is applicable for the baseline emission calculation of the described project activities as long as comparable level of energy services delivered during the baseline versus project situation is ensured.

The SSC WG thus agreed to include more detailed procedures for retrofit of fossil fuel thermal generating equipment to use biomass residues including guidelines to ensure comparable level of service during the baseline and the project at the time of proposing the next revision to AMS-I.C.



Signature of SSC WG Chair

(Peer Stiansen)

Date: 19/02/2010



Signature of SSC WG Vice-Chair

(Hugh Sealy)

Date: 19/02/2010

Information to be completed by the secretariat

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