



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:	09–12 May 2011, SSC WG 31
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Revision of AMS-III.Q for project activity with no three years historical data and for calculating project emissions
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	AMS-III.Q “Waste energy recovery (gas/heat/pressure) projects”
Name of the authors of the query:	Lalit Kumar Singhanian Institution: Indus Technical And Financial Consultants Ltd. lks1954@rediffmail.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 Stakeholder:

Background of the Methodological issues and Sources of confusion in AMS III.Q:

- (a) AMS III.Q ver-03 Para 9 (a) read as “Baseline emissions from electricity ($BE_{elec,y}$) generated by waste energy (e.g., waste pressure):
 - (b) Whereas, after the equation (1) $BE_{elec,y}$ is defined as Baseline emissions due to displacement of electricity during the year y in tons of CO_2
 - (c) Whereas, $EG_{i,j,y}$ is defined as “The quantity of electricity supplied to the recipient j by generator, that in the absence of the project activity would have been sourced from i^{th} source (i can be either grid or identified source) during the year y in MWh, and
 - (d) At the same sequence f_{wcm} is defined as “Fraction of total electricity generated by the project activity using waste energy.”
1. Kindly note that there are three different words (terms) used in this methodology for the same purpose of electricity generation or for the same parameter electricity generation i.e. generated, displacement, supplied, the fundamental confusion is caused in the mind of most of the DOE; due to these three different terms used for the same purpose at different places; and in spite of our best efforts we are unable to clear the same. Hence the request for suitable clarification in the methodology is requested.
 2. At page 1 it is mentioned in “Technology/measure:
 1. The category is for project activities that utilize waste gas and/or waste heat at existing facilities¹ as an energy source for:

¹ A facility that is existing on the starting date of the project activity (see definition in para. 67 of the EB 41 meeting report) and all options for demonstrating the use of waste energy in the absence of a CDM project activity shall be based on historic information and not on a hypothetical scenario.

- (a) Cogeneration; or
- (b) Generation of electricity; or”

1.

- 3. The para 6 (d) reads as “*The emission reductions are claimed by the **generator** of energy using waste energy*”;
- 4. The equation provided to calculate $BE_{elec,y}$ is $BE_{elec,y} = f_{cap} * f_{wcm} * \sum_j \sum_i (EG_{i,j,y} * EF_{Elec,i,j,y})$ (1)

- 5. In the methodology project emission is described as at para:

2. 14. Project emissions

Project Emissions include emissions due to combustion of auxiliary fuel to supplement waste gas and emissions due to consumption of electricity by the project activity.

- 6. In the methodology project emission Calculation to be done is described at para 21 as given below:

21. For project emissions determination, the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” and the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” shall be used.

On going thru the above methodological provisions it is clear that the methodology also applies to a facility in which the Project activity is being a part of the larger CPP. In which the steam generated by the Project Activity is contributed for power generation through the common facility. These common facility in Power Plants have the common facilities to generate power and for which common auxiliary are installed which consume power to run the CPP, within which the Project Activity also being a part of the CPP requires to assess the proportionate auxiliary power consumption by Multiplying the f_{wcm} with the total auxiliary power consumed by the CPP. In view of these facts the notation used to define the Parameters require some clarity as suggested below:

- A. $EG_{i,j,y}$ = is the monitored parameter (it is not a calculated parameter) indicating the Gross Power generation from the entire CPP and it is not the “Net power supplied by the Project Activity” to the facility. Hence it’s definition requires to be changed.
- B. Since the f_{wcm} is multiplied with the $EG_{i,j,y}$ and $EF_{elec,i,j,y}$ is also multiplied in one single equation hence the BE_y is directly obtained.
- C. Since the para 14 of the methodology requires to calculate the Project emission based on the provisions given in Para 21, thus the Tool is required to be applied for the assessment of the suitable options applicable to calculate the Project emission. In view of this the following parameter becomes an essential parameter to be monitored for the determination power consumed by the Power Plant itself. Since technically it is not possible to directly monitor the net power supplied by the Power Plant after deducting from the auxiliary consumption. Therefore the auxiliary power consumption is separately monitored and the proportionate auxiliary power is calculated by multiplying with f_{wcm} . The received figure is then multiplied with the Calculated Factor which is derived by selected Emission Factor as per tool and in which the leakage percentage is added. Thus the monitoring of the following parameter becomes essential:

² It is clarified here that the Gross Electricity generation equals to the Electricity supplied because the Auxiliary power consumption has to be monitored separately and deducted as project emission, as per the Provisions in the methodology.

³ The term recipient “j” would mean the entire quantity of electricity that is supplied to the Industrial facility within which the auxiliary power consumption by the CPP are also included, the Project emission calculation due to the Auxiliary power consumption in CPP will be determined as per para 21 and the proportionate emission by the Project activity will be arrived by multiplying the same with f_{wcm}

EG_{AUX}	The total power consumed in the CPP to operate the power plant auxiliaries
$FF_{el,j,y}$	Emission factor for electricity generation system for source "j" in year y (tCO ₂ /MWh)
$TDL_{j,y}$	Average technical transmission and distribution losses for providing electricity to source j in year y

$$\sum_j EC_{PJ,j,y} = EG_{aux,y} X f_{wcm}$$

Based on the above monitored and calculated parameters as per the tool the Project emission is calculated in the Following Manner:

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

- (i) As per the above discussion the following is established that the parameter $EG_{i,j,y}$ definition requires correction as discussed below.
- (ii) The Project emission requires to be calculated separately as required in the Monitoring plan of methodology, hence the Total Auxiliary power consumption has to be monitored in the CPP and to arrive at the Proportionate Auxiliary consumption by the Project activity requires to be multiplied by the f_{wcm} ; this calculated output is to be treated as $\sum_j EC_{PJ,j,y}$ for the calculation of the emission reduction. In view of this following clarification or changes are requested in the methodology.

The definition of the $EG_{i,j,y}$ as given in the methodology as:

$EG_{i,j,y}$ The quantity of electricity **supplied** to the recipient j by generator, that in the absence of the project activity would have been sourced from i^{th} source (i^{th} can be either grid or identified source) during the year y in MWh, and

The definition of the $EG_{i,j,y}$ as propose in the methodology

Proposed revision:

$EG_{i,j,y}$ The quantity of **gross** electricity **supplied** by the gross electricity generation from CPP (which includes the power generation due to project activity within the CPP)² which would be supplied to the recipient j³ by generator.

The quantity of electricity that in the absence of the project activity would have been sourced from i^{th} source (i can be either grid or identified source) during the year y in MWh, **would be determined through calculation by multiplying the fraction of the waste energy contributed by the Project activity to the total energy consumed in CPP, this will be done by multiplying f_{wcm} with $EG_{i,j,y}$. Wherein the value of f_{wcm} will be "one" if the entire CPP power is generated only by the waste heat recovery boiler(s) (i.e Project Activity) and**

In case the CPP comprises of coal based AFBC(s) and also the WHRB(s) as source of steam then the same will be used by applying f_{wcm} as per the calculation given below:

Clarifications requested for the determination of the Project Emission caused due to the consumption of electricity b y the Project activity is as given below:

Project emissions

14. *Project Emissions include emissions due to combustion of auxiliary fuel to supplement waste gas and emissions due to consumption of electricity by the project activity.*
15. *If the waste gas contains carbon monoxide or hydrocarbons, other than methane, and the waste gas is vented to the atmosphere in the baseline situation, project emissions have to*

include CO₂ emissions due to the combustion of the waste gas.

REVISION PROPOSED

Project emissions

14. (a) Project Emissions include emissions due to combustion of auxiliary fuel to supplement waste gas and emissions due to consumption of electricity by the project activity.
- (b) Project Emissions due to consumption of electricity by the project activity will be determined by applying f_{wcm} . f_{wcm} will be “one” if the entire CPP power supplied is generated only by the waste heat recovery boiler(s). In case the CPP comprises of coal based AFBC(s) and also the WHRB(s) as source of steam then the same will be used by applying f_{wcm} as per the calculation given in previous paragraphs.

Additional clarifications from Stakeholder submitted 15 Apr 2011

Justification to replacing “three years historical data” to “most recent year” data

The category under AMS III.Q also allows to apply the methodology for the project activities which are implemented as new facility with the existing industrial facility having less than three years of age also. But due to this paragraph the DOE insist for three years historical data, in absence of which they say that the methodology is not applicable. Also in view of this the condition stipulated in page no.4 last para to proportion the electricity that would have been sourced from i th source to the j th recipient based on three most recent years historical data is not possible; because of the age of the industrial facility being less than three years. In the requested revision we have also proposed to apply this requirement only when identified baseline sources are more than “one”, during the course of validation normally the DOEs insist to select the most conservative baseline source thus if a conservative baseline source has already been selected while developing the PDD then the i th source becomes one only. Hence even if the j th recipient is drawing power from more than one sources then the need to proportion the electricity does not arise. It is also to submit that the methodology para 6 (b) allows to export the surplus power to the grid. Hence the quantity of the power i.e. exported to the grid should preferably be applied the grid emission factor. Hence keeping the proportion of j th recipient also becomes difficult, based on the three years historical data. In view of this for simplification of PDD development and also for simplified monitoring procedure this revision is requested, to either delete this provision or allow it to be applied based on the most recent years data even if it is less than three years.

As regards the providing the PDD for the sake of clarity of applying the above request for revision it is submitted that there is not going to be any revision in section B.1., B.2, B.3, and B5. The revision will affect discussion only in section B.4 and B.6 which is explained as below:

B.4 description of baseline and its development

As per para 9 of methodology the baseline is existing source of power which is going to be affected by the project activity. The proportion of different sources is required to be established based on three years historical data. The project activity is established in an industrial facility having coal based captive power plant as well as parallel grid connectivity and is having only one year age hence the historical data only for one year is available thus proportioning of power based on three most recent years for i th source by j th recipient is not possible. Therefore, also as well as due to conservative approach grid has been selected as baseline. Although as per methodology both the sources can be identified as baseline sources, but in absence of most recent three years data as well as for conservative approach the grid is selected as baseline therefore, i th source remains one. However for the sake of establishment of additionality the coal based CPP is considered as one of the baseline alternatives and additionality is demonstrated as per this also.

Since the baseline has been determined as per most conservative approach and therefore the grid has been found as baseline even though existing coal based CPP has been found to be economically most attractive

though all the applicability criteria are fulfilled as required from Para 1 to 6.

In view of this proportioning of electricity which would have been sourced from different sources is not required (applicable) for computation of baseline emission.

In view of this the request has been submitted to revise the methodology.

We would like to submit for example that even in the following situations the methodology is applicable:-

A] A 100 TPD Sponge Iron plant started commercial production on 1st January 2009 and decided to setup 2.5 MW WHRB power plant on 15th March 2009 along with a 5MW Coal based CPP. The WHRB & AFBC power plant started production by April 2010. In this situation the data for three years is not available but methodology is applicable.

Also in this situation the PP is exporting 50% of the power to the grid and also importing 50% from the grid and using the remaining power as captive. Hence the jth recipient is also the industrial facility and the grid also, ith source is only grid.

But as per methodology the grid is selected as baseline being the existing baseline as source of Power.

In pre project activity scenario the ith source is only grid, and jth recipient is only industrial facility. In post project scenario ith source is grid as well as Coal based AFBC and jth recipient is grid as well as industrial facility.

B] A 100 TPD sponge iron plant with 10 MW Coal based AFBC; started commercial production of sponge iron and Coal based CPP both on 1st January 2009, with provision of 2.5 MW power export to Grid. The PP decided to set up the 2.5 MW WHRB on 15th March 2009. The WHRB power plant started production by April 2010. In this situation also methodology is applicable, the coal based CPP is infact applicable as baseline scenario, however "Grid" is selected as baseline being conservative emission factor, but three most recent year data for ith source and jth recipient is not available.

In pre project activity scenario the ith source is grid as well as Coal based AFBC, and jth recipient is industrial facility as well as grid. In post project scenario ith source is grid as well as Coal based AFBC and jth recipient is grid as well as industrial facility.

But here again last three years data is not available and here also grid is selected as baseline as a conservative approach. Thus need to proportion does not arise.

C] A decision to install 100 TPD X 2 Nos. of sponge iron plant is taken and out of which 100 TPD sponge iron Kiln is started commercial production on 1st January 2009, thereafter on 15th March 2009 PP had decided to go for 5 MW WHRB power plant, and 5 MW Coal based AFBC along with the second 100 TPD DRI Kiln. On April 2010 the Second DRI Kiln as well as WHRB and AFBC started commercial production together. In this situation also "grid" is selected as baseline being existing source of power. The waste heat emission to atmosphere is proven as per methodology through 1 year historical data for sponge iron kiln. Last three data are not available in this situation also. The ith source in pre project activity scenario is only grid, and jth recipient is only industrial facility. In post project scenario ith source is grid as well as Coal based AFBC and jth recipient is grid as well as industrial facility.

Since in all the above three situation grid is selected as baseline for the purpose of calculation of emission reduction, therefore, the applicability of proportioning based on the source of power as well as based on the recipient of power does not seem to help the situation in any way. The purpose of small scale methodology has been to simplify the baseline scenario assessment as well as to simplify the additionality of the project activity.

In view of the paragraph requiring proportioning of baseline emission in proportion to the source as well as recipient based on the three years data creates enormous confusion in the mind of DOE and the projects are held up for lack of clarity in this issue.

Hence the purpose of our request to revise the methodology is to achieve the following objective:

1. In case grid is selected as baseline either as a conservative approach or as the existing source of power then the proportioning of baseline emission based on the ith source to the jth recipient is not required and

even last three years data is not required if the applicability criteria as mentioned in para-1 to 6 are fulfilled then the application of methodology is satisfied.

2. $E_{Gi,j,y}$ is gross electricity generation by the CPP, within which the project activity is generating power.

3. Auxiliary power consumption is treated as project emission and the proportion of project emission due to the project activity is arrived by using the factor f_{WCM} .

Since the above request for revision is not project specific but is related to a number of Projects hence it is difficult to provide the Section B of the PDD to provide as an example. We hope the above discussion will clarify to the SSC_WG to understand the need for the revision.

We express our sincere thanks to the CDM_EB and SSC_WG for immediately taking up our request to revised t

Recommendation by the SSC WG:

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

Please refer to paragraph 12 of the meeting report of the SSC WG 31 (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.

As regards to the revision request on the requirement of three years historical data to determine baseline for electricity (equation 1), the SSC WG agreed to align the requirements of AMS-III.Q with the provisions of other approved SSC methodologies (such as AMS-III.B, AN, AM) for example, all relevant parameters shall be available for the immediately prior three years to the start date of the project activity. For facilities with less than three years operational data, all historical data shall be available (a minimum of one year data would be required).

As regards to the revision request on apportioning of emissions for auxiliary power consumption using f_{wcm} , the group in principle agreed that the issue raised by the submission author is an important one and agreed to address it in the future revision of AMS-III.Q. The SSC WG noted that a revised improved version of ACM0012 has become available as of EB 60 and agreed to take that version of ACM 0012 into account in its work to revise AMS III.Q to address above issues.

Further the SSC WG agreed to indicate that no hypothetical baseline scenario is allowed for both waste gas generation facility and the use of waste gas in the approved AMS-III.Q. The group has also not assessed the project activities described as examples in the submission on whether those comply with all of the provisions of the approved AMS-III.Q and the additionality aspects of those projects.

Signed by the Chair, Ms. Fatou Gaye

Date: 12/05/2011

Signed by the Vice-Chair, Mr. Peer Stiansen

Date: 12/05/2011

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