# 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)***

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|---|---|
| *Date of SSC WG meeting:* | 27–30 October 2009, SSC WG 23 |
| *Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):* | Clarification on AMS-III.Q for project activity using incremental gain of waste heat recovery |
| *Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.* | AMS-III.Q, version 02 |
| *Name of the authors of the query:* | Deepak Jain<br>Institution:<br>Deepak.jain@maruti.co.in |

**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:

The project activity involves the installation of waste heat recovery system at the existing gas turbines (3 Nos.). The waste heat would be utilized to generate steam which would be fed to a steam turbine to generate power. Low pressure steam would be extracted from the steam turbine and would be used to meet the process steam requirements.

In the pre project scenario the project proponent was generating steam using waste heat partially from I nos gas turbine to meet the process requirements. The exhaust gas of the other 2 nos gas turbines were vented into the atmosphere.

Thus, the proposed project activity is an incremental gain of the waste heat recovery, as electricity would be generated by using waste heat. The process steam generated in the project scenario would be same as in the pre project scenario.

As per AMS III Q, version 2, para 3,

The recovery of waste gas/heat may be a new initiative or an incremental gain in an existing practice.

Hence the methodology is applicable to the project activity. However, no further guidance is provided on the incremental gain from waste heat recovery, in case the steam generated using waste heat utilized in the pre project scenario is combined with steam generated from other unutilized waste heat and fed into the turbine through a common header.

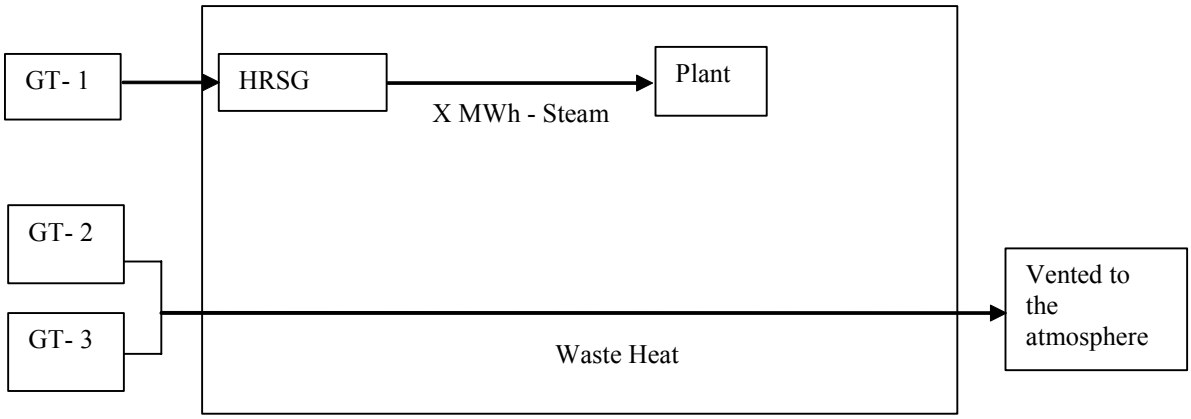
As per our understanding, in ACM0012, version 3.1 the baseline emissions from electricity generation for Type 2 activities are determined as described in Scenario 1a.ii.(2), pg 17/54.

The equipment that generates captive electricity in the absence of project activity from a portion of the waste gas produced at the industrial facility is either decommissioned or modified and/or replaced by bigger capacity and more energy efficient equipment; electricity generated in the new facility is utilised for own use and export purposes. In this scenario the captive electricity generated in the absence of the project activity is replaced by captive electricity generated in larger, more efficient equipment utilising more of the waste gas than in the baseline. Emission reductions generated as a result of the energy

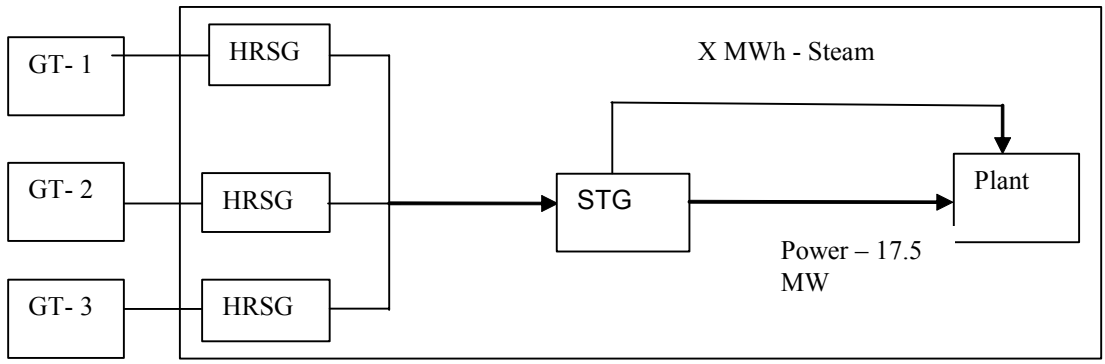
efficient component associated with the new equipment compared to the decommissioned equipment are accounted for. The heat production from waste gas (or production of any useful product apart from electricity) in absence of project activity remains same in baseline and crediting period.

In this project only heat (steam) is generated from a portion of the waste heat in the baseline scenario with no captive electricity generation in the baseline scenario. The quantity of steam generated in the project scenario would remain the same as in the pre project scenario.

Below is the diagram showing the baseline and project activity scenarios.




Pre Project Scenario




Project Activity

Further information:

- Historical data of steam generation is available
- The amount of process steam generation & consumption will be monitored throughout the crediting period.
- The amount of process steam generation will be same in baseline & project scenario and no emission reductions will be claimed in case, there is increase in steam generation in the project scenario.

Project proponent wishes to calculate baseline emissions using the above approach given by ACM 0012 version 3.1. The project proponent would like to thank the SSC WG to provide clarification on the same.

**Additional clarification by the submission-author in response to the preliminary query by SSCWG**

Query 1: It is noted that in the pre-project scenario the project activity is generating steam using the waste gas from one of the gas turbine but there is no information on the steam generation parameters like quantity, pressure, temperature, presence of PRDS etc.

Response: The information related to steam is as below:

In the pre-project scenario, steam is generated from Gas Turbine -1 at 40kg/ cm2 and passed through a PRDS to obtain low pressure steam at 6Kg/cm2, which is used for process requirements. The quantity of steam generated in last years is given below.

| Year | Steam (MT) |
|---|---|
| 2008-09 | 95,446 |
| 2007-08 | 115,043 |
| 2006-07 | 110,519 |

Query 2. The submission is unclear on what will happen to the existing HRSG post implementation of the project activity?

Response: The existing HRSG installed on Gas Turbine 1 will be used for steam generation in project scenario. This steam will be fed into the common steam header to generate power.

Query 3. It is noted that the process steam-energy generated in the project scenario would be same as in the pre project scenario. The waste heat generated from other two gas turbines on site is not utilizable for any other purpose on-site except to generate power. Please clarify why this underlying project cannot be considered as combined cycle electricity generation project?

Response: The project can be considered as combined cycle electricity generation project. We have checked the methodology ACM 0007. This methodology doesn't address the issue of incremental gain in utilization of waste heat/energy. Also the project activity is a small scale project activity, hence we have chosen to use the small scale methodology AMS III.Q.

Query 4. Please clarify whether the Gas turbine is used to generate power or mechanical energy?

TheTxqGas turbines are used for generation of electrical power.

Query 5. It would be useful if a PDD is provided (if available) to understand how a specified formulae in ACM 0012, version 3.1 Scenario 1a.ii.(2), pg 17/54 is applied (as mentioned in your query).

PDD duly attached.

**Recommendation by the SSC WG:**

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

Please refer to paragraph 16 of the meeting report of the SSC WG 23 (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.

Paragraph 3 of AMS-III.Q states “The recovery of waste gas/heat may be a new initiative or an incremental gain in an existing practice”. Based on the further information provided by the submission author, it is noted the existing practice in the operation of the gas turbine will be altered as a result of the implementation of the project activity (e.g., NG consumption and Waste heat generation will be reduced as compared to its baseline). This may lead to the operation of the generating equipment on a part load condition with a lower efficiency.

As regards clarification whether the approach described in ACM0012 version 3 (Scenario 1a.ii.(2), page 17/54) to determine baseline emissions from electricity generation for Type 2 activities can be used in AMS-III.Q for the underlying project, the SSCWG agreed to clarify that ACM 0012 is not applicable to projects where the waste gas/heat recovery project is implemented in a single-cycle power plant (e.g., gas

turbine or diesel generator) to generate power. See applicability condition at page 4 of ACM0012 version 03.1 that states "This methodology is not applicable to projects where the waste gas/heat recovery project is implemented in a single-cycle power plant (e.g., gas turbine or diesel generator) to generate power. However, the projects recovering waste energy from such power plants for the purpose of generation of heat only can apply this methodology"

It is to be noted that the basic assumption of AMS-III.Q is the operation of the equipment where the waste energy carrying medium (WECM) is generated is not affected as a result of the project activity, which is not the project case. The project proponent may consider submitting a new methodology taking into account the above issues.

Signature of SSC WG Chair ……..

*(Hugh Sealy)*

Date: 30/10/2009

Signature of SSC WG Vice-Chair ……..

*(Peer Stiansen)*

Date: 30/10/2009

| **Information to be completed by the secretariat** | |
|---|---|
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