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:	20−23 March 2012, SSC WG 36
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Applicability of AMS-III.Q for waste heat recovery from reclaimed water for space heating application
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:	Catherine Huang Institution: A&T Carbon Asset Co., Limited Catherine.huang@atholdings.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:

The proposed project activity is designed to utilize the waste heat recovered from the reclaimed water of the existing wastewater treatment plant to supply heat to residential and commercial consumers for space heating through newly installed electric heat pumps.

Electric heat pumps provide thermal heat by increasing the temperature of heat stored in the reclaimed water of the wastewater treatment plant to a higher temperature level usable for heating. The project reduces CO_2 emissions by using waste heat to replace heat generated from fossil fuel based heating system. Other relevant information was brief introduced as below.

1) No heat was recovered from the reclaimed water of the existing wastewater treatment plant prior to the implementation of the project activity.

2) Space heating in buildings will be provided by fossil fuel based heating systems in the absence of the project activity.

3) The heat produced with the recovered waste heat can be measurable.

4) The emission reductions are claimed by the generator of energy using waste energy; An agreement exists between the owners of the project energy generation plant and the recipient plants that the emission reductions would not be claimed by the recipient plants for using a zero-emission energy source;

5) The geographical extent of the project boundary can be clearly established.

As the methodology AMS-III.Q is applicable for project activities that utilize waste gas and/or waste heat at existing facilities as an energy source for:

(a) Cogeneration; or

(b) Generation of electricity; or

© Direct use as process heat; or

(d) Generation of heat in elemental process (e.g. steam, hot water, hot oil, hot air); or

(e) Generation of mechanical energy.

We would like to ask whether the scenario of the project belongs to the option © or option (d) and the AMS-III.Q is applicable for the proposed project.

If the methodology for those waste energy recovery projects was not applicable for the proposed project. We'd like to revise the approved methodology, but we're not sure in which of the methodologies (AM0058 and AM0072) is more suitable for us to be based on?

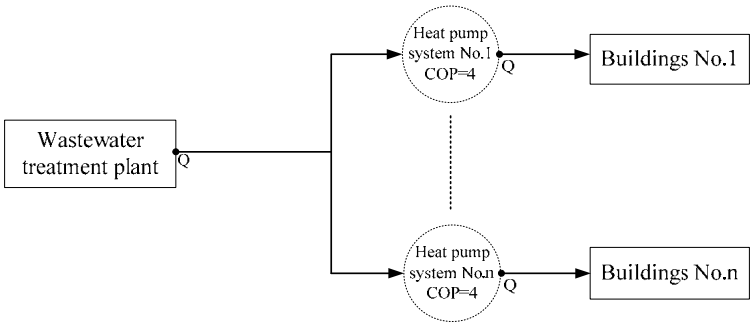
Additional clarifications requested 28-Feb-12:

1) It is stated that "3) The heat produced with the recovered waste heat can be measurable." First, please clarify if there is other distribution system (DHN) mixes with the heat pump system. And, please explain whether the measurement is made at the recipient end (final users of the distributed heat) and emission reduction is estimated based on equivalent fossil fuel use displaced at the final users? Also, if the recipient plant (district heating system) is connected to different heat generating plants, how emission reduction would be calculated? If the measurement is based at supply end, how the emission reduction can be attributed to the displacement of fossil fuel use at the final users?

Response from PP submitted 02-Mar-12:

1. No other distribution system (DHN) mixes with the heat pump system. The waste heat from the reclaimed water of the existing wastewater treatment plant is the only heat source of the project activity.
2. As the final users of the project are the households, the direct measurement is difficult to achieve. So, the proposed measurement is made at the outlet of heat pump systems. Meters will be installed in a manner that ensures that only the quantity of heat supplied for room heating purposes is metered (Refer to AM0058).
3. The recipient plant (households in buildings) is not connected to different heat generating plants; the only heat source is the waste heat of reclaimed water.

The diagrammatic drawing of the project was attached for easily understanding.



2) It is stated that "Space heating in buildings will be provided by fossil fuel based heating systems in the absence of the project activity." According to the footnote 1 of AMS-III.Q, it is our understanding that that in absence of the project activity the baseline information for space heating in residential buildings shall be based on historical information.
This needs to be clarified.

Footnote 1 of AMS-IIIQ was stated that:

The category is for project activities that utilize waste gas and/or waste heat at existing facilities[1] as an energy source for:

Footnote 1: A facility that is existing on the starting date of the project activity (see definition in paragraph 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.

According to footnote 1, our understanding is that 'the facility' defined in the AMS-III.Q is regarded as

the existing wastewater treatment plant in the proposed project. *The heat in the wastewater was not recovered and totally emitted to the atmosphere.*

As our know, according to the paragraph (f) on page 3:

In cases where the energy is exported to other facilities (included in the project boundary), the following are required:

(i) All historical information from the recipient plants;

For the project, the buildings (heat consumer) are new buildings/sub-area, i.e. the buildings are constructed after the start of the implementation of the project. In the absence of the project, the buildings will be heated by newly installed isolated heat distribution network (i.e. a boiler house). Therefore, no historical information from the recipient plants can be obtained. Refer to AM0058 and AM0072, whether no historical information from the recipient plants is accepted. (

Recommendation by the SSC WG:

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

Please refer to paragraph 20 of the meeting report of the SSC WG 36 <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 agreed to clarify that the technology "heat pump" is heat generation technology as defined in the methodology and having single input and output it can be considered as an element process in line with the definition under AMS-III.Q. However, the methodology in its current form does not cover the underlying project activity (utilization of waste heat for space heating applications in residential/commercial buildings) due to the issues discussed below:

1. It is understood that the project activity involves recovery of waste heat in an existing facility and energy produced is supplied to recipient facilities which are Greenfield facilities (Buildings). Per paragraph 5(f, i) of AMS-III.Q, if the energy is supplied to other facilities (included in the project boundary), all historical information from the recipient plants are required. Since the recipient facilities are Greenfield i.e. no historical information is available, the project activity does not comply with the paragraph and also will not be eligible under the definition of existing facility as described in paragraph 1, footnote 1;
2. The procedure described to monitor the heat supply to the end-users does not seem to comply with paragraph 18 of AMS-III.Q that specifies "For electricity or thermal energy exported to other facilities, monitoring of the use of electricity and thermal energy shall be undertaken at the recipient end". The heat losses in distribution/pipeline network, which would not occur in the baseline (in case the baseline is the thermal energy generation at the recipient end) shall be taken into account, or shall be compared to the heat losses in the baseline (if the baseline scenario is a fossil fuel based heat distribution system). Thus, the determination of the baseline scenario for the Greenfield thermal energy users' needs to be addressed in the methodology, and the estimation of baseline emissions based on the amount of heat supplied measured at the supply point shall not result in overestimation of the baseline emissions;
3. AMS-III.Q does not provide adequate procedure like in AM0058 to estimate baseline energy consumption to ensure that the service (e.g. heat provided to load) provided is the same/equivalent quantity (e.g. kJ per year) in the baseline and in the project cases. In the specific case of space heating, the methods to calculate baseline energy use should involve algorithms that: (a) indicate baseline energy use as a function of heating load as measured in the project case at the buildings; and (b) are calibrated with actual baseline system performance data if the service (e.g. heat provided to load) are different in the baseline and project cases. Such methods shall refer to the "Tool to determine the

baseline efficiency of thermal or electric energy generation systems".

The project proponents may consider submitting a request for revision of AMS-III.Q taking into account the issues raised above. We assume that estimated average annual emission reductions resulting from the proposed project is within the small-scale threshold i.e. 60 $ktCO_2$/year.

In response to the query on which of the methodologies (AM0058 and AM0072) is more suitable in order to request revision to cover the described project, the SSC WG is of the opinion that AM0058 may in principle be more suitable, however for substantive queries regarding the application of large scale methodologies, you are encouraged to submit a clarification request to the Meth Panel.

Signed by the Chair, Mr. Peer Stiansen

Date: 23/03/2012

Signed by the Vice-Chair, Ms. Fatou Gaye

Date: 23/03/2012

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