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:	22–25 August 2011, SSC WG 33
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Clarification on the applicability of energy efficiency and fuel switching measures in commercial installations
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	AMS-II.D "Energy efficiency and fuel switching measures for industrial facilities"
Name of the authors of the query:	Dinesh Aggarwal Institution: Ernst and Young, Kingdom of Bahrain dinesh.aggarwal@bh.ey.com, vishal.kumar@bh.ey.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

The project proponent is an airport company responsible for management and operation of the International Airport.

All the aircrafts are fitted with an Auxiliary Power Unit (APU) that provide power to the aircraft when it is landed at the airport and the engine are shut down, to run the accessories. One of the major functions is to operate the air conditioning units to maintain comfortable temperature in the cabin while the passengers are boarding before the aircraft's engines are started. Present ground cooling systems, if any, are inadequate in hot and humid climate (in the Middle East region) and therefore it becomes mandatory to use Auxiliary Power Unit (APU) to operate the aircraft on board cooling system (Air packs) for several hours before the aircraft is ready for boarding.

Every plane has a built-in cooling unit powered by APU which takes air from the outside and compresses and cools it. The cooled air is then forced into the aircraft through small holes on the inner surface of the cabin. This kind of cooling uses an open system (air from the atmosphere) and is highly energy inefficient and environmental unfriendly since they are powered by the bleed air from the APU. To summarize, the APU based cooling system is inefficient due to:

- The air from the atmosphere may have varying humidity levels. Humid air is not cooled as easily.
- Most of the cooled air will be rejected back out into the atmosphere as a result of forcing the air through small holes

The APU runs on Jet Fuel and lead to substantial fuel consumption resulting in release of a large amount of CO2 emissions during the period aircraft is parked at the airport.

The project activity involves installation of a new electrically powered pre-conditioned Compressed Air Expansion (CAE) ground based cooling system. The new ground cooling units are operating according to the air cycle principle and are mainly powered by dry compressed air generated in a centralized

compressor room.

The new ground cooling system is unique in the respect that it is capable of continuously supplying pre-conditioned air at subfreezing temperatures according to the IATA standard.

The new subfreezing ground cooling system is capable of running more efficient compared to the Air packs, because of the efficient system of drying the compressed air before the subfreezing pre-conditioned air is generated. This allows the system to run continuously without frequent need for defrosting. The drying of the compressed air is done by adsorption dryer technology capable of removing 99.5% of the humidity from the ambient air.

Since the new system is electrically powered (from the grid) which has a significant lower emissions compared to the burning of Jet fuel due to lower carbon intensity. The reduction of greenhouse gases (GHG) is estimated to be upto 67% and anticipated on two fronts:

1) High efficiency of the external cooling system compared to the in-build air conditioning units

2) Switch from high carbon intensity energy (ie. Jet fuel) to low carbon intensity energy (Grid electricity)

The GHG emission reductions are expected to be within the prescribed limit of 180 GWh_{th} per year. It is noteworthy that the project activity is primarily an energy efficiency measure, though involves fuel switch from Jet fuel to electricity, and therefore meets the requirement Methodology AMS.II.D ver 12.

Methodology (AMS.II.D-ver 12)

*As per the title and para 1 of methodology AMS.II.D ver 12 "Energy Efficiency and Fuel Switching measures for **industrial facilities**", it comprises any energy efficiency and fuel switching measures implemented at a single or several **industrial or mining and mineral production facility(ies)**; aimed primarily at energy efficiency.*

As per the above, the methodology is applicable to Industrial Facilities (including mining and mineral production facilities) only. The project activity may and may not fall under the specified category as it may be considered as commercial facility. In prima facia though, other methodology conditions seems to be applicable to the project activity.

In view of above, clarification is sorted from the Small-scale Working Group on the below:

1) whether the methodology (AMS.II.D) is applicable to the project activity.

2) whether the above project activity can be considered as a industrial facility to meet the methodology requirement.

3) whether if there is a requirement to propose revision in the methodology to include commercial facilities in the applicability condition.

Recommendation by the SSC WG:

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

Please refer to paragraph 22 of the meeting report of the SSC WG 33 <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. Based on the information provided the SSC WG agreed to provide the response as below.

In response to the query whether the underlying project activity is applicable under AMS-II.D, the SSC WG agreed to clarify that per a clarification provided by the CDM Executive Board (EB 25 report, para 58), project activities/parts of project activities resulting in emission reductions from reduced consumption of bunker fuels are not eligible under the CDM. Thus, displacement of jet/aviation fuel is not an eligible CDM activity, as proposed in the description provided by the author of the query.

However, if the project proponent were to indicate and justify a baseline scenario of a ground-based, electric cooling system that is less efficient than the proposed project activity, that could possibly be an eligible CDM activity. Further, even if the baseline scenario is an electric cooling system, the following issues shall be noted:

- Example projects applicable for use of AMS-II.D include energy efficiency measures (such as efficient motors), and efficiency measures for specific industrial or mining and mineral production processes (such as steel furnaces, paper drying, tobacco curing, etc.). AMS-II.D does not provide necessary procedures to estimate emissions reduction in the specific case of this chiller replacement project with variable performance. For example, AMS-II.D does not provide procedures or provisions to:
    - Calculate baseline/project/leakage emission due to the use of refrigerants in chillers;
    - Determine baseline scenario for project activity that supplies cooling energy;
    - Conservatively determine a baseline specific energy consumption taking into consideration the variable performance efficiencies of baseline chilling/cooling units (taking into consideration auxiliary loads such as cooling towers and chilled water circulating pumps);
    - Select baseline parameters such as COP and efficiency in the case of thermal energy;
    - Ensure level of service in the project as compared to its baseline. For example how to ensure that additional cooling is not done in the project case because the cooling is easier/less expensive; and
    - Monitor thermal energy (e.g. cooling output).

The SSC WG is of the opinion that the project proponents need to explain transparently in the PDD addressing the issues mentioned above. Alternatively, the project proponents wish to submit a request for revision of AMS-II.D or submit a new methodology taking into account the issues above.

Also, please note that the SSC WG is in the process of revising AMS-II.C or developing a new methodology to cover project activities involving technologies with variable input/output characteristics such as chillers. (See SSC WG response to SSC_540 “Clarification on calculation of baseline emissions for chiller programme under AMS-II.C”).

In response to the query whether the project activity can be considered as a industrial facility , the SSC WG clarified that an airport can be considered to be an industrial facility intended under AMS-II.D.

Signed by the Chair, Ms. Fatou Gaye
Date: 25/08/2011

Signed by the Vice-Chair, Mr. Peer Stiansen
Date: 25/08/2011

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