EcoSecurities Ltd.
Environmental Finance Solutions

First Floor
Park Central
40/41 Park End Street
Oxford OX1 1JD, UK
Telephone (44) 1865 202 635
Fax (44) 1865 251 438
E-mail: uk@ecosecurities.com
Web site: www.ecosecurities.com

UNFCCC Secretariat
Martin-Luther-King-Strasse 8
D-53153 Bonn
Germany

Dear Members of the CDM Executive Board,

Please find below our responses to the issues raised by requests for review of the "Methane Recovery and Electricity Generation Project GCM 20" (0618).

Answers to Requests for Review for:
Methane Recovery and Electricity Generation Project-GCM 20 (0618)

Comment 1. Clarification is requested with regards to debundling, as this project is one of 29 in the same country. There are no maps showing the location of the project.

Answer: The project, "Methane Recovery and Electricity Generation Project-GCM 20 (0618)" is a discreet small scale project, and thus, is not debundled from a larger project. In the PDD for this project activity the GPS coordinates are provided in section A.4.1.4, which sufficiently indicates the exact location of the project activity.

Comment 2. AMS-III.D version 9, which is quoted in the PDD, determines that "the flare efficiency, defined as the fraction of time in which the gas is combusted in the flare, multiplied by the efficiency of the flaring process, shall be monitored". But the PDD also state that: *"Surplus biogas will be flared using a high efficiency semi-enclosed or enclosed flare system. The flare and genset are both rated by their manufacturers at 98% combustion efficiency for biogas produced by the digester. (A conservative combustion efficiency of 90% will be applied ex-ante, but actual measurements of efficiency will be attempted ex-post)"*, which is confirmed by the Validation Report. The flare efficiency is to be monitored, not "attempted" to be measured ex-post.

Answer: AMS III.D Version 09 states that the flare efficiency shall be monitored, but does not provide guidance on the frequency or type of flare efficiency monitoring that is required. At the time that the PDD was developed for this project the existing guidance, based on a decision from EB 25 for the ACM0008 methodology was as follows:

> *If an enclosed flare is used, the project participants shall measure and quantify the efficiency of the flare (% of methane completely oxidized by combustion in the flare) on a yearly basis, with the first measurement to be made at the time of installation. The measured value of the efficiency of the flare shall be applicable for the period up to the next measurement. In case the yearly measurement of efficiency of the flare is not performed, the efficiency of the flare shall be a default value of 90%. If the last measured value of efficiency of the flare is lower than 90%, then the last lower measured value shall be used. Project participants may assume a default efficiency of 90% for closed flares for the **exante** calculation.*
> *In case open flares are used, since flare efficiency cannot be measured in a reliable manner (i.e. external air will be mixed and lower the concentration of methane) a default value of 50% may be used.*

This guidance that was used is also in keeping with version 01 of ACM0010, "Consolidated baseline methodology for GHG emission reductions from manure management systems"
:

> *If an enclosed flare is used, the project participants shall measure and quantify the efficiency of the flare (% of methane completely oxidized by combustion in the flare) on a yearly basis, with the first measurement to be made at the time of installation. The measured value of the efficiency of the flare shall be applicable for the period up to the next measurement. In case the yearly measurement of efficiency of the flare is not performed, the efficiency of the flare shall be a default value of 90%. If the last measured value of efficiency of the flare is lower than 90%, then the last lower measured value shall be used. Project participants may assume a default efficiency of 90% for closed flares for the ex-ante calculations.*
> *In case open flares are used, since flare efficiency cannot be measured in a reliable manner (i.e. external air will be mixed and lower the concentration of methane) a default value of 50% may be used.*

The project participants therefore referred to the above-mentioned guidance, and applied a 90% default efficiency, with plans to attempt annual flare efficiency monitoring. This default efficiency is considered to be conservative, as the flare that will be used at this project activity is rated at 99+% combustion efficiency.

The flares to be employed are an aspirating type, fitted with a venture burner with nozzles at the base so that the biogas creates a vacuum in the system and air is allowed to inject. The biogas is burned in a cylindrical enclosure. This air to biogas ratio is proportional based on the amount of biogas that is combusted in the flare. The flare has a factory preset air register (damper) which allows the air injection for the combustion to occur. The factory air register present is based on the biogas flow rate the biogas pressure which gives the ability to proportionately allow air and biogas mixture for optimum methane combustion. The flare is also equipped with a burning system, with a pilot that will allow the biogas to burn in the aspirating flare.

The detailed technical specifications of this flare can be provided upon request. These flares fit under the definition of an "enclosed flare" as was approved at EB 28 in the *"Tool to determine project emissions from flaring gases containing Methane":*

> ***Enclosed flare.*** *Enclosed flares are defined as devices where the residual gas is burned in a cylindrical or rectilinear enclosure that includes a burning system and a damper where air for the combustion reaction is admitted.*

Therefore, using a 90% default flare efficiency is conservative and reasonable.

Comment 3. The following information should be included:
i. Digester dimensions; digester biogas output - maximum and average; and livestock population served by the
digester;
ii. Technical details of the electricity generation sets that will be installed by the project. Please provide the installed capacity of the generator sets, type of turbine, rated efficiency etc. in the PDD.

Answer:

i. The volume of waste produced by the farms that will be delivering waste to this digester, approximately 24,000 m^3 to each of two (2) digesters planned for this project activity, and the digester dimensions are 75m x 75 m x 9m each. The construction of this project has been subject to some delays, and thus the operational starting date will be later than what was stated in the PDD. If the delays become significant the project will apply for a change in the start date of the crediting period.

ii. It is expected that the following generator will be used:
MOPESA 75KW Generator Set with an internal engine computer, and a motor with operation of 1800 RPM

We hope that the responses above are sufficient to address the issues raised, and that our responses are accepted by the EB. Please do not hesitate to contact me if you should have any further questions.

Kindest regards,

Jessica Orrego
Head of CDM Implementation, NY