Answers to the questions on the Revision of AMS III.H. (SSC 116)

Prepared by:

Marius Kaiser EcoSecurities

Tel +31 70 365 4749 Mobile + 31 61 222 2832 Fax +31 70 365 6495 Email: Marius@ecosecurities.com

Question 1:

The bottled biogas will be sold to final end users, which may involve transportation of the bottles resulting in emissions. Similarly physical leakages of methane (a GHG) may occur during bottling, distribution and final end use of the bottled gas. Leakage of fossil fuel (not always a GHG) use in the baseline due to lifecycle emissions of the fossil fuel has been cited to justify the exclusion. Given that the boundary and baseline do not include the fossil fuel use (e.g. to meet thermal energy needs) that is displaced by the bottled biogas the project participant may consider providing further explanation on this justification.

If the end users and hence the distances of transportation are unknown it might still be possible to suggest a conservative default value for project emissions assuming a certain transportation distance for all of the bottled biogas. Similarly it might be possible to propose a default value for project emissions on account of physical leakages including non-combusted methane in the final end use.

Answer:

Regarding transportation of bottled biogas: No emission reductions for the end use of bottled biogas can be claimed using this revised methodology. The bottled biogas comes from a renewable source and therefore has 0 emissions from a GHG accounting perspective. The upstream emissions of fossil fuel such as diesel are considerable (e.g. pumping oil, refining and international transport). Emissions from the use of bottled biogas (e.g. physical leakage in end-use, local transport) exist but will be far outweighed by the emissions reductions due to the displacement of fossil fuels (e.g. Gas/ Diesel oil). An exemplary quantification helps to illustrate the argument:

The tonnes of CO₂e emissions from Gas/ diesel oil consumption in the baseline for each tonne of biogas delivered by the project can be calculated as follows:

(Net Calorific Value of Natural Gas/ Upgraded biogas (TJ/tfuel) / Net Calorific Value of Gas Diesel oil (TJ/tfuel))* CO₂ emissions of Gas/ Diesel oil (tCO₂/tfuel)

Using 2006 IPCC Guidelines for National GHG Inventories this would result in: (0.048/0.043)*3.185 = 3.5552 tCO₂e

For the same amount of energy the use of gas/ diesel oil would result in 3.5552 tCO₂e in comparison to 0 tCO₂e of bottled biogas. The emissions of the baseline therefore far outweigh potential leakage emissions of the project.

The methodology mentions (under "Baseline") that there may be an alternative option to include the claim for baseline emissions in line with AM0053. This alternative is NOT included in the methodology and may be subject for a future revision if there is a need for it. In such a case more precise monitoring and estimates of leakage effects may be required.

Regarding physical leakages in the end-use: The same argument as for "transportation of biogas" above holds. Furthermore, it was impossible to identify a default value for project emissions on account of physical leakages from bottles. No default leakage factors for compressed natural gas or biogas in bottles were readily available.

Question 2:

The proposed revision to the methodology mentions in paragraph 16: "In case biogas is upgraded for bottling and vent gases are calculated using the "Tool to determine project emissions from flaring gases containing methane", the monitoring criteria contained in this tool shall be used. In case this tool is not used and the alternative approach at the end of paragraph 8 is used then volume, temperature and pressure of gas retained in water wash upgrading equipment shall be measured as well as the frequency with which the gas is vented and its methane content". Project participants are invited to provide guidance on how and how often these variables are monitored.

Answer:

The entire system is under intense monitoring in order to facilitate its day-to-day operation. The volume, temperature and pressure of gas retained in water wash equipment can be measured using flow meters and gas meters at the respective exit points from the water wash equipment. Flow- and gas quality measurements are used to establish the temperature. These measurements are made continuously when venting occurs, for example, at the end of a compression cycle or during an emergency shutdown.

Alternatively, this particular option of calculating gas retained in water wash equipment by measuring volume, temperature and pressure could be deleted. It was originally included in order to allow for a broader, simpler applicability of this SSC methodology. If the option was deleted the project participant would still have the options of channeling the gas back to the storage bag or of using the Tool if flaring or venting occurs.