Comments on CCAR Livestock Protocol DRAFT Version 2.0

Improvements to the methodology

First of all I would like to congratulate CCAR on the revised protocol, and acknowledge several changes from version 1, which I believe result in significant improvements to the methodology.

The significantly increased use of lookup tables for data such as typical average mass of stock, and volatile solids and maximum methane potential default values have an important impact on improving the simplicity of implementing the monitoring plan for farmers. I believe this will reduce errors in the data gathering, and generally increase the number of feasible livestock GHG offset projects.

I also appreciate the assumptions with regards to the parameter VS_{ep} 'volatile solids to the effluent pond' being brought into line with the CDM methodology (ACM0010).

GHG Reduction Calculation Methods

I believe that in calculating emission reductions, the option of using gas data gathered from the digester – measured as the product of biogas flow at the digester outlet and methane fraction in the biogas – to directly measure the methane captured by the system, should be available to project developers. The existing methodology allows only the measurement of emission reductions through an *ex ante* calculation, based *inter alia* on temperature, volume, and volatile solids inputs:

$$GHG\ Reductions = (Baseline\ Emissions_{CH4,\ CO2}) - (Project\ Emissions_{CH4,\ CO2})$$

I note that data on the volume and percentage methane content of the gas captured in the biogas capture system (BCS) is already required under equation 4a, 'project methane emissions from the biogas control system': $CH_{4,\ meter} = monthly\ quantity\ of\ methane\ collected\ and\ metered\ (tCH_4/month)$ (ref: p. 20).

There are two key reasons I believe that this data should also be acceptable as a means of calculating project emission reductions: ease of implementation, and an efficiency incentives.

In the first instance, gas flow is continuously monitored and biogas concentration either continuously or frequently monitored. Monitoring data generated in this way are therefore expected to be an accurate record of the methane emission reductions. This data has the advantage of being simple to gather and compile on a frequent basis, and require less *ex ante* assumptions that might not accurately reflect the situation on a particular farm on which a project is being undertaken. *Ceteris paribus*, I would expect that greater ease of implementation would result in projects being implemented by an increased number of farms.

In the second instance, I believe that such a change would provide an otherwise absent incentive to improve digester technology. By assuming default anaerobic unit process performance for a given type of digester, the methodology, as currently envisaged, provides little incentives for the adoption of more efficient digesters. Technologies such as commonly-used single-cell lagoons can, in reality, vary

significantly in the efficiency with which they remove BOD from the wastewater influent. Under the current methodology offsets generated, and thus revenues from the system, depend only on the category of technology used, incentivising adoption of the lowest cost technology. By basing reductions on actual gas flow measurements, actual system performance is measured, providing a strong incentive for the adoption of best available technology.

<u>Other Miscellaneous Points</u>

- Table 2, Project Monitoring Parameters: there are numerous references to the "CCAR Livestock Calculation Tool". However, I note that at the time of writing there is no such tool available on the CCAR website that reflects version 2.0 of the Protocol.
- On page 26, under the 'Regulations' parameter, a reference is made to the "Project developer attestation to compliance with regulatory requirements relating to *landfill gas* project". I wonder whether it is correct to landfill gas projects here.
- Box 1, 'the Registry's treatment of nitrous oxide emissions' states that the Registry is likely to incorporate nitrous oxide-derived emission reductions into a later version of the Protocol. However, it is not clear from the text whether early adopters of this project protocol will be grandfathered in, and allowed to add these offsets to existing project.

Best regards,

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