

# **Review Comments to the Climate Action Reserve’s DRAFT Waste Digestion Project Protocol**

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The following provides review comments for your consideration to the DRAFT Protocol:

## **Section 2.1 Project Definition**

The third paragraph of this section only references the co-digestion of eligible organic waste streams with manure. Page 74 of Appendix C then describes co-digestion of bio-wastes at wastewater treatment plants (WWTP). Could you please clarify/add that co-digestion of eligible organic waste streams can be performed with municipal sludge as a primary feedstock in existing or new digesters at WWTPs besides manure?

(The same comment applies to Section 5.1.)

## **Section 3.4.1 Performance Standard Test**

Please add to the Text Box on page 7 as additional Eligible Organic Waste Streams, the terms source separated organic waste (SSO) and non-source separated waste (mixed MSW) where the organic fraction of MSW (OFMSW) can be digested or co-digested. (These terms are introduced in a similar manner later in the document (Section 5.1.1.1; see also comments to Section 5.1. and Section 9 below).

## **Section 4 The GHG Assessment Boundary**

When co-digesting eligible organic waste streams at WWTPs, a good portion of the filtrate of the liquid/solid separation may be recycled back into the organic waste pre-treatment or treatment process and/or sent to the headworks of the WWTP for further treatment. For clarification I suggest adding a textbox in Figure 4.1 stating that the liquids from the solid/liquid separation goes to a wastewater treatment process -outside the GHG Assessment Boundary- before it is discharged.

Similar clarification could be added in the first paragraph of Section 5.2.3.

## **Section 5.1 Baseline Emissions**

Please add to the definition of MSW Food Waste the terms source separated organic waste (SSO) and non-source separated waste (mixed MSW) where the organic fraction of MSW (OFMSW) can be digested or co-digested (see comment below to Section 9 Glossary of Terms).

## **Section 5.2.2 Project Emissions from the Biogas Control System**

Replace the word “will” with “may” in the following sentence of the first paragraph: “...and the destruction devices) *may* be a significant source of methane emissions...”.

Whether or not a biogas control system may be a significant source of methane emissions is dependent upon its operational performance and control efficiency.

### **Section 5.2.5 Project Emissions from Anaerobic Disposal of Digestate produced on the digestion process**

Successful digestion or co-digestion of SSO or OFMSW requires effective removal of contaminants (plastics, stones, grit, metals, batteries, etc.) in the pre-treatment process. The level of contamination in the waste stream may vary and a certain amount of organic matter remains in the removed contaminant stream. The amount of organic matter that is remaining in the removed contaminates is dependent upon the technology applied for contaminant removal. Depending upon the contaminant removal process a certain portion of the removed contaminants may be used for beneficial use (for example removed fine grit could be used as construction material). The majority of the removed contaminates (with residual organic matter attached) may need to be disposed of in landfilled or other means of disposal (e.g. thermal treatment). The residual organic material that is landfilled will need to be accounted for as well besides the digestate disposal scenario described in this section.

### **Section 9 Glossary of Terms**

MSW Food Waste – Please add to this definition for clarification the terms source separated organic waste (SSO) and non-source separated waste (mixed MSW) where the organic fraction of MSW (OFMSW) can be digested or co-digested. The terms SSO and OFMSW have been more commonly used in Europe rather than food waste.

Please note that the term “bio-waste” (or: biowaste) used in Appendix C of SAIC’s report (page 74) is commonly used in Europe and describes SSO along with smaller amounts of digestible yard wastes such as grass clippings and leaves.

### **Appendix C**

Would it be possible to receive a copy of SAIC’s “Performance Standard Paper”? I am particularly interested in reviewing background information used to determine the cost figures provided and discussed under the Section titled “Digestion Economics”.

What are the sources used to determine the cost figures provided in Table C.2.? The capital costs, for example, shown for anaerobic digestion of MSW appears to be on the low end.

#### **Table C.3:**

Performing “back of the envelope” calculations to calculate the capital costs for a facility with an annual throughput of 150,000 tons per year and a capital cost figure of \$50,000 per ton of daily tonnage shows the following result:

$$\text{Capital cost} = (150,000 \text{ tpy} / 365 \text{ days/yr}) * \$50,000/\text{ton/day} = \$20,547,945$$

I’m wondering how SAIC arrived at \$15 million in capital costs for this given throughput.

Note that the 365 days per year processing scenario is rather optimistic; assuming 250 – 350 days per year would be more realistic (accounting for downtime and no operation over the weekends). This would in turn increase the estimated capital costs for such facility further.