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SUMMARY OF COMMENTS & RESPONSES DRAFT OWD PROJECT PROTOCOL VERSION 2.0

5 sets of comments were received during the public comment period for the Climate Action Reserve (Reserve) draft Organic Waste Digestion (OWD) Project Protocol Version 2.0. Staff from the Reserve summarize and provide responses to these comments below.

The comment letters can be viewed in their entirety on Reserve's website at <http://www.climateactionreserve.org/how/protocols/adopted/organic-waste-digestion/organic-waste-digestion-project-protocol-revisions/>

COMMENTS RECEIVED BY:

1. EarthWorks (**EarthWorks**)
2. Edgar & Associates (**Edgar**)
3. Organic Waste Systems, Inc. (**OWS**)
4. Waste Management (**WM**)
5. Yorke Engineering, LLC (**Yorke**)

General Comments:

1. We request that the protocol be amended to allow mortalities (from farms, dairy operations, and other sources) and rendering plant wastes to be confirmed as ELIGIBLE feedstocks if such feedstocks can be demonstrated (to the standards required of the protocol) to have been diverted from (e.g., formerly disposed of under) anaerobic disposal conditions or alternatives that generate methane during decomposition (such as landfilling, lagoons or underground burial). We made such a request in 2009 during the development of V.1, and there was support in the group for it at that time. The onus would be on the project developer to demonstrate diversion of the feedstocks from anaerobic disposal alternatives. For example, in Sweden, transport vehicles are run on methane from disposal of remains at a rendering plant. See <http://news.bbc.co.uk/2/hi/science/nature/4373440.stm>

We can provide additional data and info to support a specific project application, if the OWD protocol would allow for such feedstocks. **[See public comment submission for detailed protocol comments concerning these additional waste streams.] (EarthWorks)**

RESPONSE: It is not possible for new waste streams to be included for eligibility without background research to substantiate common practice management methods. The Reserve sets performance standards based on industry practices, and does not allow case-by-case, project-specific determinations of additionality. We do plan to engage in research around potential expansion of the categories of eligible waste streams for OWD projects for inclusion in a future protocol version.

2.2 Project Definition

2. I would recommend that the project definition include projects that reduce methane by replacing anaerobic digestion of agro-industrial wastewater streams with aerobic digestion, instead of only including projects that capture and destroy methane. For example, the Verified Carbon Standard (VCS) allows methodologies from the Reserve, VCS and the Clean Development Mechanism (CDM) methodologies to be included for applying for VCS credits. UNFCCC CDM methodology CDM0080 "Mitigation of greenhouse gases emissions with treatment of wastewater in aerobic wastewater treatment plants" is in place to determine the reduction of GHG emissions from these type of projects (attached). We would recommend that similar methodology be included under the Organic Waste Digestion Protocol so these aerobic wastewater treatment projects would be eligible for future Reserve GHG credits under this protocol. **(Yorke)**

RESPONSE: The Reserve has not yet explored the feasibility of including projects that switch from uncontrolled anaerobic treatment of agro-industrial wastewaters to aerobic treatment. We may consider inclusion of this potential project activity in future versions of the protocol. The CDM methodology referenced is only applicable for wastewater streams for which open uncontrolled anaerobic lagoons are the baseline management system, which is not common practice in the United States. Appendix C of the OWD protocol explains in more detail the reasoning behind the exclusion of most wastewater streams.

3.5 Additionality

3. How does the protocol capture the additionality of landfill emission reductions associated with organics when operators engage in reduction methods at the landfill itself? For example, in California, new regulations mandate landfill methane emission reductions through more comprehensive monitoring and allowable methane concentrations. If the landfill is reducing emissions, is the reduction double-counted when the organic waste flows to a different type of processor? Shouldn't the landfill be allowed to capture reductions for their efforts?

In general, we continue to be uncomfortable with the notion that an OWD project captures all of the emission reduction credits for food waste diverted from landfills. We believe that an analysis and allocation may be appropriate in some instances and would like to see language that allows flexibility in this regard. **(WM)**

RESPONSE: Please refer to Box 5.1 and Equation 5.4 of the OWD V2.0 protocol for details regarding landfill gas capture and its effect on the calculation of emissions reductions from organic waste streams that are diverted. It is conservatively assumed that all landfills are controlling their methane emissions to a high degree. The reductions are not double-counted, because the OWD project does not receive CRTs for gas that would have been captured at the landfill. The OWD project retains the rights to emissions reductions from waste diverted from landfills because, in the project scenario, that waste is never received by the landfill.

3.5.1 The Performance Standard Test

4. The Reserve should drop the requirement for grocery store documentation if the feedstock is mixed MSW, due to the difficulty of tracking grocery store waste when it is not directly linked to the project (third party hauler, etc.). If this is not considered conservative enough, then a simple reduction in feedstock tonnages from routes that include grocery stores of 2.5% to account for the possibility of grocery store waste in the mixed MSW is another possible option in lieu of tracking down individual grocery store data. **[See public comment submission for detailed information.] (Edgar)**

RESPONSE: It was not the Reserve's intent to require grocery store documentation where feedstocks consist of mixed MSW, rather than grocery store waste that is source-separated and part of an organics diversion program. We will clarify Section 3.5.1 in this regard.

5. The rules governing previous practices for grocery store waste could be further clarified to cover the following scenarios:
 - a. Previous practice: Grocery store waste shipped to farm and fed to dairy cattle. Farm uses lagoons for storage of liquid manure. Methane emissions result from enteric methane and manure storage lagoons. New practice: Food waste goes directly to AD system, avoiding enteric and lagoon emissions associated with the food waste (proportionate to their presence in the feed rations). The rules appear to exclude this scenario by limiting the diversion from landfills, as the wording is limited to landfills and does not seem to include #6 Uncontrolled Anaerobic Wastewater Treatment or something similar. We recommend that waste streams that were

previously being disposed of in any manner that resulted in methane emissions be considered eligible.

b. Previous practice: Grocery store waste shipped to non-registered OWC or OWD, but otherwise meets the eligibility criteria, meaning that the documentation is available to establish that it would have met the criteria had the OWD or OWC attempted to register the site at that time. Many OWD and OWC sites are simply too small to merit the considerable cost of verification and monitoring. However, as more OWDs are established, many of these will be large enough to merit registration and monitoring. We recommend that the requirement that the previous OWC or OWD was registered be removed if the waste stream had been received by that OWC or OWD for a period of less than 36 months. **(OWS)**

RESPONSE:

a. **The Reserve was unaware of this activity. The inclusion of this baseline scenario would necessitate the development of new quantification methodologies for emissions resulting from enteric fermentation, which is something the Reserve has not previously addressed, and which may be subject to a high degree of quantification uncertainty. Developing such methodologies is not feasible for this protocol update, but will be taken into consideration for future protocol versions.**

b. **To assist with this situation, the OWD protocol allows for projects that are receiving less than 5,000 MT of food waste per year to be considered “pilot scale”, and to delay the beginning of their 10-year crediting period until they have either reached what they would consider “commercial scale”, or crossed the 5,000 MT/yr food waste threshold, whichever occurs first (see OWD V1.0, footnote 6 on page 5).**

4 GHG Assessment Boundary

6. The rules appear to treat incremental fossil fuel emissions differently for transportation than for processing by excluding differences in emissions from transport of waste and handling of waste at the landfill but including emissions resulting from the use of fossil fuels or grid delivered electricity for waste pre-processing equipment. According to U.S. DOE, there are 160.30 lbs of CO₂ for every 1 MMBtu of diesel fuel combusted. It is recommended that emission reductions from reductions in diesel use both for transport and for grading/re-grading/covering of the landfill be included in the scope. Without this change, projects will erroneously appear to consistently require more energy and produce more emissions from energy use than prior to the project. **(OWS)**

RESPONSE: The OWD protocol uses default assumptions regarding the characteristics of the landfill(s) in the baseline scenario, rather than attempting to determine the specific landfill where each shipment of organic waste would have gone if it had not been delivered to the project digester. In either case, the waste will need to be transported. Because of this, it is assumed that transportation emissions will not change between the baseline and project scenario. In addition, the fuel used for grading/re-grading/covering of the landfill is unlikely be significantly changed in the project scenario, unless the landfill was primarily receiving organic waste, and the diversion of this waste to the OWD project significantly reduced the total amount of waste received by the landfill. For future protocol versions the Reserve will explore options for more detailed quantification of

baseline CO₂ emissions related to fuel and electricity usage.

7. WM is concerned about the accuracy of calculating the emission reduction resulting from food waste diversion when the organic material starts out being transported across state lines or from one climate extreme to another. In many instances, organic material is generated in urban areas with wet climates, then transported to distant, dry landfills for disposal. An accurate analysis would consider emissions at the organics digester as well as the landfill. Considerations should be given to emissions associated with digester engines or other equipment, as well as residual digestate management and inventory storage. We would like to see an allocation of emission reduction credits given to each facility. **(WM)**

RESPONSE: The Reserve acknowledges that the landfill and the OWD project may not always be located in the same county (the geographic unit used to determine decay rate in the protocol). However, even if waste is transported across county or state lines, in most parts of the country it is unlikely that this will result in movement to a different precipitation zone (Figure B.1). At this time we have deemed this to be an acceptable risk. Please also see response to comment #8. The emissions associated with the digester are accounted in the protocol; please refer to Section 5.2 of the protocol for more details on quantifying project emissions. This section accounts for GHG emissions associated with: fossil fuel and grid electricity usage, the biogas control system, the digester effluent pond, aerobic treatment of digestate, disposal of digestate at landfills, and manure management systems (not all SSRs will be relevant to every project).

8 Verification Guidance

8. Verification is important, yet extremely burdensome when material moves across geographic boundaries. This will be an ongoing issue associated with any protocol that considers landfill emission reductions exclusively, since significant waste movement is prevalent in many parts of the country. **(WM)**

RESPONSE: The Reserve will further research the movement of organic waste streams in the United States in order to improve guidance in future protocol versions.