Alternative Technology Advisory Subcommittee
Los Angeles County Solid Waste Management Committee/
Integrated Waste Management Task Force

Minutes for February 21, 2019

Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, CA 91803

SUBCOMMITTEE MEMBERS PRESENT:
Chris Coyle, rep by Dennis Montano, Republic Services – Sunshine Canyon Landfill
John Kaddis, Los Angeles County Department of Public Health
Tim Hall, California Department of Resources Recycling and Recovery (CalRecycle) *
Patrick Holland, Los Angeles County Department of Public Works
Wayde Hunter, North Valley Coalition of Concerned Citizens
Ben Lucha, City of Palmdale *
Kay Martin, rep by Jim Stewart, Bioenergy Producers Association
Kevin Mattson, Waste Management
Mark McDannel, Los Angeles County Sanitation District
Mike Mohajer, Los Angeles County Integrated Waste Management Task Force
Jim Stewart, Bioenergy Producers Association
Eugene Tseng, UCLA Solid Waste Program

SUBCOMMITTEE MEMBERS NOT PRESENT:
Rob Williams, UC Davis Policy Institute for Energy, Environment and the Economy
Alex Helou, City of Los Angeles
Ron Kent, Southern California Gas Company

OTHERS PRESENT:
Clark Ajwani, Los Angeles County Department of Public Works
Tracy Anthony, Alternative Resources, Inc. (ARI)
Elijah Carder, Los Angeles County Department of Public Works
Carol Oyola, Los Angeles County Department of Public Works
Margarita Quiroz, Los Angeles County Department of Public Works
Kawsar Vazifdar, Los Angeles County Department of Public Works

* Designates participants over the telephone

I. CALL TO ORDER

Mr. Holland called the meeting to order at 10:01 a.m.

II. APPROVAL OF MINUTES FROM JANUARY 17, 2019 MEETING

A motion to approve the minutes from the January 17, 2019, meeting as amended on Item III, was made by Mr. Mohajer and was seconded by Mr. Kaddis. The motion passed unanimously.

III. PRESENTATION FROM STEVE MCCORKLE OF AG WASTE SOLUTIONS

Mr. McCorkle presented for Ag Waste Solutions (AWS), which currently has a gasification project located at Scott Brothers Dairy Farm (Farm) in San Jacinto, California. Mr. McCorkle stated that the gasification unit started with and is currently processing dairy manure but has tested gasifying other materials such as green waste. The project processes dairy manure and separates the liquids from the solids. The liquids are used for fertigation or processed through ultrafiltration to produce potable water. The solids are gasified to produce biochar and syngas. The syngas has been upgraded using gas cleaning equipment and a Fischer-Tropsch module to produce low-emissions diesel fuel, which can power the farm equipment that harvests crops. Currently the project is solely focusing on the production of biochar, that helps grow crops for the dairy cows to eat.

The project has two operating permits from the South Coast Air Quality Management District (SCAQMD). The Farm is also permitted by the Regional Water Quality Control Board (RWQCB) as part of a Concentrated Animal Feeding Operation (CAFO) and must comply with a zero total dissolved solids (TDS) discharge requirement. To meet this requirement, the Farm had to reduce its volume of manure waste and either convert it into value-added materials, including soil amendments such as compost and/or biochar, or export it from the region.

Mr. McCorkle stated that the use of small portable systems located near the feedstock source and offtake market reduces the cost of biofuel and biochar production. He stated that this is a challenge with Senate Bill 1383 (2016) organic waste disposal reduction compliance because organic feedstocks are generated in the major population centers and soil amendments are used in agricultural regions.

Mr. Holland asked if the only feedstock for the gasifier is manure. Mr. McCorkle answered that manure is currently the only feedstock, but that they plan to integrate green waste, wood waste, and food waste. He stated that AWS is currently working with a partner to bring organic waste, starting with mostly green waste, to the Farm for composting. Mr. McCorkle stated that the compost will be used on-site because CalRecycle regulations do not allow compost produced from dairy manure to be sold for commercial use. He stated that the biochar will be added to the compost. Mr. McCorkle stated that the project would incorporate food

waste after demonstrating that green waste and wood waste could be processed in compliance with all environmental regulations. Mr. McCorkle stated that the benefit of combining biochar with compost is that it creates a carbon-negative soil amendment at a reasonable price despite the high cost of biochar production.

Mr. Hall asked if the project plans to gasify or compost the food waste. Mr. McCorkle responded that the project will add an anaerobic digester to process manure and green waste initially and to eventually process food waste He stated that the digestate can either be gasified or directly added to the compost.

Mr. Hall asked to confirm that AWS does not currently accept food or green waste. Mr. McCorkle responded that the project currently only processes manure and green waste from the Farm. Mr. Hall asked if they have contacted the local enforcement agency (LEA) about solid waste permitting and Mr. McCorkle answered that their partner was responsible for doing so.

Mr. Hunter asked if any liquids are discharged into the sewer and Mr. McCorkle responded that they are not and are used for irrigation.

Mr. Stewart asked what the estimated price of the combined biochar and compost would be if it were sold to a third party. Mr. McCorkle responded the price could vary but that the current market price is about 60 cents per pound.

Mr. Tseng asked what the project's throughput rate is. Mr. McCorkle responded that the project processes approximately 1,000 pounds per hour of manure and produces approximately 350 pounds per hour of biochar. Mr. Mohajer asked how many tons of manure can be processed daily. Mr. McCorkle answered that the equipment has the capacity to process approximately 20 tons of manure a day.

Mr. Tseng asked if this is a continuous process and Mr. McCorkle answered that it is. Mr. Tseng asked what the longest run time was before major maintenance was needed. Mr. McCorkle responded that the project operates twenty-four hours a day for six days a week and shuts down one day a week for maintenance.

Mr. Stewart asked if AWS manufactures their own gasification and pyrolysis units. Mr. McCorkle responded that they did in the past, but now they use a manufacturer in Europe to produce the reactors.

Mr. Holland asked what kind of fuel is used to power the gasifier. Mr. McCorkle responded that it uses natural gas. Mr. McCorkle added that the Fisher-Tropsch system is much smaller than the gasifier. He stated that for this reason, the gasifier is now primarily used to produce biochar instead of producing excess syngas that would be used by the Fischer-Tropsch system, flared, or used to power a generator. AWS was also interested producing a nutrient-rich biochar, since most other projects produce woody biochar.

Mr. Tseng stated that most gasification technologies require feedstock with consistent physical and chemical characteristics and asked how AWS will deal with variation when they begin processing materials besides manure. Mr. McCorkle responded that relatively small amounts of consistent green waste would be used in addition to manure and that other materials would not be added to the gasifier.

Mr. Holland asked if AWS considered making compressed natural gas (CNG) or renewable natural gas (RNG) vehicle fuel that may receive Low Carbon Fuel Standard (LCFS) or Renewable Identification Number (RIN) credits and could be used for on-site fueling. Mr. Holland also asked whether AWS considered injecting biomethane into the pipeline. Mr. McCorkle responded that the upgrading of syngas for pipeline injection is cost-prohibitive and that there is no regional need for additional natural gas from the pipeline.

IV. UPDATE ON CONVERSION TECHNOLOGY POLICY AND LEGISLATION

Ms. Vazifdar reported that staff is currently preparing a Task Force comment letter to CalRecycle regarding the SB 1383 regulations. Mr. Mohajer mentioned that the California Public Utilities Commission (CPUC) decided to lower the minimum heating value for biomethane pipeline injection and will soon make a decision on the maximum siloxane concentration.

V. UPDATE ON CONVERSION TECHNOLOGY EVENTS/MEETINGS/OUTREACH ACTIVITIES

Ms. Vazifdar mentioned the upcoming conferences:

- Rethink Methane Symposium, February 26 – 27, 2019, Sacramento, CA
- Southern California Waste Management Spring Conference, March 5, 2019, Downey, CA.
- International Biomass Conference, March 18 – 20, 2019, Savannah, GA
- California Municipal Utility Association 2019 Annual Conference, March 31 – April 2, San Diego, CA
- BioCycle West Coast Conference, April 1 – 4, 2019, Portland, OR

Ms. Vazifdar gave an update on the VerdeXchange Conference held in January 2019 in Los Angeles, California. Public Works hosted a booth to provide information about sustainability initiatives, including conversion technologies (CTs), organics recycling, and stormwater management. Mr. Holland participated in a panel on organics recycling. Mr. Coby Skye moderated a panel on municipal solid waste (MSW) conversion, during which Mr. Stewart provided information on state laws that create barriers for the development of thermal CTs in California.

VI. UPDATE ON CONVERSION TECHNOLOGY PROJECT DEVELOPMENT

Ms. Anthony gave updates on the following three projects:

- ARI reviewed the SB 1383 draft regulations focusing on the technology verification process and provided comments to Public Works to assist in their preparation of a comment letter to send to CalRecycle.
- ARI reviewed additional information regarding All Power Labs' mobile biomass gasification technology, including a calculator they developed to evaluate project cost and cash flows.
- ARI is researching and compiling information on small-scale thermal CTs processing less than 10 tons per day for potential on-site applications for post-recycled MSW.

Mr. Stewart commented that the regulatory provisions restricting the use of thermal CTs to process MSW do not apply to source-separated cellulosic biomass. He stated that there are several projects in the San Joaquin Valley using thermal CTs to process agricultural residues, which he feels is a major breakthrough in leading CalRecycle and the state legislature to recognize the benefits of using thermal CTs to process MSW. Mr. Stewart stated that he is aware of five projects, including one using the Enerkem technology and an Aemetis project using the InEnTec and LanzaTech technologies. He stated that these two projects will produce 55 to 57 million gallons a year of cellulosic ethanol. He stated that both projects received $5 million grants from the California Energy Commission (CEC). Mr. Stewart stated that the Aemetis project may begin construction by mid-2019 and the Enerkem project may not begin construction for 12 to 18 months.

VII. PUBLIC COMMENTS

Ms. Anthony requested Mr. McCorkle's contact information and Mr. Stewart requested Mr. McCorkle's presentation. Mr. Holland stated that both would be circulated to the ATAS members in case they had additional questions.

Mr. McCorkle commented that the thermal CT projects described by Mr. Stewart are larger in scale compared to the AWS project which is intended for on-site use.

VIII. ADJOURNMENT

The meeting adjourned at 11:01 a.m. The next ATAS meeting is tentatively scheduled for Thursday, March 21, 2019, at 10:00 a.m., in Public Works TMC Conference Room, Annex Building, First Floor.

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