

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

**Minutes for August 15, 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, rep by Clark Ajwani, Los Angeles County Public Works  
Wayde Hunter, North Valley Coalition of Concerned Citizens, Inc.  
Ben Lucha, City of Palmdale  
Kevin Mattson, Waste Management  
Mark McDannel, County Sanitation Districts of Los Angeles County  
Mike Mohajer, Los Angeles County Integrated Waste Management Task Force  
Kay Martin, rep by Jim Stewart, Bioenergy Producers Association +  
Eugene Tseng, UCLA Solid Waste Program

SUBCOMMITTEE MEMBERS NOT PRESENT:

Alex Helou, City of Los Angeles  
Ron Kent, Southern California Gas Company  
Rob Williams, UC Davis Policy Institute for Energy, Environment and the Economy

OTHERS PRESENT:

Tracy Anthony, Alternative Resources, Inc. (ARI) \*  
Elijah Carder, Los Angeles County Public Works  
Daniel Dela Cruz, Los Angeles County Department of Public Health  
Michelle Dewey, California Department of Resources Recycling and Recovery  
(CalRecycle) \*  
Perla Gomez, Los Angeles County Public Works  
Margarita Quiroz, Los Angeles County Public Works  
Kawsar Vazifdar, Los Angeles County Public Works  
Elizabeth Zaragoza, Los Angeles County Public Works

\* Designates participants over the telephone

+ Designates subcommittee members/alternates over the telephone that are not part of quorum

## **I. CALL TO ORDER**

Mr. Ajwani called the meeting to order at 10:02 a.m.

## **II. APPROVAL OF MINUTES FROM JULY 18, 2019 MEETING**

A motion to approve the minutes from the July 18, 2019 meeting was made by Mr. McDannel, as amended, and seconded by Mr. Tseng. The motion passed unanimously.

## **III. PRESENTATION ON GENIFUEL HYDROTHERMAL PROCESSING TECHNOLOGY – JAMES OYLER**

Mr. James Oyler from the Genifuel Corporation gave a [presentation](#) about hydrothermal processing (HTP) technology that can be used to create oil and gas from organic waste and municipal solid waste (MSW), among other feedstocks. He stated that this technology can also process paper and plastics, but not metal and glass. He stated that the outputs are biocrude oil refined for diesel, gasoline, or jet fuel and biogas comprised of methane and carbon dioxide which can be used to create pipeline renewable natural gas, electricity, or transportation fuel.

Mr. Oyler described two projects using the HTP technology to create oil and gas from wastewater sludge. He stated that one is at a Metro Vancouver wastewater treatment plant in Vancouver, Canada in partnership with Parkland Fuel who refines the biogas generated at the plant into fuel. He stated that the other Central Contra Costa Sanitary District (Central San) facility is in Martinez, California. He added that the facility also has two incinerators to process their wastewater sludge, which will be retired by the year 2025.

Mr. Lucha asked how the HTP technology can be used to process chemical waste. Mr. Oyler responded that the first stage converts about 50 percent of the organic content of the waste to produce oil and a liquid that contains the remaining organic material. He continued that the liquid enters the second stage, where it is gasified and any chemical waste molecules in the liquid including per- and polyfluoroalkyl substances (PFAS) will be converted into methane. Mr. Oyler also commented that Genifuel is in the process of obtaining all the regulatory approvals for the HTP technology, such as California Air Resources Board and California State Water Resources Board approval and will complete California Environmental Quality Act (CEQA) requirements.

Mr. Tseng wanted to know if plastic bottles could be processed using the HTP technology. Mr. Oyler responded that plastic material alone cannot be used as a feedstock but if plastic is a portion of the feedstock, typically as part of MSW, it can be processed.

Mr. Tseng asked if the gasification stage produces synthesis gas. Mr. Oyler responded that biogas comprised of 70 percent methane and 30 percent carbon dioxide is produced, not synthesis gas.

Mr. Hall asked if the liquid produced by the HTP technology contains nutrients. Mr. Oyler responded that all that remains in the water after processing are inorganics, such as salt potassium chloride, potassium carbonate, ammonia, copper, iron, and zinc, and that it can be used as fertilizer water. Mr. Hall asked about regulatory approvals needed for the water to be applied to the environment. Mr. Ajwani commented that Water Board approval is needed, and Mr. Oyler concurred.

Mr. Hall asked if the HTP technology produces waste or other products besides oil, water and gas. Mr. Oyler responded that a solid inorganic stream containing sand, grit, glass, etc., is precipitated. He added that phosphorus is captured and precipitated as calcium phosphate to create fertilizer.

Mr. Hall asked if hazardous waste is generated. Mr. Oyler responded that no hazardous waste is produced. Mr. Hall asked if a hazardous waste treatment permit would be needed to process chemical waste. Mr. Oyler answered that such a permit would likely be needed. Mr. Tseng confirmed that a hazardous waste permit would be needed.

Mr. Hall asked if wood waste and other cellulosic waste would need to be pre-treated to be processed using the HTP technology. Mr. Oyler responded that wood and agricultural waste would need to be grinded into a pumpable slurry, which requires energy and water to produce. Mr. Hall also asked if some of the wood waste will not break down during the process. Mr. Oyler responded that it breaks down completely with no remaining solid material due to the temperature of the processing technology.

Mr. Hall asked if there are any plans to include MSW in the Contra Costa project. Mr. Oyler responded that this plant does not have any definite plans and their priority is to retire the incinerators they currently use to process wastewater sludge.

Mr. Ajwani asked if a potential pilot in Los Angeles County would have to be in partnership with a wastewater treatment plant or if it could be used to process MSW only. Mr. Oyler answered that it could be either, but one benefit of co-processing MSW with wastewater sludge is that no added water would be needed.

Mr. McDannel asked if the proportion of oil versus gas produced is a function of the feedstock or if the process can be modified to produce certain proportions. Mr. Oyler responded that it is the function of the feedstock, with feedstocks containing high amounts of lipids producing more oil. Mr. Oyler stated that feedstocks such as MSW produce more oil and feedstocks such as wood produce less oil.

Mr. Tseng asked if the feedstock needs to be adjusted to optimize the amount of organics and oil and gas yield. Mr. Oyler responded that it does not matter, but that mixing different feedstocks tends to result in better yields.

Mr. Ajwani asked if Genifuel is considering another pilot scale project. Mr. Oyler responded that that the process scales well and becomes more efficient at larger sizes. He added that the HTP technology could scale up to about 50 wet tons per day, equivalent to about 10 dry tons per day, but that a smaller project would be more suitable for experimenting with different combinations of feedstocks. Mr. Ajani asked what kind of footprint would be needed for a project of this size. Mr. Oyler responded that a pad of about 40 feet by 80 feet would be needed.

Mr. Ajwani asked what economics of a potential project would be. Mr. Oyler answered that fuel produced by the HTP technology would receive Low Carbon Fuel Standard credits in California, which would lower the tipping fee. He continued that the fuel produced by the HTP technology is also eligible for valuable D3 RINs under the federal Renewable Fuel Standard incentive if processing wastewater sludge only, but that MSW or mixed feedstocks may require further testing to determine the cellulosic content and whether the fuel would receive D3 or less valuable D5 RINs. He added that a larger-scale project would be more economically attractive.

#### **IV. UPDATE ON CONVERSION TECHNOLOGY POLICY AND LEGISLATION**

Ms. Vazifdar gave an update on conversion technology (CT) policy and legislation:

Sierra Energy recently announced that it closed a \$33 Million Series A Investment Round and this funding will help Sierra Energy further develop and commercialize their FastOX gasification technology.

CalRecycle recently released a Draft Program Environmental Impact Report (EIR) for the statewide adoption of Senate Bill 1383 regulations. The public review and comment period is ongoing and ends September 13, 2019. CalRecycle plans to hold a hearing in Sacramento on August 20, 2019, at 1 p.m., to r the EIR.

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

Ms. Vazifdar mentioned the upcoming conferences:

- Resource Recycling Conference, August 26 – 28, 2019, New Orleans, Louisiana
- SoCal SWANA Chapter Workshop, September 5, 2019, Huntington Beach, CA (Public Works staff will attend)
- RNG Works 2019 Technical Workshop, September 11 - 12, 2019, Nashville, TN
- Biosolids and Renewable Energy Innovation Seminar, September 17, 2019, Playa Del Rey, CA (Public Works staff will attend and Sanitation Districts will present)

- US BioGas Conference, October 1 – 2, 2019, San Diego, CA
- WasteCon 2019, October 21 – 24, 2019, Phoenix, AZ
- BioCycle REFOR 19, October 28 – 31, 2019, Madison, WI
- Southern California Waste Management Annual Conference, November 7, 2019, Pomona, CA (Public Works staff will likely attend)

## **VI. UPDATE ON CONVERSION TECHNOLOGY PROJECT DEVELOPMENT**

Ms. Anthony, from Alternative Resources, Inc. (ARI), gave the following update:

- ARI staff prepared various economic models for MSW conversion facilities, including reaching out to existing CT facilities to obtain actual cost data.
- ARI's subcontractor, Clements Environmental, prepared permitting flowcharts for composting and gasification for MSW.

## **VII. PUBLIC COMMENTS**

No public comment.

## **VIII. ADJOURNMENT**

The meeting adjourned at 10:58 a.m. The next ATAS meeting is tentatively scheduled for Thursday, September 19, 2019, at 10:00 a.m., in Conference Room B of Public Works Headquarters.