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COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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IN REPLY PLEASE

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August 20, 2015

TO: Each Supervisor

FROM: Gail Farber *Gail Farber*
Director of Public Works

BOARD MOTION OF JANUARY 27, 2015, ITEM NO. 21-A SEMI-ANNUAL STATUS REPORT: JANUARY THROUGH JULY 2015

On January 27, 2015, the Board adopted a motion by Supervisor Mark Ridley-Thomas instructing the Director of Public Works to provide semi-annual reports in writing that include clear benchmarks for measuring the actual progress being made towards establishing viable conversion technology projects, in conjunction with the Boards' approval of a technical services contract with Alternative Resources Incorporated to assist the County of Los Angeles and potential project developers in developing conversion technology projects in the County.

Attached is a report in response to this motion for the period of January to July 2015. If you have any questions regarding this report, please contact me or your staff may contact Mr. Pat Proano at (626) 458-3500 or pproano@dpw.lacounty.gov.

CS:td

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Attach.

cc: Chief Executive Office (Rochelle Goff)
County Counsel
Executive Office
Department of Public Health
Department of Regional Planning
Los Angeles County Integrated Waste Management Task Force
Regional Planning Commission
Sanitation Districts of Los Angeles County

CONVERSION TECHNOLOGY PROGRAM

SEMI-ANNUAL STATUS REPORT

January – July 2015





Prepared by the County of Los Angeles Department of Public Works

Cover Photos

Top Left: Reclaimable Anaerobic Composter at Lancaster Landfill

Top Right: County Sanitation Districts Food Waste Digestion Project in Carson, CA

Bottom: CR&R Anaerobic Digestion Facility in Perris, CA



1.0 Executive Summary

This report responds to the January 27, 2015, motion by Supervisor Mark Ridley-Thomas to report on progress regarding conversion technologies. The report details three conversion technology projects that have achieved significant progress in the last 6 months, includes a discussion of actions taken by the City of Los Angeles that support this technology, provides benchmarking and milestones, next steps, and an appendix of legislation related to conversion technologies. The projects are:

1. Joint Water Pollution Control Plant – This is a joint effort between Waste Management Company and the County Sanitation Districts. Waste Management currently supplies 25 tons per day (tpd) of food waste to the Districts' Plant in Carson. Public Works and the Districts are working to bring additional organic waste to the facility for processing.
2. Perris Materials Recovery Facility, CR&R Incorporated – This privately developed, \$25 million conversion technology facility in Riverside County will be completed this fall and will process 150 tpd of organic waste using anaerobic digestion.
3. Lancaster Landfill, LARGO – This is a project under development by Waste Management to build anaerobic digestion and composting at the Lancaster Landfill. The project will be able to process up to 2,000 tpd of green waste and other waste material.

City of Los Angeles – The City of Los Angeles is moving towards an exclusive commercial franchise system, which will provide companies collecting the waste a dedicated waste stream, making it financially viable to develop new conversion technology facilities. In addition, the City of Los Angeles is negotiating the purchase of the Southeast Resource Recovery Facility, a waste to energy facility in Long Beach, currently under operation.

Benchmarking and Milestones - This Program sets benchmarks based on current waste disposal quantities and the disposal reduction targets established in the County's Roadmap as well as State laws, such as Assembly Bill 1826 (AB 1826). Public Works has established numerical milestones in this report to measure our progress in implementing the Program, starting with our current in-County conversion technology capacity of 84 tpd and continuously increasing the capacity to reach 3,000 tpd of capacity by 2035.

Conclusion – Conversion technology projects are being successfully developed. Public Works will continue to facilitate the development of these projects in the County, by providing technical assistance, educating stakeholders, and working to remove regulatory barriers. Conversion technologies are critical to reducing our reliance on landfills and recovering energy, fuels, and other products from waste. Currently in the County, 8.6 million tons of waste is disposed at landfills each year; ultimately, conversion technologies will supersede landfills in managing this waste.



2.0 Background

On January 27, 2015, the County of Los Angeles Board of Supervisors adopted a motion by Supervisor Mark Ridley-Thomas instructing the Director of Public Works to provide semi-annual reports in writing that include clear benchmarks for measuring the actual progress being made towards establishing viable conversion technology (CT) projects, including the amount of waste to be diverted, financial viability, project status, and significant impediments that will allow the Board to meaningfully assess the efficacy of conversion technologies in meeting the County's goal of a sustainable waste management future. This report is in response to that motion for the period of January to July 2015.

On that day, the Board also awarded a 5-year technical services contract to Alternative Resources Incorporated to help Public Works and potential project developers in developing CT projects in Los Angeles County, by providing technical assistance, preparing economic analyses, performing market research, completing project planning, and conducting stakeholder outreach.

Last year, the Board adopted the Roadmap to a Sustainable Waste Management Future, which established waste diversion targets of 80 percent by 2025, 90 percent by 2035 and 95 percent or more by 2045. The successful development of CTs is vital to achieving these targets, since only so much of the waste generated can be reduced, reused, or recycled in an economically feasible way.

3.0 Project Development Highlights

The following CT projects have achieved significant progress in the last 6 months.

3.1 Joint Water Pollution Control Plant, County Sanitation Districts of Los Angeles County and Waste Management Company

In 2013, the County Sanitation Districts partnered with Waste Management Company (WM) to establish a demonstration project at the District's Joint Water Pollution Control Plant (JWPCP) in Carson, California. As part of this project, WM collects food waste, cleans and processes it into a slurry, and delivers it to the JWPCP where it is co-digested with sewage sludge to create biogas which is converted into electricity. The project has been operating for more than one year, recovering approximately 25 tpd of food waste with virtually no issues. The Districts determined that it can be technically viable to expand the co-digestion project at JWPCP into a commercial-scale anaerobic digestion facility. The agreement with WM allows for up to 84 tpd to be processed, and the Districts have determined that additional organics can be processed if a consistent clean supply can be secured in a financially viable manner.

Utilizing existing anaerobic digestion capacity at wastewater treatment plants such as the JWPCP overcomes a number of significant impediments to the development of viable CTs. Most significantly, the facility can begin to process organic waste with minimal initial capital costs and has significant flexibility in the quantity of organic waste



it can accept and blend with sewage sludge for digestion, thereby avoiding the need to establish significant waste supply contracts ordinarily required for CT project development. The drawbacks to the system include the need to thoroughly process and clean any organic waste that is used as a feedstock in the system, and the limited availability of local excess digestion capacity at wastewater treatment plants, since these plants must ensure sufficient capacity for their core function of treating wastewater.

To make use of this available capacity and help ramp up demand for more CT facilities, Public Works and the Districts are working with waste haulers to develop a program for collecting a minimum of 40 tons of food waste per week from the Firestone Garbage Disposal District and commercial franchise areas in the San Gabriel area of the County. The food waste material would be taken to the Districts' Puente Hills Materials Recovery Facility where, after it is processed further, it will be delivered to JWPCP to be converted into energy. This program would provide insight on the challenges and costs associated with separate organic waste collection, which can be reviewed before being implemented throughout the unincorporated County areas.

3.2 Perris Materials Recovery Facility, CR&R Incorporated

CR&R Waste and Recycling Services, a local solid waste management company, has nearly completed construction of a 150-tpd anaerobic digestion project at their Perris Materials Recovery Facility and Transfer Station in Riverside County. The project is designed to convert organic waste into renewable fuels for use by their waste collection vehicles. As approved by the Board in 2010, Public Works assisted CR&R by providing technical assistance as well as assisting them in successfully pursuing grant funding for the facility. Thanks in part to support and assistance from the County, this project was successful in receiving a total of nearly \$8 million in grant funding to date - \$4.82 million from the California Energy Commission, \$100,000 from the South Coast Air Quality Management District/Mobile Source Air Pollution Reduction Review Committee, and \$3 million from the California Department of Resources Recycling and Recovery.

This facility has plans to scale-up in phases and ultimately process 1,000 tpd, which could allow the facility to process organic waste generated in Los Angeles County. The grants received to date have helped to accelerate future phases of the project. Design and permitting for the project began in 2010, while construction began in 2014. The initial phase of the project is estimated to cost approximately \$25 million and is expected to begin operation in fall 2015. The facility will serve as a reference for viable CT projects that can separate the organic fraction of the waste stream and the County will benefit from the lessons learned in successfully developing this project.

3.3 Lancaster Landfill, Waste Management Company

On July 10, 2013, WM issued an Invitation-Only Request for Proposals for a green waste and food waste processing facility on designated land within the boundaries of WM's Lancaster Landfill, located in the unincorporated region of the County near the



City of Lancaster. Recently, WM has secured initial agreements with a successful private company that has successfully developed similar projects in California to move forward with a full-scale organics digestion and composting operation (referred to as the Lancaster Advanced Recycling for Green waste and Organics project, aka LARGO). WM intends for LARGO to eventually be able to process up to 2,000 tpd of green waste, food waste, and other waste material.

WM is currently requesting technical assistance from Public Works' Conversion Technology Program in order to assist with permitting, environmental review, and pursuing grants for the project. To facilitate the permitting of this facility, Public Works has done extensive research of the Statewide Programmatic Environmental Impact Report for Anaerobic Digestion as well as other projects' environmental documents such as San Jose's anaerobic digestion facility, and developed recommendations for the development of environmental documentation for LARGO. We will be coordinating with Regional Planning and County Counsel as the project moves forward.

3.4 City of Los Angeles

In 2015, the City of Los Angeles released a Request for Proposals (RFP) to provide solid waste, commingled recyclables, and organics collection, transfer, disposal and processing services to commercial and multifamily establishments in the City. The City intends to enter into exclusive franchise agreements to provide the services described in the RFP. The RFP requires proposers to demonstrate how the facilities they plan to use would be able to effectively and efficiently process all yard trimmings and food waste materials collected from each franchise area. The companies that are awarded the contract for each franchise will have a dedicated waste stream, making it financially viable to develop new organics/CT facilities in the vicinity of the City of Los Angeles. Having this dedicated waste stream is a major factor in developing CTs, and it would be financially advantageous for these facilities to process organic waste originating from other jurisdictions in addition to the City.

Additionally, on October 14, 2014, the City Council of the City of Los Angeles authorized the Bureau of Sanitation to pursue negotiations with the City of Long Beach and the Districts for a partnership in the ownership and operation of Southeast Resource Recovery Facility for the processing of municipal solid waste for the City of Los Angeles. On May 7, 2015, Covanta Long Beach Renewable Energy announced an extended agreement with the City of Long Beach for the operations and maintenance of Southeast Resource Recovery Facility. The amended agreement, which was approved by the Long Beach City Council, extends the term of the current agreement to 2024.

4.0 Benchmarking and Milestones

The goal for the Conversion Technology Program is to reduce our dependence on landfills and ensure there is sufficient, sustainable capacity available to the County to meet future needs. Public Works set benchmarks for the program based on current waste disposal quantities and the disposal reduction targets established in the County's



Roadmap as well as State laws, such as Assembly Bill 1826 (AB 1826), discussed in more detail in Appendix A. Among other things, AB 1826 established a Statewide goal to reduce the amount of organic waste disposed in landfills from 2014 volumes by at least 50 percent by 2020. To meet this goal in Los Angeles County would require diverting approximately 5,000 tpd of organic waste from landfill disposal. Although a significant portion of this organic waste will be diverted using composting and land application, additional conversion technology facilities will be needed to meet this goal.

The following milestones have been identified to measure our progress:

Timeframe	Milestone	Capacity (tons per day)
Today	County Sanitation Districts anaerobic digestion co-digestion at Carson facility	84 (can be expanded in the future)
12/31/15	Construction of Perris anaerobic digestion facility	150
12/31/20	In-County conversion technology capacity (projection)	200
12/31/25	In-County conversion technology capacity (projection)	500
12/31/35	In-County conversion technology capacity (projection)	3,000

Since it will take seven to ten years to permit and construct a conversion technology facility, the benchmarks for the next ten years are relatively modest. After a small number of facilities become operational and demonstrate their viability, the market for conversion technology in the County will expand quickly. Achieving 2025 and 2035 milestones will require investment by the private sector. Although the County does not have direct control over the timing of these projects, State mandates are driving business development which will lead to projects being developed in the next few years. To accelerate this investment, Public Works can take a number of steps, as described below.

5.0 Next Steps

- Work with the County Sanitation Districts to implement an organic waste collection program, with the goal of increasing the anaerobic digestion of food waste in the County.
- Provide technical assistance to facilitate Waste Management Company's LARGO project, including permitting assistance, environmental review, and support for grant applications.
- Release a comprehensive, peer reviewed CT White Paper that compares the greenhouse gas emissions from an integrated CT to transporting an equivalent amount of waste to a landfill.



- In collaboration with Regional Planning, prepare a draft Recycling and Waste Facilities Ordinance which will ensure these types of facilities have appropriate zoning as well as permitting process.
- Continue to serve as a resource and catalyst for CT project development in the County for other CT projects in various stages of development, such as potential projects at Scholl Canyon Landfill in Glendale, Pitchess Detention Center in Castaic, and Interior Removal Specialists Recycling in South Gate.

As described in Appendix A, legislative barriers have historically been a major impediment to the development of CTs in California. Senate Bill 498 (authored by Senator Ricardo Lara in 2014 and sponsored by the County), cleared a significant hurdle for the siting of biomass conversion facilities in the County by providing waste diversion and renewable energy credit to such facilities. It is important for the County to consider sponsoring another CT bill that would build on the success of Senate Bill 498, by expanding the definition of biomass conversion to other types of feedstock. Senator Lara visited the Districts' food waste co-digestion project at the JWPCP in Carson, California and is in support of sponsoring additional legislation on this issue.

Public Works will continue to facilitate the development of CTs in the County, by working with stakeholders to identify barriers and creating solutions to those barriers as described in this report.

Public Works' next status report will be submitted in January 2016 for the period August through December 2015.



Appendix A – Legislation

Recently Adopted Legislation:

Senate Bill 498

Senate Bill 498 (SB 498), authored by Senator Ricardo Lara, expanded the definition of “biomass conversion” to include the use of noncombustion thermal conversion technologies. State law formerly limited “biomass conversion” to only the controlled *combustion* of biomass and only when used for producing electricity or heat. By adding “conversion technologies” to the definition of “biomass conversion,” SB 498 allows for cleaner and more efficient noncombustion thermal technologies to be used to convert biomass into fuels and products in addition to heat and/or electricity.

The County played a major role in sponsoring SB 498. The language in SB 498 was developed by the County and California State Association of Counties (CSAC) following discussions with the CalRecycle and key Sacramento stakeholders. Public Works, working in coordination with the County’s legislative advocates in Sacramento and CSAC, successfully pursued the passage of SB 498, which was passed by the legislature and signed into law by Governor Brown on September 28, 2014. This is the first successful legislative effort to add the term “conversion technologies” to State statute. However, the definition of biomass is limited to certain organic materials, such as wood, lawn and garden clippings, agricultural waste, leaves, tree pruning, and nonrecyclable paper, when separated from other solid waste. Other nonrecyclable components of the waste stream cannot be sent to a biomass conversion facility; as a result additional legislation may still be needed.

Governor Brown GHG Executive Order

On April 29, 2015, Governor Brown issued Executive Order B-30-15 to establish an interim greenhouse gas reduction target of 40 percent below 1990 levels by 2030. Currently, it is expected that California will be able to reduce greenhouse gas emissions levels to 1990 levels by 2020, but this new executive order will help the State meet the goal of reducing emissions to 80 percent below 1990 levels by 2050, as enacted in Executive Order S-3-05 by Governor Arnold Schwarzenegger in 2005. Governor Brown’s executive order is the most aggressive carbon emissions reduction benchmark established in North America for the next 15 years. CTs and the greenhouse gas emission reductions associated with the CTs are critical to meeting the 2030 and 2050 benchmarks.

Assembly Bill 1826

Another bill that has a major impact in facilitating the development of CTs is Assembly Bill 1826 (AB 1826), enacted on September 28, 2014. AB 1826 mandates the collection and recycling of compostable organic waste generated by businesses, multifamily residences of five or more, schools, and other public facilities. Beginning in 2016, businesses that generate 8 cubic yards of organic waste must arrange for organic recycling services including food scraps. This threshold will be lowered to 4 cubic yards



of organic waste in 2017, 4 cubic yards of commercial solid waste in 2019, and 2 cubic yards of commercial solid waste in 2020. The 2020 threshold is conditional on meeting State recycling goals. Multifamily residences of five or more units are also required to recycle organics but exempt from recycling food scraps. Although “organic recycling services” is not defined in the law, it does require businesses to either source separate recyclable materials from solid waste and subscribe to a basic level of recycling services that includes collection, self-hauling, or other arrangements for pickup of the recyclable materials, or subscribe to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. Assembly Bill 1826 requires each jurisdiction, on and after January 1, 2016, to implement an organic waste recycling program to divert organic waste from the businesses subject to this act. Through implementing the program, jurisdictions must report to CalRecycle on its progress of identifying businesses, education and outreach, and monitoring the businesses’ compliance with the law.

Pending Legislation (as of July 27, 2015):

Senate Bill 32

The California Global Warming Solutions Act of 2006, also known as Assembly Bill 32, establishes a goal to reduce Statewide greenhouse gas emissions equivalent to the Statewide emissions levels in 1990 by 2020. Senate Bill 32, introduced by Senator Fran Pavley, requires the State Air Resources Board to approve a Statewide greenhouse gas emission limit that is equivalent to 80 percent below the 1990 level to be achieved by 2050. The bill would also authorize the State board to adopt interim greenhouse gas emissions level targets to be achieved by 2030 and 2040. Without conversion technologies and the greenhouse gas emission reductions associated with the technologies it would be difficult for the State to meet these goals. Therefore, this bill may help the advancement of conversion technologies. The County is evaluating this bill to determine whether to recommend taking a formal position.

Senate Bill 350

The California Clean Energy and Pollution Reduction Act of 2015 includes 3 key proposals: reduce petroleum use in motor vehicles by 50 percent, double the energy efficiency of buildings, and increase the use of renewable electricity to 50 percent by 2030. CTs have the ability to generate renewable electricity and fuels from waste and therefore assist the State in meeting these environmental goals. The County is evaluating this bill to determine whether to recommend taking a formal position.

Senate Bill 687

Senate Bill 687 would require the State Air Resources Board (CARB), on or before June 30, 2017, in consultation with the State Energy Resources Conservation and Development Commission and the Public Utilities Commission to adopt a carbon-based renewable gas standard that would require all gas sellers to provide minimum percentages of renewable gas to retail customers in California. Modeled similar to the State’s Renewable Portfolio Standard, which has doubled renewable electricity in the



State since 2002, the required percentage of renewable gas would gradually increase from 1 percent to 10 percent over a 10-year period beginning in 2019 and is intended to spur the in-State biomethane market. The bill would also require the CARB to issue an analysis of the lifecycle emissions of greenhouse gases and reductions for different biogas types and end uses by January 1, 2017. The bill is a 2-year bill which means it will be on hold until 2016. The County is on record in support of this bill.

Assembly Bill 577

Authorized pursuant to AB 32, monies collected by the CARB from the auction or sale of greenhouse gas emission allowances, otherwise known as “cap and trade,” is deposited into the Greenhouse Gas Reduction Fund. Assembly Bill 577 would require the State Energy Resources Conservation and Development Commission to use an unspecified amount of money from State’s Greenhouse Gas Emission Reduction Fund to develop and implement a grant program to award grants for projects that produce biomethane, that build or develop collection and purification technology or infrastructure, or that upgrade or expand existing biomethane facilities. The bill is intended to provide certainty in the biogas market which may attract further private development in this sector. The County is on record in support of this bill.

V. MISCELLANEOUS

- 21. Additions to the agenda which were posted more than 72 hours in advance of the meeting, as indicated on the supplemental agenda. (12-9995)**

21-A. Recommendation as submitted by Supervisor Ridley-Thomas: Instruct the Director of Public Works to provide semi-annual reports in writing that include clear benchmarks for measuring the actual progress being made towards establishing viable conversion technology projects, including amount of waste to be diverted, financial viability, project status, and significant impediments that will allow the Board to meaningfully assess the efficacy of conversion technologies in meeting the County's goal of a sustainable waste management future. (Relates to Agenda No. 16) (15-0472)

On motion of Supervisor Solis, seconded by Supervisor Antonovich, this item was approved.

Ayes: 5 - Supervisor Solis, Supervisor Ridley-Thomas, Supervisor Kuehl, Supervisor Knabe and Supervisor Antonovich

Attachments: Motion by Supervisor Ridley-Thomas
Report

- 21-B.** Recommendation as submitted by Supervisor Antonovich: Declare the month of February as "Spay/Neuter Awareness Month" throughout Los Angeles County in an effort to reduce the amount of homeless animals, while promoting healthy pet practices. (15-0461)

On motion of Supervisor Antonovich, seconded by Supervisor Solis, this item was approved.

Ayes: 5 - Supervisor Solis, Supervisor Ridley-Thomas, Supervisor Kuehl, Supervisor Knabe and Supervisor Antonovich

Attachments: Motion by Supervisor Antonovich

MOTION BY SUPERVISOR MARK RIDLEY-THOMAS

January 27, 2015

**Providing Justification for Conversion Technology Investment
Relates to Agenda Item 16**

Since 2010, the Los Angeles County (County) Department of Public Works has pursued various strategies to increase the utilization of non-combustion conversion technologies, which are aimed at reducing the amount of waste being sent to landfills, and are considered sustainable waste management solutions.

These facilities have proven to be very difficult to develop locally. Various legislative and regulatory frameworks have made these facilities complicated to permit and operate in California. The County has promoted alternative methods of waste disposal, and provided technical assistance to project developers to further this effort. However, there are no commercial-scale facilities yet operational within the County.

Progress was made in 2014 with the passage of County-sponsored Senate Bill 498, which helps clear the pathway to allow cleaner and more efficient technologies to be used to make low-carbon fuels as well as renewable energy from certain types of organic waste. However, significant work still needs to be done to ensure these technologies can be scalable to meet the County's goals. The Board of Supervisors (Board) recently approved a roadmap for a sustainable waste management future, which entails diverting 80 percent of solid waste from landfills by 2025.

- MORE -

MOTION

SOLIS _____

RIDLEY-THOMAS _____

KUEHL _____

KNABE _____

ANTONOVICH _____

**MOTION BY SUPERVISOR MARK RIDLEY-THOMAS
JANUARY 27, 2015
PAGE 2**

In 2014, Governor Brown also signed into law AB 1826, which requires businesses and government entities which generate organic waste to recycle. This bill also requires local jurisdictions to develop an organics management plan by December 31, 2015. This will require the waste industry to develop a number of conversion technology facilities to process organic material and the County to facilitate the permitting and development of these facilities.

Deployment of conversion technologies may help to divert a substantial amount of this waste stream. In order to realize this goal, the County must identify the specific barriers to rapidly and cost-effectively developing commercial-scale projects within the County. The Board should review data on the cost-effectiveness of this strategy and have a realistic sense of the timeframe and viability of scaling up this investment to meet the County's waste management needs.

I THEREFORE MOVE THAT THE BOARD OF SUPERVISORS:

Direct the Director of the Department of Public Works to provide semi-annual reports in writing that include clear benchmarks for measuring the actual progress being made towards establishing viable conversion technology projects (including amount of waste to be diverted, financial viability, project status, and significant impediments) that will allow the Board of Supervisors to meaningfully assess the efficacy of conversion technologies in meeting the County of Los Angeles' goal of a sustainable waste management future.

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(KK)