



Agenda

San Miguel Community Services District

Equipment & Facilities Committee Meeting

Thursday, July 14, 2016

12:00 noon

SMCSD Boardroom 1150 Mission St. San Miguel, CA 93451

Cell Phones: As a courtesy to others, please silence your cell phone or pager during the meeting and engage in conversations outside the Boardroom.

Americans with Disabilities Act: If you need special assistance to participate in this meeting, please contact the CSD Clerk at (805) 467-3388. Notification 48 hours in advance will enable the CSD to make reasonable arrangements to ensure accessibility to this meeting. Assisted listening devices are available for the hearing impaired.

Public Comment: When public attendance is over ten (10) persons, the following policies will go into effect: Any person wishing to address the Board or Standing Committee, please complete a "Request to Speak" form located at the podium in the boardroom in order to address the Board of Directors on any agenda item. Comments are limited to three minutes, unless you have registered your organization with CSD Clerk prior to the meeting.

If you wish to speak on an item not on the agenda, you may do so under "Oral Communications." Any member of the public may address the Board of Directors on items on the Consent Calendar. Please complete a "Request to Speak" form as noted above and indicate which item number you wish to address.

Meeting Schedule: Regular Board of Director meetings are generally held on the fourth Thursday of each month at 7:00 P.M in the CSD boardroom. The Agenda's are posted on the CSD's website at: www.sanmiguelcsl.org

Agendas: Agenda packets are available for the public inspection 72 hours prior to the scheduled meeting at the Counter/ San Miguel CSD, Fire Station located at 1150 Mission St., San Miguel, during normal business hours. Any agenda-related writings or documents provided to a majority of the Board of Directors after distribution of the agenda packet are available for public inspection at the same time at the counter/ San Miguel CSD, Fire Station located at 1150 Mission St., San Miguel, during normal business hours.

I. Call to Order 12:00 NOON

II. Pledge of Allegiance

III. Roll Call Directors: Kalvans _____ Reuck _____

IV. Oral and Written Communications:

Persons wishing to speak on a matter not on the agenda may be heard at this time; however, no action will be taken until placed on a future agenda. Speakers are limited to three minutes. Please complete a "Request to Speak" form and place in basket provided.

V. AGENDA

- 1. Consider and Discuss a Presentation for On Bill financing to purchase new aerator motors for Machado WWTP as energy efficiency replacement equipment.**

Staff Recommendation: Consider and Discuss a recommendation to Board and hear presentation for On Bill financing to purchase new aerator motors.

- 2. Consider and Discuss a presentation on potential organic recycling facility related to WWTP operations and a potential public-private partnership opportunities**

Staff Recommendation: Consider and discuss a presentation on potential organic recycling facility related to WWTP operations and potential public-private opportunities.

- 3. Review of State Office of Technical Assistance Grant process for a planning and design study leading to expansion of existing WWTP operations and facilities.**

Staff Recommendation: Consider and discuss the Technical Assistance grant criteria and process pertaining to a planning and design study grant for expanding the existing Machado WWTP operations and facility.

VI. COMMITTEE COMMENTS:

This section is intended as an opportunity for Committee members to make brief announcements, request information from staff, request future agenda item(s) and/or report on their own activities related to District business. No action is to be taken until an item is placed on a future agenda.

VII. ADJOURNMENT

Time: _____

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF SAN LUIS OBISPO) ss.
COMMUNITY OF SAN MIGUEL)

I, Tamara Parent, Account Clerk/Operations Coordinator of San Miguel Community Services District, hereby certify that I caused the posting of this agenda at the SMCSO office on July 7, 2016.

Date: July 7, 2016

Tamara Parent

Tamara Parent, Account Clerk/Operations Coordinator



San Miguel Community Services District Equipment & Facilities Committee

Staff Report

July 14, 2016

AGENDA ITEM: V-1

SUBJECT: Consider and Discuss a Presentation of On Billing Financing for purchase of WWTP Aerator Motor Replacements.

STAFF RECOMMENDATION:

Consider and Discuss a presentation of On Billing Financing for purchase of WWTP Aerator Motor replacement through a PG &E program and with assistance of County Energy Watch and Climate Program. Committee may provide direction to staff.

BACKGROUND:

In January and March of this year, Energy Watch, in partnership with PG & E, completed an energy audit of District facilities and operations. A goal of this audit was to identify means and methods for the District to reduce energy consumption through equipment efficiencies and improvements and to reduce our carbon footprint. One of the vital areas for energy efficiencies was to address existing WWTP equipment and energy use as the most intense District energy use.

A potential assistance that was discussed at Committee and the March Board meeting was the use of PG&E's On Bill Financing to provide a means to replace existing inefficient energy equipment, such as the pond aerator motors. The day of the March Board meeting, there was a major failure of a pond aerator motor which required the installation of a temporary replacement. A short time afterward, there was another motor failure which required repairs and parts replacement. It is becoming apparent to staff that these motors are nearing their "end-of-life" which means replacement, not repairing.

As a result of these events and the recent Energy Audit Report evaluation recommending replacement of existing aerator equipment at the Machado WWTP, staff determined that a prudent action would be present more information about On Bill Financing advantages for replacing these existing motors.

SLO Energy Watch has provided assistance to the District to conduct a preliminary due diligence related to your proposed WWTP aerator project. They met with PG&E Engineering to discuss various pathways for securing both On-Bill Financing (OBF) and Customized Retrofit Incentives (CRI). District staff is continuing to work with SLO Energy Watch to provide any and all key pieces of information needed related to the existing equipment, its installation date and/or age. This information is particularly important, because it may or may not determine if the District can take advantage of the PG&E "Early Retirement" path using the existing installed equipment as your "baseline." Determining the baseline is critical as it will significantly impact your incentive. In other words, the calculated incentive is contingent on the age of the equipment and whether or not it can be considered for early retirement by PG&E.

If the equipment does not qualify for early retirement because the equipment is past its "useful life" (as determined by a CPUC database), the District may have to pursue another financing path. This path is called "Preponderance of Evidence" and will require providing additional information for PG & E consideration and use of On Bill Financing, including but not limited to documentation that the equipment is still operational and viable. This is certainly not the easier path, but District Staff and SLO Energy staff feels confident that the requirements can be met.

SLO Energy staff will be attending to answer any specific questions about how to proceed with securing support for On Bill Financing that would allow purchase of new aerator motors for the WWTP without creating a debt with interest payment but would repaid by the savings in energy costs until the cost of the aerator motors being purchase is paid by the on bill charges.

The E & F Committee's role is not about finance matters in general but to provide recommendations regarding equipment replacement and new equipment needed for operational purposes. However, the Committee must understand the way that such items are proposed for purchases as well as understand what is being proposed for purchase.

Fiscal Impact:

No fiscal impact at this time.

Staff Recommendation: Staff recommends that the Committee discuss findings and provide direction to staff.

PREPARED BY:

Darrell Gentry

General Manager

Attachment: Items V 1 a – d

CIM-5: Install Higher Efficiency Aerators

Annual Cost Savings (\$/yr)	Rough Incremental Cost (\$)	Rough Incentive (\$)	Simple Payback (years)
\$36,700	-\$128,000	-\$0	3.5

\$168,000 (See email and last page of this report)

\$22,692 (See email and last page of this report)

3.9 Years (See email and last page of this report)

Observations

The WWTP has uses aerobic ponds for microbial treatment of wastewater. Raw sewage is pumped into the first pond (#1) and the sewage flows by gravity through ponds #2, 3, and 4 before discharging to percolation ponds. Each pond is aerated by a single mechanical surface aerator. Ponds #1 and 2 each has a 25-hp aerator, while ponds #3 and 4 each have a 7.5-hp aerator. The surface aerators in Ponds #1 and 2 are shown in Figure 4.4, below.



Figure 4.4: Pond #1 Aerator (foreground), and Pond #2 Aerator (background)

The aerators in ponds #1 and 2 are controlled on/off to maintain a dissolved oxygen (DO) level of 1 - 4 mg/L. According to the plant operator, the first two ponds almost never exceed setpoint (4 mg/L) so these aerators operate 24 hours per day, 365 days per year. The aerators are controlled by timeclocks to operate from daily 7 p.m. to 7 a.m.

According to the District, the WWTP struggles to fully treat wastewater during high influent flows. The District is studying process changes to meet future operating

Fine Pore Bubble Diffusers³:

Advantages

- Exhibit high oxygen transfer efficiencies (OTEs).
- Exhibit high aeration efficiencies (mass of oxygen transferred per unit power per unit time).
- Can satisfy high oxygen demands.
- Are easily adaptable to existing basins for plant upgrades.

Disadvantages

- Fine pore diffusers are susceptible to chemical or biological fouling, which may impair transfer efficiency and generate high head loss. As a result they require routine cleaning.
- Fine pore diffusers may be susceptible to chemical attack. Therefore, care must be exercised in the proper selection of materials for a given wastewater.
- Because of high efficiencies of the fine pore diffusers at low aeration rates, airflow distribution is critical to their performance and selection of proper airflow control orifices is important.
- Because of high efficiencies of the fine pore diffusers required airflow in an aeration basin (normally at the effluent end) may be dictated by mixing – not oxygen transfer.
- Aeration basin design must incorporate a means to easily dewater the tank (pond) for cleaning. In small systems where no redundancy of aeration tanks exists, and in-situ, nonprocess-interruptive method of cleaning must be considered.

³ EPA 1999, *Wastewater technology fact sheet, fine bubble aeration*. EPA 832-F-99-065. Washington, D.C.: United States Environmental Protection Agency

conditions including increased influent BOD and flow from residential growth. One of the secondary treatment technologies being considered is suspended-growth activated sludge process using submerged aeration.

Note that CIM-4 recommends controlling the existing surface aerators in ponds #3 and 4 based on measured DO level. These two measures are mutually exclusive and this measure cannot be implemented in conjunction with CIM-4.

Recommendations

We recommend replacing the mechanical surface aerators with a submerged aeration system using fine pore bubble diffusers. Fine pore bubble diffusers generate small air bubbles (< 5 mm), which increases the interfacial area between water and the oxygen molecules in air. The increase in interfacial area of smaller bubbles compared using the mechanical aerators to break-up the pond surface to aerate results in significantly higher oxygen transfer rates. Increasing the oxygen transfer rate reduces the amount influent that can be treated while reducing the amount of motor power required to aerate.

Costs and Assumptions

We calculated the energy savings for this measure based on the difference between the amount of energy usage of the four surface aerators and the proposed blower used to supply air to the fine pore bubble diffusers. We estimated the current energy usage of the aerators based on motor nameplate data, operating hours and estimated motor load factor.

We assumed oxygen transfer efficiency (OTE) of 15% for fine pore bubble diffusers based on the data in Metcalf & Eddy, *Wastewater Engineering, treatment and reuse*⁴. We estimated blower efficiency and motor efficiency based on manufacturer's data.

In aeration basins sufficient mixing is required both to disperse DO throughout the basin and to provide uniform solids concentration throughout the liquid⁵. For fine bubble aeration devices, mixing energy often dictates aeration energy requirement rather than oxygen demand. A rule-of-thumb for the mixing requirements are based on airflow per unit volume, such as 10 to 15 cfm/1000 ft³. Our analysis is based on maintaining a minimum mixing requirement to prevent solids deposition.

We estimated the cost of this measure based on the EPA's Design Manual for Fine Pore Aeration Systems (EPA/625/1-89/023), which lists the costs for a fine pore bubble diffuser aeration system, adjusted for WWTP design capacity (MGD) and inflation. Adders for contingency and design and engineering costs have been included too.

This measure is classified as a normal replacement (NR) measure since the existing surface aerators are believed to be beyond their effective useful life (EUL). The baseline aeration technology for pond aerobic treatment systems of this size (0.20 MGD) is taken to be

⁴ Metcalf & Eddy. *Wastewater engineering, treatment and reuse*, 4th Ed. 2003. Chapter 5, Physical unit operations. New York: McGraw-Hill

⁵ Mueller, James A., W. C. Boyle, and H. J. Pöpel. 2002. *Aeration: principles and practice*, Chapter 3.4.4 Mixing characteristics. New York: CRC Press

mechanical surface aerators. However, since the District is planning on expanding the capacity of the WWTP to handle future growth, we have taken the baseline aeration technology for small size (>0.40 MGD) aerobic treatment systems to be coarse bubble diffused aeration. Therefore, the incentive energy savings will be the difference in energy consumption between a coarse bubble aeration and fine pore bubble aeration systems.

We estimated the potential incentive at \$0.08 per kWh and \$150 per peak kW for Basic Non-Lighting measures. Please see the following link for information on applying for customized (calculated) incentives:

www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/ief/

Incentive rates
used for savings

PG&E Integrated Energy Audit

SLO San Miguel

CIM-5 Replace Existing Surface Aerators with Submerged Fine Pore Bubble Diffuser System

This measure evaluates the potential energy savings from replacing the existing mechanical surface aerators with submerged fine pore bubble diffusion aeration.

Baseline: It is not clear what the industry standard practice (ISP) for biological treatment would be for a wastewater treatment plant of San Miguel's size (0.20 MGD). Therefore, to be conservative we have selected course bubble diffused aeration as the ISP for plant's expanding their treatment capacity.

Our analysis assumes that mixing is the limiting factor for aeration demand, not oxygen for biological degradation. The minimum aeration rate of 15 cfm/1000 ft3 is applied to the first pond under the assumption that this will be the location of most of the BOD reduction.

Note that the potential energy savings from this measure is mutually exclusive of the energy savings estimated for CIM-4, as the measures cannot be implemented simultaneously.

Current Operation		Units	Notes
Average Influent Flow Rate	0.112	MG/day	Data provided by San Miguel CSD
Annual Influent Flow	40.9	MG/yr	
Average Influent BOD Concentration	285	mg/L	Data provided by San Miguel CSD
Effluent Discharge BOD	10	mg/L	Data provided by San Miguel CSD
Annual BOD ₅ Load	93,622	lb BOD ₅ /yr	
DO Setpoint	2.0	mg/L	Using DO sensors and controller
O ₂ Required to Satisfy BOD Load	140,433	lb O ₂ /yr	Calculated based on influent volume
Aerator Operating Hours	8,760	hr/yr	
Average Oxygen Transfer Rate	16.0	lb O ₂ /hr	
Number of Aerators in Ponds 1 & 2	2		
Aerator Motor, Ponds 1 & 2	25	hp	
Aerator Motor Efficiency	92.4%		
Aerator Op. Hours, Ponds 1 & 2	8,760	hr/yr	
Number of Aerators in Ponds 3 & 4	2		
Aerator Motor, Ponds 3 & 4	7.5	hp	
Aerator Motor Efficiency	89.5%		
Aerator Op. Hours, Ponds 3 & 4	4,380	hr/yr	
Total Input Power	30.3	kW	Peak, does not include aerators in ponds #3 & 4
Annual Energy Usage	306,289	kWh/yr	
Incentives to be based on current operation versus proposed operation (next page)			
Proposed Baseline Operation		Units	Notes
DO Setpoint	2.0	mg/L	
O ₂ Required to Satisfy BOD Load	140,433	lb O ₂	Calculated based on influent volume
Aerator Operating Hours	8,760	hr/yr	
Average Oxygen Transfer Rate	16.0	lb O ₂ /hr	
Course Bubble Diffuser Oxygen Transfer Efficiency	7%		Metcalf & Eddy, <i>Wastewater Engineering</i>
Average Oxygen Aeration Rate	229.0	lb O ₂ /hr	
Mass of O ₂ in Air	0.0176	lb O ₂ /ft ³	Calculated at 14.7 psia and 65F
Volume of Blower Air Needed for Aeration	217	cfm	
Blower Discharge Pressure	7.5	psig	Estimated
Blower Efficiency	70%		Estimated
Blower Shaft Power	8.7	bhp	Calculated
Blower Motor Efficiency	90%		Estimated
Average Input Power	7.2	kW	
Annual Energy Usage	62,992	kWh/yr	Adjusted Baseline

Proposed Operation		Units	Notes
DO Setpoint	2.0	mg/L	
O ₂ Required to Satisfy BOD Load	140,433	lb O ₂ /yr	Calculated based on influent volume
Aerator Operating Hours	8,760	hr/yr	
Average Oxygen Transfer Rate	16.0	lb O ₂ /hr	
Fine Bubble Diffuser Oxygen Transfer Efficiency	15%		Metcalf & Eddy, <i>Wastewater Engineering</i>
Average Oxygen Aeration Rate	106.9	lb O ₂ /hr	
Mass of O ₂ in Air	0.0176	lb O ₂ /ft ³	Calculated at 14.7 psia and 65F
Blower Airflow Needed for Aeration	101	cfm	Based oxygen aeration rate
Blower Airflow Needed for Mixing	225	cfm	Based on recommended minimum airflow rate
Blower Discharge Pressure	7.5	psig	Estimated
Blower Efficiency	70%		Estimated
Blower Shaft Power	9.0	bhp	Calculated
Blower Motor Efficiency	90%		Estimated
Average Input Power	7.5	kW	
Annual Energy Usage	65,339	kWh/yr	

Savings		Units	Notes
Peak Demand Savings	22.8	kW	Updated Potential Incentive - Based on Current Operational Savings 22.8 kW X \$150 = \$3,420 240,900 kWh/yr X \$0.08 = \$19,272 Total Potential Incentive =
Annual Energy Savings	240,900	kWh/yr	
Total Cost Savings	\$36,700	/yr	

Potential Incentive		Units	Notes
Incentible Peak Demand Savings	-0.3	kW	PG&E Basic Non-Lighting measure
Incentible Annual Energy Savings	-2,300	kWh/yr	
Incentive	\$0		

Project Cost	Qty	Unit Price	Unit	Notes
10-hp variable speed blower	2	\$20,000	per pond	One is back-up Estimate includes diffusers, piping, control valves, and installation
Fine pore bubble diffusers	2	\$20,000		
Contingency	25%	\$20,000		Updated cost per unit from a 10-hp VS Blower to a 20-hp VS Blower \$40,000/Unit
D&E	25%	\$20,000		
Cx	10%	\$8,000		
Total Cost		\$128,000		

Preponderance of evidence

From PGEwiki

Preponderance of Evidence is a term that defines the convincing evidence required to justify an Early Retirement claim. The requirements to successfully demonstrate the preponderance of evidence go above and beyond the normal rigor required to justify a NC, ROB, REA, or NR installation type. This evidence consists of two basic components, program influence and continued viability of the existing equipment.

Contents

- 1 Review of evidence
- 2 Evidence
- 3 Examples
- 4 Links

Review of evidence

The preponderance of evidence analysis involves collection of all relevant evidence and then considering that evidence for its reliability and conviction. The preponderance of evidence determination is not based on the amount of evidence but rather on the more convincing evidence based on its probable truth and/or accuracy.

Evidence

The following are suggestions on the types of evidence that should be collected to support a preponderance of evidence determination for Early Retirement measures:

- Include dialogue from previous customer/program administrator meetings showing how the program administrator accelerated the early retirement of the existing measure. Include meeting dates and participant names. Provide details on the high efficiency measure/s that were proposed by the program administrator. Include evidence to show how the program administrator made customer/s aware of program features.
- Provide simple payback calculations with and without the program administrator incentive, and a comparison to the customer payback threshold.
- Provide documentation of any additional drivers for the project not related to energy efficiency.
- Provide information on customer's normal replacement, remodeling and equipment replacement practices
- Provide documentation of any preliminary measurements performed by the program administrator or the customer to demonstrate equipment functionality
- Document the known standard efficiency equipment alternatives available in the market or those considered by the customer
- Include existing equipment installation dates (and old existing equipment invoices if available).
- Include a discussion of the critical components of the system or equipment and associated maintenance practices, and the current and future availability of replacement parts in the market.
- Provide a proposed Remaining Useful Life (RUL) of the existing measure supported by evidence suggested in this guidance document.
- Include a discussion of the normal lead time required by the customer to undertake the project including planning, approval, equipment ordering, and project scheduling. Note that the amount of time the RUL of the pre-existing equipment exceeds this time is the acceleration period. An acceleration period of less than

one year is not acceptable.

- Provide customer statements regarding the viability of and continued intent to use the existing equipment through the proposed RUL period.

Examples

Mid Coast Cooling (<https://na9.salesforce.com/a15E0000001HrCp>) had an Early Retirement project that required a preponderance of evidence, the project details can be found here (<https://na9.salesforce.com/a0ME000000PR5MS?srPos=1&srKp=a0M>).

Links

- Early Retirement Using Preponderance (CPUC)

Retrieved from "http://pge.wiki/index.php?title=Preponderance_of_evidence&oldid=69"

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- This page was last modified on 15 April 2016, at 11:54.

San Miguel Project Financing Options

California Energy Commission (CEC) 1% Financing

- Available to Cities, Counties, Special Districts and Other Public Entities
- Eligible Projects
 - Yet to be installed projects with proven energy and/or demand cost savings (feasibility study required)
 - Projects must have a simple payback (loan amount divided by energy cost savings) no greater than 17 years
 - Partial Funding available for projects that exceed the simple payback requirement
- Key Terms
 - *Interest rate is 1% fixed*
 - Term up to 20-years but cannot exceed useful life of funded equipment
 - Semi-annual payments based on estimated annual energy savings
 - No minimum amount; maximum amount is \$3 million
- Other
 - Loans amortized on energy cost savings
 - Loan funded on a disbursement basis – requires invoices of approved expenses
 - Loan security is only a promissory note and a loan agreement (no liens)
 - All documents are public
 - CEQA compliant

PG&E On-Bill Financing (OBF)

- Available to Business Customers and Government Agencies
- Eligible Projects
 - Any project eligible for a PG&E Government Community Partnership rebate and/or incentive
 - Energy cost savings must be sufficient to repay loan within maximum term
 - Cost not directly related to installation are excluded, as well as in-house labor and project management costs
- Key Terms (for Government Agencies)
 - *Interest rate is 0%*
 - Term up to 10-years
 - Monthly payments based on estimated annual energy savings
 - Minimum amount \$5,000/premise; maximum amount is \$250,000/premise (\$1 million/customer)
- Other
 - Loan funded upon completion of installation
 - Loan can cover all eligible costs not paid for with incentives and/or rebates up to maximum amount

California Financing Coordinating Committee (CFCC)

- CA Infrastructure and Economic Development Bank (IBANK):
 - *Infrastructure State Revolving Fund Program*
 - Provides loans to public agencies for infrastructure and economic development projects
 - Loans range from \$50,000 to \$25 million, terms up to 30-years
 - Interest rates benchmarked to Thompsons Municipal Data Index
 - *CA Lending for Energy and Environmental Needs (CLEEN)*
 - Many eligible projects, including energy efficiency and wastewater
 - Loan amounts of \$500,000 to \$30 million for GHG reduction, water conservation, and environmental conservation projects
- Water Resources Control Board:
 - *Clean Water State Revolving Fund*: funding for wastewater and water recycling projects, 2-3% interest loans with 30 year maximum term
 - Repayment begins 1 year after construction completion
 - Principal Forgiveness available to municipalities for certain water projects
 - *Water Recycling Funding Program (WRFPP)*: low interest (2-3%) loans for recycled water use, 20-30 year terms
 - *Drinking Water State Revolving Fund (DWSRF)*: low interest loan program, can be applied to infrastructure improvements in treatment projects
 - 20 year term, 1.6% interest rate (construction), or 5 year term (planning)
 - Eligible: water compliance, consolidation and treatment projects
- Grant Opportunities:
 - Community Development Block Grant
 - Water Energy Grant Program
 - Small Community Wastewater SCG Fund
 - Department of Water Resources, many different programs



San Miguel Community Services District Equipment & Facilities Committee

Staff Report

July 14, 2016

AGENDA ITEM: V-2

SUBJECT: Consider and Discuss a presentation on potential organic recycling facility related to WWTP operations and potential public-private partnership opportunities

STAFF RECOMMENDATION:

Consider and Discuss a presentation on potential organic recycling facility related to WWTP operations and potential public-private partnership opportunities. Committee may request additional information or give direction to staff.

BACKGROUND:

In January of this year, the E & F Committee established a number of 2016-17 Work Program items. This agenda item was listed on the 2016-17 Work Program as a part of expanding WWTP operations and/or programs. Separately, District Staff is working to obtain a State grant for WWTP operation expansion. This potential organic recycling operations/facility is a new enterprise that could fit into this WWTP expansion and also create new solid waste opportunities in entrepreneurial operations that can benefit District ratepayers and District operations.

If the District should continue this exploratory and feasibility evaluation, then there are 4 specific District goals which should be used to guide discussions and any future decisions:

- 1) An organic food waste recycling operations must involve anaerobic digestion processes that can be interfaced as a solid waste disposal component of expanded WWTP facilities and operations.
- 2) Based on scalability of the organic food waste operations to meet operational costs and provide a means to achieve a rate of return for District investment and capital reserves. Scalability means achieving results to maximize value from all revenue streams including fertilizer, gas and electricity production for District use, maximize energy credits, if applicable, drive down costs and produce a commercial viable product(s) as a by-product.

- 3) Based on an operation that can produce an alternative energy source for the District's WWTP operations and facility making the WWTP facility a 100 % energy independent.
- 4) Contains a financial component that can achieve a rate of return that supports a rate stabilization program to the benefit of SMCS D ratepayers for utility and solid waste operations

District Staff began researching organic waste operations and opportunities in the County and within the State. The first discovery was about State legislation, AB 1826 which has mandated a Statewide Organics Waste Recycling requirement. A copy of AB 1826 is attached along with general information about the program which became effective on April 1, 2016. In January 2017 additional regulatory requirements will become effective.

In San Luis Obispo County, more specifically the northern region of County, there has been little implementation steps taken thus far but the program is less than 3 months old. Presently, there are no organic food waste recycling facilities in the County.

The Renewable Waste Intelligence Report recently stated that *“for wastewater projects, anaerobic digestion represents a highly economical way to process the organic solid waste. For this reason it is employed by the largest facilities. Co-digestion is becoming an increasingly popular system at these facilities, **where the addition of food-waste makes for more effective biogas production.**”* Biogas production can be used to fuel wastewater energy demands and usage, thus energy independence is achieved by a loop system that the District manages and operates. Renewable Waste goes on to report food waste composes between 14-18% of municipal waste, thus there is ample opportunity to capitalize on this monetary resource. Food waste has three times the methane production potential of biosolids, which also includes fats, oils and greases, and compressed natural gas, CNG, a vehicle fuel.

Organic and food waste recycling facilities and operations are evident in other parts of the State, including a Zero Waste digester in Monterey County operating as the Monterey Regional Waste Management District. An attachment to this report includes an article about the Zero Waste digester that has been operating for the past 3 years. The Monterey facility is also shown in a Zero Waste video that staff will show as a part of this presentation. The facility is anaerobic digestion with an annual tonnage of 5,000 ton input of 70% food waste and 30% green waste. and can produce 100kw of electrical energy daily. The digester supplies about 10 percent of the nearby wastewater treatment plant's energy needs at 12 cents per kWh. The facility can be “upsized” to increase capacity based on demand. Monterey Regional entered into a public-private partnership to establish this operation.

Another site using Zero Waste digester is located in South San Francisco Scavengers. The Scavengers facility is about a year and a half old. Their operations is currently taking in 11,000 tons of food waste annually and running through a Zero Waste Digester. Their current production provides enough CNG for 19 garbage route trucks. Their system is currently operating at maximum capacity and is looking to expand operations. The second commercial product from this facility is compost material which sold to fertilizer companies for retail sale. A company that specializes in such a food waste commercial product is EcoScraps, which

represents their product as a 100% food waste and organics fertilizer. It is sold in Home Depot store outlets as well as other outlets.

Locally, Staff has conducted a number of meetings/discussions with San Miguel Garbage about these types of food waste and organic recycling operations and the feasibility of such an operation in this District. San Miguel Garbage states that another recycling operation, Mid Valley Disposal in Kerman area has been operating for a short time. The Kerman facility processes 3,600-5,000 tons annually and has a mixture of 50% organics with products at end of process being compost after a 30 day processing time. Their rate of return is an estimated \$1.7 million annually. They use a different anaerobic digester system.

Staff and San Miguel Garbage are meeting with Bill Worrell, Integrated Waste Management Authority prior to this schedule Committee meeting. Additional information will be provided from this meeting with Mr. Worrell.

Considerations for Potential Project:

- 1) What are the goals for the project?
(Refer to the 4 goals listed at the beginning of this report.)
- 2) How much waste volume can be forecasted to be processed?
- 3) Is there a site identified for the digester system and facility?
- 4) What are the tipping fees and/or handling charges presently incurred for this type of waste?
- 5) How is the current organic and food waste disposed of and where?
- 6) What will be done with the resulting digestate?
- 7) Who collects this waste currently?
- 8) What are known disposal volumes for organics and food waste?
- 9) What are the potential investment costs for set-up and initial operations, including ongoing operations, including staffing?
- 10) What does economic feasibility look like? Is it based on operational volumes or some other factors?

Potential Sources for Organics and Food Waste Recycling Volumes:

Aron Kardashian, San Miguel Garbage, indicates that locally 2 winery operations, Courtside Cellars and J. Lohr presently operate water treatment/drying beds with haul-out of dry materials to other remote facilities. Courtside processes approximately 70 tons of residual organic materials annually which are hauled out by San Miguel Garbage to for remote disposal. J. Lohr processes 266 tons of residual organic materials annually.

Aron Kardashian estimates that locally there is approximately 5,000 tons annually of food waste volume that may be available to a recycling operation. The source for this food waste volume is outside of the District boundaries but could be handled by a recycling facility in San Miguel, which may result in lower costs to those business or locations.

Other potential sources are:

- 1) immediate vineyard and winery operations in proximity to San Miguel, including all of northern San Luis Obispo County as well as outside the County,
- 2) Camp Roberts,
- 3) local area restaurants, hotels with restaurants, fast food restaurants
- 4) schools, public and private, and colleges,
- 5) breweries
- 6) hospitals, state and private
- 7) senior care facilities

Return of Investment:

While specific feasibility analysis will need to be done prior to launching a more organized effort but an example of ROI can be provided as a starting discussion.

Sample Profile for processing 25,000 tons per yr, anaerobic digestion to CNG:

Organic material collected annually	25,000 tons (80% food/20% organics)
Landfill Rates/Tipping Fees	\$45/ton + \$10/ton haul costs
Market rate for CNG	\$2.50/DGE
Digestate costs after processing	\$10/ton
Truck use costs	10,000 gallons annually for fuel consumption
Each ton of organics produces	12 DGE annually
298,981 DGE/Annually fuels	30 trucks annually
20,000 tons of food waste produces	5,897 reduced emission for carbon credits
Each ton of organics produces	20 RINs or 502,831 RINs/Year (RINs = Renewables Identification Number)
Each RIN is valued at	\$0.80 or \$1.35/DGE
Each LCFS credit is worth	\$.54 per DGE produced

Revenue Opportunities:

Tip Fee avoidance & transportation	\$1,375,000 @ \$55.00 per ton
Organic Recycling @ \$55/ton	
Biogas Upgrade	\$747,453 @ \$29.90 per ton
CNG @\$2, 50/DGE for 5 digesters	
Compost Material	(\$220,480) @ (\$9.14) per ton
22,848 @\$10	

Environmental Attributes

Carbon Credits	
@ \$1,247/MTCO2 or	
\$2.94/inbound ton	\$73,536 @ \$2.94 per ton

RINs @\$80/RIN or \$1.35/DGE	\$403,624 @ \$16.14 per ton
LCFS (low carbon fuel std)	\$162,009 @ \$6.48 per ton
Total Revenue Opportunities- yrly	\$2,533,142 @ \$101.32 per ton
Total Capital Costs: (using a Zero Waste model)	\$9,879,545 @ \$19.76 per ton
Projected Pre-Tax Revenue:	\$1,300,000

Smaller volume facilities would adjust these revenues lower but capital costs would also be less dependent on selected vendor and specific operational cost analysis that would be needed to pursue public-private partnership agreements either

Potential Site Location:

An organic/food waste materials recycling facility could be located north of the existing WWTP property and be included with an evaluation of and pre-planning study for the expansion of the WWTP facilities and operations.

Fiscal Impact:

No fiscal impact at this time. Initial assessment results in a determination that there is a reasonable expectation that the feasibility of a organics/food waste recycling facility has a high degree of feasibility for the District and more in-depth study is needed.

Staff Recommendation: Staff recommends that the Committee discuss findings and provide direction to staff.

PREPARED BY:

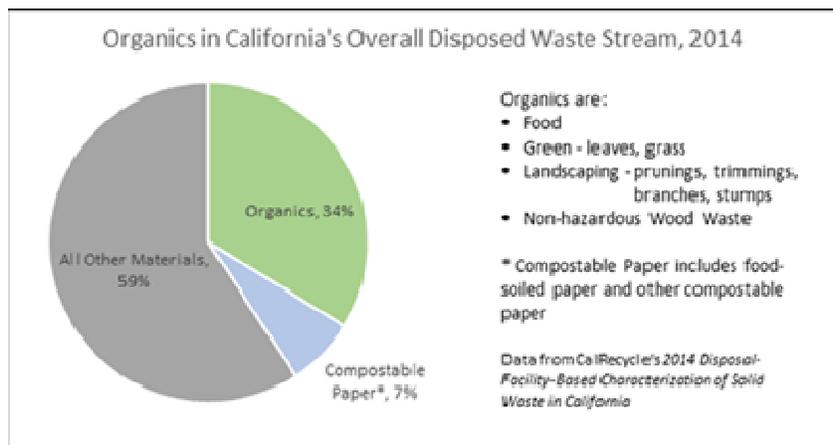
Darrell Gentry
General Manager

Attachments: Items V 2 a – d

GENERAL INFORMATION

Background and Overview

In October of 2014 Governor Brown signed [AB 1826 Chesbro \(Chapter 727, Statutes of 2014\)](#), requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units (please note, however, that multifamily dwellings are not required to have a food waste diversion program). Organic waste (also referred to as organics throughout this resource) means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. This law phases in the mandatory recycling of commercial organics over time, while also offering an exemption process for rural counties. In particular, the minimum threshold of organic waste generation by businesses decreases over time, which means that an increasingly greater proportion of the commercial sector will be required to comply.



Why Organics? Mandatory recycling of organic waste is the next step toward achieving California's aggressive recycling and greenhouse gas (GHG) emission goals. California disposes approximately 30 million tons of waste in landfills each year, of which more than 30 percent could be used for compost or mulch (see the [2014 Waste Characterization Study](#)). Organic waste such as green materials and food materials are recyclable through composting and mulching, and through anaerobic digestion, which can produce renewable energy and fuel. Greenhouse gas (GHG) emissions resulting from the decomposition of organic wastes in landfills have been identified as a significant source of emissions contributing to global climate change. Reducing the amount of organic materials sent to landfills and increasing the production of compost and mulch are part of the [AB 32 \(California Global Warming Solutions Act of 2006\) Scoping Plan](#). For more information on the connection between the waste sector and California's GHG emission reduction goals, please see [CalRecycle's Climate Change page](#).

Implementation Dates and Thresholds

The law phases in the requirements on businesses, including multifamily residential dwellings that consist of five or more units,* over time based on the amount and type of waste the business produces on a weekly basis, with full implementation realized in 2019. Additionally, the law contains a 2020 trigger that will increase the scope of affected businesses if waste reduction targets are not met. The implementation schedule is as follows:

- **January 1, 2016:** Local jurisdictions shall have an organic waste recycling program in place. Jurisdictions shall conduct outreach and education to inform businesses how to recycle organic waste in the jurisdiction, as well as monitoring to identify those not recycling and to notify them of the law and how to comply.
- **April 1, 2016:** Businesses that generate eight cubic yards of organic waste per week shall arrange for organic waste recycling services.
- **January 1, 2017:** Businesses that generate four cubic yards of organic waste per week shall arrange for organic waste recycling services.
- **August 1, 2017 and Ongoing:** Jurisdictions shall provide information about their organic waste recycling program implementation in the annual report submitted to CalRecycle. (See above for description of information to be provided.)
- **Fall 2018:** After receipt of the 2016 annual reports submitted on August 1, 2017, CalRecycle shall conduct its [formal review of those jurisdictions that are on a two-year review cycle](#).
- **January 1, 2019:** Businesses that generate four cubic yards or more of commercial solid waste per week shall arrange for organic waste recycling services.
- **Fall 2020:** After receipt of the 2019 annual reports submitted on August 1, 2020, CalRecycle shall conduct its formal review of all jurisdictions.
- **Summer/Fall 2021:** If CalRecycle determines that the statewide disposal of organic waste in 2020 has not been reduced by 50 percent of the level of disposal during 2014, the organic recycling requirements on businesses will expand to cover businesses that generate two cubic yards or more of commercial solid waste per week. Additionally certain exemptions, previously discussed, may no longer be available if this target is not met.

*Note: Multifamily dwellings are not required to have a food waste diversion program.

April 2015 [Stakeholder Workshop Materials](#)

Presentation, proposed FAQs, generator identification tool, info on annual reporting, example programs, program needs assessment tool, and Countywide Integrated Waste Management Plan (CIWMP) enforcement revisions.

Related Resources

- [Contact Search](#). Use the Contact Search form to locate jurisdiction (city, county, or regional agency) contacts and/or identify the CalRecycle liaison assigned to a jurisdiction.
- CalRecycle's [Food scraps management page](#) provides information by generator (e.g., [Hotels/Restaurants](#), [Health Care Industry](#), [Stadiums/Special Events](#), [Colleges/Universities](#)). Visit CalRecycle's page for [organics materials management technologies](#) which includes multiple resources including list of anaerobic digestion projects, guidance, a listserv, and program news. These and other resources are all accessible from CalRecycle's [organics home page](#), which is regularly updated.
- [Find a Composter Near You](#). Locate compost and/or mulch facilities by county and feedstock accepted. Additional facility information is available using CalRecycle's [Facility Information Toolbox](#) (FacIT).
- [USEPA Food Recovery Challenge](#). Participants reduce wasted food through prevention, donation, composting, and anaerobic digestion.
- [USEPA's Reducing Wasted Food & Packaging Toolkit](#). The free toolkit includes a PDF guide and a tracking tool (Excel spreadsheet) to help food service facilities identify and implement opportunities to reduce food and packaging waste, which saves money and reduces environmental impacts.
- Stay up to date on CalRecycle's [proposed regulations on Compostable Materials, Transfer/Processing](#) by signing up for the [related listserv](#).

SUCCESSFUL LAUNCH

SOLID WASTE DISTRICT PILOTS DRY FERMENTATION DIGESTER

*Small-scale anaerobic digester
on Monterey Peninsula is processing 5,000 tons/year of
source separated organics.
Power is sold to an adjacent wastewater treatment plant.*

Abbie Beane

SPECIAL events, restaurants and other commercial businesses in the Monterey region of California have found a way to close the compostable waste loop and produce usable electricity at the same time. The electricity is produced via dry fermentation anaerobic digestion (AD) units that came online this spring at the Monterey Regional Waste Management District (MRWMD) in Marina.

The pilot AD project is a public-private venture between MRWMD and Zero Waste Energy (ZWE), a California-based engineering technology firm that markets the SmartFerm dry digestion system. William Merry, MRWMD general manager, met representatives from ZWE at the *BioCycle Renew-*



The SmartFerm containers, now manufactured in the U.S., were dropped into place using a crane.

able Energy From Organics Recycling Conference in Madison, Wisconsin in 2011. “For a couple years prior we had been considering the next step in diversion and were interested in AD for organic matter,” Merry recalls, noting that AD could help the District attain higher waste diversion. “We decided to try this small-scale pilot, which was relatively low risk and low cost.”

MRWMD told ZWE that they wanted the AD units, but were not in a position to buy them. It could, however, offer to support ZWE operations staff via tip fees as well as sale of electricity produced at 12 cents per kWh and an accelerated permitting process, which was 15 months from conception to operation. “We felt this AD pilot was an important first step for our com-

munity," Merry says.

It was no small feat to get the equipment to this short stretch of coastline. Four prefabricated, airtight digesters (12 feet wide, 12 feet tall and 40 feet long) were designed, built and assembled in Germany. After being tested, they were disassembled and packed in seven very large containers, and shipped through the Panama Canal to Long Beach, California, then transported to Marina. The pilot project is designed to process 5,000 tons of mixed food waste (70 percent) and green waste (30 percent) annually.

"This was an expensive and time consuming venture," says Dirk Dudgeon, vice president of business development for ZWE. "We did this to prove the technology would work in the U.S. But we knew building and shipping from Germany would not be sustainable. SmartFerm units are now built in the U.S."

DIGESTER OPERATIONS

Source separated food waste from commercial and institutional generators is hauled to the MRWMD in Marina. After unloading, the material is vi-



The pilot project is sized to process 5,000 tons/year of mixed food waste (70% of mix) and ground yard trimmings (30% of mix).

sually inspected and contaminants are removed. The food waste is mixed with ground yard trimmings and stored for three to four days in a receiving storage bunker. The bunker is kept under negative aeration, with air treated in a biofilter near the AD units. Feedstock is placed in the digesters with a front-end loader. The digester vessels also can operate under negative aeration to draw air into the biofilter to minimize odors during loading. Each digester unit can hold 60 to 65 tons of material. The SmartFerm system operates in the thermophilic temperature range. Aeration trenches are built into the floor.

As soon as the doors are sealed, the system operates aerobically until the material reaches 125°F to 130°F, at which point it switches over to the anaerobic process.

As soon as the digester door is sealed following loading, the system operates aerobically until the material reaches 125° to 130°F. At that point, the system switches over to the anaerobic process. The air is drawn out of the vessel and the percolate (microorganism-rich liquid) is introduced via an overhead spray application. For digester start-up, ZWE seeded the percolate tank with liquid cow manure. "Because our technology operates at thermophilic temperatures, PFRP is achieved in the 25- to 28-day retention time," adds Dudgeon. The percolate is stored in a below ground holding tank of approximately 86,200 gallons.

Two roof-mounted expandable "bladders" store the biogas from the digesters prior to being piped into the combined heat and power unit (CHP). The facility has a 2G Cenergy 100 kW CHP engine. An emergency backup enclosed flare burns the biogas when the engine is down for maintenance

FOOD WASTE DIVERSION

FOOD scraps and other compostables have been composted in windrows at MRWMD since 2008. The pilot digester project has increased the waste district's ability to process more source separated food waste. Today, about 50 Santa Cruz County businesses and 25 Monterey County businesses and dozens of special events on the Monterey Peninsula are diverting their organics to MRWMD.

Starting in August 2012, Waste Management began operating a six-month commercial food scraps collection pilot that is now beyond the pilot phase and has grown to 12 businesses. Monterey City Disposal Services started its six-month commercial food scraps pilot in November 2012. This program is also now permanent and has 11 subscribers. Those bringing their food scraps and other compostables to MRWMD include individual businesses

such as Whole Foods in Monterey as well as Peninsula special events like the Big Sur International Marathon (BSIM) and Half Marathon. At its 2013 event, BSIM was able to accomplish approximately 96 percent waste diversion.

At the Community Hospital of the Monterey Peninsula (CHOMP), employees asked management to pursue environmental sustainability, as CHOMP is the largest employer on the Peninsula and healthcare is known for its large waste footprint. Alicia Molina, an executive assistant at CHOMP and a leading member of the Monterey Regional Compost Coali-



Food scraps from special events on the Monterey Peninsula are diverted to the MRWMD dry fermentation digester.

tion (a group of local businesses, nonprofits and industry stakeholders instrumental in pushing for commercial food scraps collection routes in the region), says the management support at CHOMP has been crucial to a successful program. "We also started small by beginning with food dehydration, so separating food waste was already part of the daily routine," Molina reports. "Our next challenge is to capture even more scraps beyond just the food prep areas. There is huge potential."

CHOMP's prep areas alone generate fifteen 64-gallon carts of food scraps weekly.

and when the biogas is not of sufficient quality to be burned in the engine. All electricity generated by the engine is transmitted to the adjacent Monterey Regional Water Pollution Control Agency (MRWPCA) facility.

Heat extracted from the engine exhaust is used to maintain thermophilic temperatures (151°F) within the percolate tank. After the digestion phase is complete, the digestate is removed from the vessels, blended with woody materials and other green waste, and taken to an existing windrow

cent parasitic power load (electricity needed to operate the plant) and conserving the heat generated.

ASSESSING THE BENEFITS

The MRWMD/ZWE anaerobic digester has capacity to process about 120 tons of green waste and 280 tons of food waste per month, with an annual operating cost estimated at \$226,908 (including expenses for MRWMD operations, a part-time technician and processing of both waste streams). Based on operating data from May through July 2013, the project reached its highest throughput in May (at 82% of capacity). The average monthly tipping fee revenue was \$11,130 (green waste tip fee is \$23.50/ton and food waste fee is \$38/ton) and the monthly electricity billing maximum was \$7,776 (\$19.64/ton for electricity revenue), according to Jeff Lindenthal, MRWMD Deputy General Manager for Community Programs.

The digester is supplying about 10 percent of the nearby wastewater treatment plant's energy need at 12 cents/kWh.

percent of the nearby wastewater treatment plant's energy need at 12 cents per kWh, and accounts for 90 percent of energy the AD plant is producing. "We wanted to diversify our power portfolio and be self-sustaining," says Brad Hageman, manager of MRWPCA, which also utilizes its own digester's power as well as five acres of solar designated for its second tertiary plant. "We also share property and board members with MRWMD so we are always looking for projects to collaborate on."

One of MRWMD's ongoing snafus with the digester is feedstock content — not only preventing contamination, but also limiting the amount of less en-



Feedstock is placed in the digesters using a front-end loader (top). Each unit can hold 60 to 65 tons of material. After 25 to 28 days of dry fermentation, digestate is removed from the vessels, blended with woody materials and taken to an adjacent windrow facility operated by Keith Day Composting (above).

composting facility currently operated by Keith Day Composting. Percolate is collected and contained within the AD unit, screened for solids and then pumped back into the percolate tank for reuse. So far, ZWE has not had to add water to the system, which has been able to capture condensate (and leachate from the storage bay) and send it to the percolate tank. The system is also operating well below a 5 per-

The methane content is 63.5 percent, and there is a 90 percent maximum electricity potential (due to 5 percent downtime for maintenance and 5 percent demand for parasitic load). Staffing needs are 15 hours/week for one operations person.

MRWMD has been pleasantly surprised to learn that they are able to run a higher food waste to green waste ratio than expected — 70 to 80 percent — and that the digestate has revealed no pathogens or trace metals. The digesters will also accept certified compostable service ware — helping restaurants and special events strive for "zero waste." They decompose after 60 to 90 days in the composting windrows following the approximately four week residency in the digesters.

The digester is supplying about 10

ergy-rich "dead stock" from the yard trimmings mixed into the food waste. The District is in need of an optimal yard waste collection route that delivers directly to the digester site during an optimal time for mixing with incoming food scrap loads.

At the outset, the AD operation also experienced some issues capturing optimal electricity output, which led to lower electricity revenue. As a result, MRWPCA had to install a utility grade meter to capture actual electrical performance. In the future, not only does the region hope to expand its compostable materials programs, but MRWPCA may also seek more power for an advanced water replenishment treatment program on the Peninsula. More AD units like the current ones or another power plant project are options on the table. ■

Assembly Bill No. 1826

CHAPTER 727

An act to add Chapter 12.9 (commencing with Section 42649.8) to Part 3 of Division 30 of the Public Resources Code, relating to solid waste.

[Approved by Governor September 28, 2014. Filed with
Secretary of State September 28, 2014.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1826, Chesbro. Solid waste: organic waste.

(1) The California Integrated Waste Management Act of 1989, which is administered by the Department of Resources Recycling and Recovery, establishes an integrated waste management program that requires each county and city and county to prepare and submit to the department a countywide integrated waste management plan. The act requires a business, which is defined as a commercial or public entity, that generates more than 4 cubic yards of commercial solid waste per week or is a multifamily residential dwelling of 5 units or more, to arrange for recycling services. Existing law also requires jurisdictions to implement a commercial solid waste recycling program meeting specified elements.

This bill would, commencing April 1, 2016, require a business that generates a specified amount of organic waste per week to arrange for recycling services for that organic waste in a specified manner. The bill would decrease the amount of organic waste under which a business would be subject to those requirements from 8 cubic yards or more to 4 cubic yards or more on January 1, 2017. The bill would also require a business that generates 4 cubic yards or more of commercial solid waste per week, on and after January 1, 2019, to arrange for organic waste recycling services and, if the department makes a specified determination, would decrease that amount to 2 cubic yards, on or after January 1, 2020.

This bill would require the contract or work agreement between a business and a gardening or landscaping service to require the organic waste generated by those services to comply with the requirements of this act.

This bill would require 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, except as specified with regard to rural jurisdictions, thereby imposing a state-mandated local program by imposing new duties on local governmental agencies. The bill would require each jurisdiction to report to the department on its progress in implementing the organic waste recycling program, and the department would be required to review whether a jurisdiction is in compliance with this act.

This bill would authorize a local governmental agency to charge and collect a fee from an organic waste generator to recover the local governmental agency's costs incurred in complying with this act.

This bill would require the department to identify and recommend actions to address permitting and siting challenges and to encourage the continued viability of the state's organic waste processing and recycling infrastructure, in partnership with the California Environmental Protection Agency and other specified state and regional agencies. The bill also would require the department to cooperate with local jurisdictions and industry to provide assistance for increasing the feasibility of organic waste recycling and to identify certain state financing mechanisms and state funding incentives and post this information on its Internet Web site.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. Chapter 12.9 (commencing with Section 42649.8) is added to Part 3 of Division 30 of the Public Resources Code, to read:

CHAPTER 12.9. RECYCLING OF ORGANIC WASTE

42649.8. For purposes of this chapter, the following terms shall apply:

(a) "Business" means a commercial or public entity, including, but not limited to, a firm, partnership, proprietorship, joint stock company, corporation, or association that is organized as a for-profit or nonprofit entity, or a multifamily residential dwelling.

(b) "Commercial waste generator" means a business subject to subdivision (a) of Section 42649.2.

(c) "Organic waste" means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

(d) "Organic waste generator" means a business subject to subdivision (a) of Section 42649.81.

(e) "Rural jurisdiction" means a jurisdiction that is located entirely within one or more rural counties, or a regional agency comprised of jurisdictions that are located within one or more rural counties.

(f) "Rural county" means a county that has a total population of less than 70,000 persons.

(g) "Self-hauler" means a business that hauls its own waste rather than contracting for that service and "self-haul" means to act as a self-hauler.

42649.81. (a) (1) On and after April 1, 2016, a business that generates eight cubic yards or more of organic waste per week shall arrange for

recycling services specifically for organic waste in the manner specified in subdivision (b).

(2) On and after January 1, 2017, a business that generates four cubic yards or more of organic waste per week shall arrange for recycling services specifically for organic waste in the manner specified in subdivision (b).

(3) On and after January 1, 2019, a business that generates four cubic yards or more of commercial solid waste, as defined in Section 42649.1, per week, shall arrange for recycling services specifically for organic waste in the manner specified in subdivision (b).

(4) On or after January 1, 2020, if the department determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during 2014, a business that generates two cubic yards or more per week of commercial solid waste shall arrange for the organic waste recycling services specified in paragraph (3), unless the department determines that this requirement will not result in significant additional reductions of organics disposal.

(5) A business located in a rural jurisdiction that is exempted pursuant to paragraph (2) of subdivision (a) of Section 42649.82 is not subject to this chapter.

(b) A business subject to subdivision (a) shall take at least one of the following actions:

(1) Source separate organic waste from other waste and subscribe to a basic level of organic waste recycling service that includes collection and recycling of organic waste.

(2) Recycle its organic waste onsite or self-haul its own organic waste for recycling.

(3) Subscribe to an organic waste recycling service that may include mixed waste processing that specifically recycles organic waste.

(4) Make other arrangements consistent with paragraph (3) of subdivision (b) of Section 42649.84.

(c) A business that is a property owner may require a lessee or tenant of that property to source separate their organic waste to aid in compliance with this section.

(d) A business generating organic waste shall arrange for the recycling services required by this section in a manner that is consistent with state and local laws and requirements, including a local ordinance or local jurisdiction's franchise agreement, applicable to the collection, handling, or recycling of solid and organic waste.

(e) When arranging for gardening or landscaping services, the contract or work agreement between a business subject to this section and a gardening or landscaping service shall require that the organic waste generated by those services be managed in compliance with this chapter.

(f) (1) A multifamily residential dwelling that consists of fewer than five units is not a business for purposes of this chapter.

(2) A business that is a multifamily dwelling is not required to arrange for the organic waste recycling services specified in subdivision (b) for food waste that is generated by the business.

(g) If separate organic waste collection and recycling services are not offered through a local ordinance or local jurisdiction's franchise agreement, a business generating organic waste may arrange for separate organic waste collection and recycling services, until the local ordinance or local jurisdiction's franchise agreement includes organic waste recycling services.

42649.82. (a) (1) In addition to the requirements of Section 42649.3, on and after January 1, 2016, each jurisdiction shall implement an organic waste recycling program that is appropriate for that jurisdiction and designed specifically to divert organic waste generated by businesses subject to Section 42649.81, whether or not the jurisdiction has met the requirements of Section 41780.

(2) (A) A county board of supervisors of a rural county may adopt a resolution, as prescribed in this paragraph, to make the rural county exempt from the requirements of this section. If a rural jurisdiction is a city, the city council may adopt a resolution, as prescribed in this paragraph, to make the rural jurisdiction exempt from this section. If a rural jurisdiction is a regional agency comprised of jurisdictions that are located entirely within one or more rural counties, the board of the regional agency may adopt a resolution, as prescribed in this paragraph, to make the rural jurisdiction is exempt from the requirements of this section.

(B) A resolution adopted pursuant to subparagraph (A) shall include findings as to the purpose of and need for the exemption.

(C) A resolution to exempt a rural jurisdiction pursuant to subparagraph (A) shall be submitted to the department at least six months before the operative date of the exemption.

(D) On or after January 1, 2020, if the department determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during the 2014 calendar year, all exemptions authorized by this paragraph shall terminate unless the department determines that applying this chapter to rural jurisdictions will not result in significant additional reductions of disposal of organic waste.

(b) If a jurisdiction, as of January 1, 2016, has in place an organic waste recycling program that meets the requirements of this section, it is not required to implement a new or expanded organic waste recycling program.

(c) The organic waste recycling program required by this section shall be directed at organic waste generators and may include, but is not limited to, one or more of the following:

(1) Implementing a mandatory commercial organic waste recycling policy or ordinance that addresses organic waste recycling.

(2) Requiring a mandatory commercial organic waste recycling program through a franchise contract or agreement.

(3) Requiring organic waste to go through a source separated or mixed processing system that diverts material from disposal.

(d) (1) The organic waste recycling program shall do all of the following:

(A) Identify all of the following:

(i) Existing organic waste recycling facilities within a reasonable vicinity and the capacities available for materials to be accepted at each facility.

(ii) Existing solid waste and organic waste recycling facilities within the jurisdiction that may be suitable for potential expansion or colocation of organic waste processing or recycling facilities.

(iii) Efforts of which the jurisdiction is aware that are underway to develop new private or public regional organic waste recycling facilities that may serve some or all of the organic waste recycling needs of the commercial waste generators within the jurisdiction subject to this chapter, and the anticipated timeframe for completion of those facilities.

(iv) Closed or abandoned sites that might be available for new organic waste recycling facilities.

(v) Other nondisposal opportunities and markets.

(vi) Appropriate zoning and permit requirements for the location of new organic waste recycling facilities.

(vii) Incentives available, if any, for developing new organic waste recycling facilities within the jurisdiction.

(B) Identify barriers to siting new or expanded compostable materials handling operations, as defined in paragraph (12) of subdivision (a) of Section 17852 of the Title 14 of the California Code of Regulations, and specify a plan to remedy those barriers that are within the control of the local jurisdiction.

(C) Provide for the education of, outreach to, and monitoring of, businesses. The program shall require the jurisdiction to notify a business if the business is not in compliance with Section 42649.81.

(2) For purposes of subparagraph (A) of paragraph (1), an “organic waste recycling facility” shall include compostable materials handling operations, as defined in paragraph (12) of subdivision (a) of Section 17852 of Title 14 of the California Code of Regulations, and may include other facilities that recycle organic waste.

(e) The organic waste recycling program may include any one or more of the following:

(1) Enforcement provisions that are consistent with the jurisdiction’s authority, including a structure for fines and penalties.

(2) Certification requirements for self-haulers.

(3) Exemptions, on a case-by-case basis, from the requirements of Section 42649.81 that are deemed appropriate by the jurisdiction for any of the following reasons:

(A) Lack of sufficient space in multifamily complexes or businesses to provide additional organic material recycling bins.

(B) The current implementation by a business of actions that result in the recycling of a significant portion of its organic waste.

(C) The business or group of businesses does not generate at least one-half of a cubic yard of organic waste per week.

(D) Limited-term exemptions for extraordinary and unforeseen events.

(E) (i) The business or group of businesses does not generate at least one cubic yard of organic waste per week, if the local jurisdiction provides the department with information that explains the need for this higher exemption than that authorized by subparagraph (C).

(ii) The information described in clause (i) shall be provided to the department with the information provided pursuant to subdivision (f).

(iii) This subparagraph shall not be operative on or after January 1, 2020, if the department, pursuant to paragraph (4) of subdivision (a) of Section 42649.81, determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during the 2014 calendar year.

(f) (1) Each jurisdiction shall provide the department with information on the number of regulated businesses that generate organic waste and, if available, the number that are recycling organic waste. The jurisdiction shall include this information as part of the annual report required pursuant to Section 41821.

(2) On and after August 1, 2017, in addition to the information required by paragraph (1), each jurisdiction shall report to the department on the progress achieved in implementing its organic waste recycling program, including education, outreach, identification, and monitoring, on its rationale for allowing exemptions, and, if applicable, on enforcement efforts. The jurisdiction shall include this information as part of the annual report required pursuant to Section 41821.

(g) (1) The department shall review a jurisdiction's compliance with this section as part of the department's review required by Section 41825.

(2) The department also may review whether a jurisdiction is in compliance with this section at any time that the department receives information that a jurisdiction has not implemented, or is not making a good faith effort to implement, an organic waste recycling program.

(h) During a review pursuant to subdivision (g), the department shall determine whether the jurisdiction has made a good faith effort to implement its selected organic waste recycling program. For purposes of this section, "good faith effort" means all reasonable and feasible efforts by a jurisdiction to implement its organic waste recycling program. During its review, the department may include, but is not limited to, consideration of the following factors in its evaluation of a jurisdiction's good faith effort:

(1) The extent to which businesses have complied with Section 42649.81, including information on the amount of disposal that is being diverted from the businesses, if available, and on the number of businesses that are complying with Section 42649.81.

(2) The recovery rate of the organic waste from the material recovery facilities that are utilized by the businesses, all information, methods, and calculations, and any additional performance data, as requested by the department from the material recovery facilities pursuant to Section 18809.4 of Title 14 of the California Code of Regulations.

(3) The extent to which the jurisdiction is conducting education and outreach to businesses.

(4) The extent to which the jurisdiction is monitoring businesses and notifying those businesses that are not in compliance.

(5) The appropriateness of exemptions allowed by the jurisdiction.

(6) The availability of markets for collected organic waste recyclables.

(7) Budgetary constraints.

(8) In the case of a rural jurisdiction, the effects of small geographic size, low population density, or distance to markets.

(9) The availability, or lack thereof, of sufficient organic waste processing infrastructure, organic waste recycling facilities, and other nondisposal opportunities and markets.

(10) The extent to which the jurisdiction has taken steps that are under its control to remove barriers to siting and expanding organic waste recycling facilities.

42649.83. (a) If a jurisdiction adds or expands an organic waste recycling program to meet the requirements of Section 42649.82, the jurisdiction shall not be required to revise its source reduction and recycling element or obtain the department's approval pursuant to Article 1 (commencing with Section 41800) of Chapter 7 of Part 2.

(b) If an addition or expansion of a jurisdiction's organic waste recycling program is necessary, the jurisdiction shall include this information in the annual report required pursuant to Section 41821.

42649.84. (a) This chapter does not limit the authority of a local governmental agency to adopt, implement, or enforce a local organic waste recycling requirement, or a condition imposed upon a self-hauler, that is more stringent or comprehensive than the requirements of this chapter.

(b) This chapter does not modify, limit, or abrogate in any manner any of the following:

(1) A franchise granted or extended by a city, county, city and county, or other local governmental agency.

(2) A contract, license, or permit to collect solid waste previously granted or extended by a city, county, city or county, or other local governmental agency.

(3) The existing right of a business to sell or donate its recyclable organic waste materials.

(c) Notwithstanding any other requirement of this chapter, nothing in this chapter modifies, limits, or abrogates the authority of a local jurisdiction with respect to land use, zoning, or facility siting decisions by or within that local jurisdiction.

42649.85. A local governmental agency may charge and collect a fee from an organic waste generator to recover the local governmental agency's costs incurred in complying with this chapter.

42649.86. (a) The department shall identify and recommend actions to address, with regard to both state agencies and the federal government, the permitting and siting challenges associated with composting and anaerobic digestion, and to encourage the continued viability of the state's organic waste processing and recycling infrastructure, in partnership with the California Environmental Protection Agency and other state and regional agencies. These other state and regional agencies shall include, but are not limited to, the State Air Resources Board, the State Energy Resources Conservation and Development Commission, the Public Utilities Commission, the Department of Food and Agriculture, the State Water

Resources Control Board, California regional water quality control boards, and air pollution control and air quality management districts.

(b) The department shall cooperate with local governmental agencies and industry to provide assistance for increasing the feasibility of organic recycling by promoting processing opportunities and the development of new infrastructure of sufficient capacity to meet the needs of generators, and developing sufficient end-use markets throughout the state for the quantity of organic waste required to be diverted.

(c) The department shall identify and post on its Internet Web site state financing mechanisms and state funding incentives that are available for in-state development of organic waste infrastructure to help the state achieve its greenhouse gas reduction goals and waste reduction goals.

SEC. 2. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

Darrell,

We currently process about 6500 tons annually. All the material goes to either a certified California composter or co-generation plant (in the valley) for energy. None of the material we process goes to a landfill as waste.

In comparison to the rest of the county

The Companies south of us Templeton and Atascadero are processing around 6000-8000 tons annually as recorded on the CalRecycle log. I believe the majority of that is being composted.

San Luis Garbage does around 48,000 tons annually a portion goes to composters and a portion is used as alternative daily cover (ADC) at their landfill. The ADC is being discussed to change to renewable energy with Kampo-gas as facility that uses this feedstock to produce CNG.

Hope this helps,

Aron

From: Darrell Gentry [<mailto:darrell.gentry@sanmiguelcsd.org>]

Sent: Thursday, March 31, 2016 2:32 PM

To: Aron Kardashian <aronk@sanmiguelgarbage.com>

Subject: SMCSO -- Questions

Hi Aron,

How much tonnage of green waste, food waste and other organics does SM Garbage process annually, including transport for disposal purposes?

How does that compare to the County volume in total?

If SM Garbage transports for disposal of this type of waste, is it transported to the two landfill sites or where??

Darrell Gentry

SMCSO



DATE: June 15, 2016
TO: Darrell Gentry, San Miguel Community Service District
FROM: San Luis Obispo County Planning & Building Department Energy Section
SUBJECT: Funding & Financing Opportunities for Food Waste Plant Project

San Miguel CSD asked the County of San Luis Obispo – Planning and Building Department – Energy Section to investigate potential funding and financing opportunities for a Food Waste Processing Plant. The purpose of this memo is to summarize viable options discovered from those efforts.

Funding & Financing Opportunities:

County of San Luis Obispo Energy Section Staff reviewed a number of funding and financing programs specific to California. The California Financing Coordinating Committee (CFCC) Handbook lists many available grants and loans for infrastructure projects in California, including energy efficiency and GHG reduction projects. The majority of the programs are not directly applicable to a food waste processing plant.

The California Department of Recycling and Resources (CalRecycle) has some applicable programs through its Greenhouse Gas Reduction Fund that focus directly on food waste processing plants implementation in California.

Greenhouse Gas Reduction Fund:

The Greenhouse Gas Reduction Fund (GGRF) is a state fund managed by CalRecycle that provides funding and financing for recycling facilities, with a minimum of 10% of funding going to projects in disadvantaged communities. The status of 'disadvantaged community' was decided by CalEPA to reflect the top 25% of areas that are disproportionately burdened by air pollution. Unfortunately, San Miguel does not fall into this category, and thus is ineligible for disadvantaged-specific funding. The GGRF is divided into the Grant Program and the Loan Program, both of which have specific funds available for Organic and Non-organic recycling projects.

GHG Reduction Loan Program: awards loans that reduce GHG emissions by diverting organic materials from landfills. The current cycle for FY 2015-16 is open, and has approximately \$7 million in funding as of May 17, 2016. Loan specifics include:

- Max loan of \$2,000,000 or 75% of total project costs, whichever is less
- Multiple loans can be combined up to \$5 million total
- Borrower must contribute at least 25% of total cost of project
- 15 year term maximum term
- 4% fixed interest rate

The next cycle, FY 2016-17 is anticipated to start in July, 2016.

Organics Grant Program: A competitive grant program aimed at expanding existing capacity or establishing new facilities that reduce organic materials being sent to landfills. Grant funding for this program is not currently available, but estimated at \$61 million for FY 2016-2017. The tentative timeline for the next cycle is as follows:

- Late spring – applications available
- Early summer – notice of funds available
- Late summer – applications due
- Fall 2016 – funding awarded

Successful grant applicants will have major permits in place, environmental review in progress, work plan completed, and budget planned.

The GHG Reduction Loan Program is likely the most appropriate route to pursue for supplemental funding for the development and implementation of a Food Waste Processing Plant in San Miguel. The Food Waste Processing Plant fits the purpose of the loan program: reduction of GHG emissions by diverting organic material away from the landfill an adequate funding is still available from the last cycle that can be secured if needed.

With regard to potential assistance with a feasibility study for the Food Waste Plant, Energy Section Staff reached out to Bruce Quigley, Loan Supervisor for CalRecycle, several times in order to facilitate a dialogue surrounding San Miguel CSD's need for the study. Unfortunately, Bruce has not responded to the Energy Section's request to discuss this possibility, but a conversation with him earlier last month, during the CFCC Funding Fair, suggested that funding for a feasibility study is not common and ultimately not likely. If San Miguel would like to further engage Bruce and CalRecycle for potential funding opportunities, please see his contact information below.

Bruce Quigley, Supervisor
(916) 341-6351

Bruce.Quigley@CalRecycle.ca.gov

Thank you for reaching out to us and providing the opportunity to research this exciting project for your CSD. If you have any questions or need further clarification, please don't hesitate to contact Jordan Garbayo (jgarbayo@co.slo.ca.us – 805-781-5982) anytime.



San Miguel Community Services District Equipment & Facilities Committee

Staff Report

July 14, 2016

AGENDA ITEM: V-3

SUBJECT: Review of information about the State Office of Technical Assistance Grant process for a planning and design study leading to expansion of existing WWTP operations and facilities.

STAFF RECOMMENDATION:

Staff Recommendation: Consider and discuss the Technical Assistance grant criteria and process pertaining to a planning and design study grant for expanding the existing Machado WWTP operations. Committee may provide direction to staff.

BACKGROUND:

At the April 28th Board meeting, members heard a report by District Engineer Tanaka about the present capacity of the WWTP facility. This report stated and recommended that the Board take steps to initiate a planning and design study project because the existing plant is at a 75% of design capacity. This level of capacity, typically, triggers the process of preparing and organizing for a planning and design study effort.

In May, the GM reported that staff had been in contact with and begun working with State Water Resources Control Board's Office of Technical Assistance (**OTA**) for assistance on a Prop 1 TA grant proposal for this work. **OTA** staff was informative and helpful in identifying Prop 1 funding opportunities to small (less than 10,000 people) disadvantaged communities (**DAC**'s) mean those communities with a median household income (**MHI**) of a maximum \$49,191 for **DAC** funding requests. San Miguel is designated with a population of 2,638 (last census) and an MHI of \$47,875 using American Community Survey data available at U.S. Census website. **OTA** uses this data source to verify community eligibility. As an eligible **DAC**, San Miguel may be eligible for 100% of eligible planning costs, not to exceed \$500,000, which would be used to complete the work listed below.

The preliminary engineer estimates for preparing a feasibility report that included project design study to expand the WWTP to meet State requirements and increase plant capacity,

environmental studies need for construction, financial/rate analysis, preparation of construction financing application for a Clean Water State Revolving Fund assistance/construction funding.

The process for OTA grant assistance and consideration:

Prepare a narrative description of the planning work to be completed;

Prepare an application grant funding request with a budget for planning and design study feasibility work;

An Engineer's Estimate for this type of work to be done;

Provide 3-years of Audit Reports;

A schedule of Wastewater rates,

A Board Resolution stating the Board's intent to support long-term rates sufficient to retire any District debt that may be related to construction;

A Board Resolution that states the District intent to a Prop 218 process that would or could result in higher Wastewater rate charges;

Provide a preliminary schedule for completing the planning/design feasibility study scope of work.

The matter of rates and the commitment "to do something about rates" in support of demonstrated ability to do construction is an important feature. **OTA** will look to see if our District rates at or near 1.5% of **MHI** for San Miguel and can be near or at the same percentage with any future rates increases.

SMCSD has requested grant preparation assistance, at no cost to District, from Rural Communities Assistance Corporation (RCAC) who is under contract with **OTA** to provide no cost assistance to **DAC's** in the State. District Staff is working with the Specialist assigned to assist with grant application assistance. Funding through OTA for this planning/design study work does not guarantee funding for construction but does assure that the project is or can be listed on the State's Revolving Fund for receiving construction funds.

The E & F Committee's role is not about finance matters in general but to provide recommendations regarding advancement of the proposed planning/design study and related documents described herein, so that future construction for plant expansion and/or upgrading is well planned and organized, not as a crisis but proactively.

Fiscal Impact:

No fiscal impact at this time.

Staff Recommendation: Staff recommends that the Committee discuss and provide direction to staff.

PREPARED BY:

Darrell Gentry,

General Manager