CITY OF PALM SPRINGS OFFICE OF SUSTAINABILITY Healthy Planet, Healthy You.	**Subcommittee Report**
PRESENTED FOR COMMISSION MEETING DATE: Nov 20, 2018	**SUBMITTED BY: Robert McCann**
SUBCOMMITTEE NAME: Standing SubCommittee on Waste Reduction (SSCoWR)	**SUBMITTED DATE: Nov 14, 2018**
LAST SUBCOMMITTEE MEETING DATE: Nov 1, 2018	**NEXT SUBCOMMITTEE MEETING DATE: TBD**

Subcommittee Goal:

Divert 90% of waste generated by the City of Palm Springs from landfill by 2030.

Summary:

1. C&D Waste Ordinance.

- Awaiting City Council action on revised C&D Ordinance submitted in April.

2. Reducing Polystyrene Take-Out Containers and Use of Plastic Straws for Restaurants.

- February 14: City of Palm Springs City Councilmember J.R. Roberts asked the Sustainability Commission to
  - Research City Ordinances that ban Extended Polystyrene (EPS) containers.
  - Offer recommendations and suggestions.
  - Provide an update on legislation seeking to provide a statewide ban on EPS containers and plastic straws.

- Oct 2. SSCowR members Roy Clark and Robert McCann met with Councilmembers Kors and Holstege to discuss modifications to the proposed Palm Springs Ordinance in light of the passage of AB 1884. The consensus from the meeting was for the SSCowR to research and report on the impact of more comprehensive ordinances in other CA municipalities that cover all food service establishments and also ban extended polystyrene (styrofoam) food containers.
- Update: Report under construction. Draft expected to be completed week of November 19.

3. Diverting and Recycling Wet Organic Waste in the City's Municipal Solid Waste (MSW) Stream From Landfill:

- Background: CA Assembly Bill 1826 AB 341 has set a policy goal that not less than 75% of solid waste generated by municipalities be source reduced, recycled, or composted by the year 2020, and annually thereafter. SB 1833 requires the state to reduce greenhouse gas emissions, such as methane, to 1990 levels by 2020. Locally, the Sustainability Plan adopted by the City of Palm Springs in 2016 sets a goal of 90% diversion of our Municipal Solid Waste (MSW) stream from landfills by 2030.

- The City of Palm Springs produces an MSW stream of approximately 50,000 tons per year. The wet organics fraction, estimated to be 30-40% of the total, all goes to landfill, where food waste breakdown generates significant amounts of methane. To meet increasingly stringent requirements for waste diversion, recycling, and reductions in greenhouse gas emissions, SSCowR members have been exploring an Anergia Corporation proposal to use Anergia's technologies and equipment to extract the wet fraction from the undifferentiated MSW stream, deliver the fraction to existing anaerobic digestion facilities at the Palm Springs Waste Water Treatment Facility, and convert the fraction into energy. The most recent activities in this initiative include:

    - November 13. Anergia delivered a description of the design package they would produce if funding was provided by the City. Robert McCann forwarded the proposal to City Council members Christy Holstege and Geoff Kors, City Representatives, and other stakeholders.

4. Battery Recycling Project

- July 24. The City of Palm Springs was awarded a grant from CalRecyle in the amount of $35,450.00 for the battery recycling program.
- November 14: Awaiting ATP.

5. Outreach and Community Education

- Oct 24 – November 8. Commissioners Freedman and McCann worked on a proposal for a Sustainability Commission Workshop at the 2019 Neighborhoods USA (NUSA) Conference, "Opening Doors to the Future", to be held May 15-18, 2019 in Palm Springs.
- Nov 13. The proposal was accepted for inclusion in the NUSA conference.

Recommendation/Request

The SSCowR notes that the bright blue recycle containers now in our public parks are currently co-existing with bright blue trash containers that were placed in the parks at the beginning of this year. To avoid confusion and decrease the rate of contamination of the waste stream being placed in our recycle containers, the SSCowR recommends that the bright blue trash containers be replaced with the standard brown trash containers that have been deployed in downtown areas, or that the bright blue trash containers in the city parks be painted brown with “trash only” signage.

ACTION ITEMS REQUEST TO COMMISSION	N/A
ACTION ITEMS REQUEST TO OFFICE OF SUSTAINABILITY	N/A
POTENTIAL FISCAL IMPACT/REQUEST IF ANY:	N/A

Anaergia
Breaking Barriers to Sustainability

11/1/2018

Palm Springs |

Dear X,

Anaergia has been pleased to collaborate with Palm Springs as your Team considers incorporating organic extraction and processing technologies into a new MRF. The state of the art OREX solutions will allow Palm Springs to:

- Divert up to 90% of putrescible organics from the MSW stream
- Extract select recyclable materials from the waste stream
- Incorporate commercial-scale proven technology
- Improve Flexibility: The proposed solution is capable of accepting MSW of varying quality and quantity, and it offers built-in expansion potential

Project progression will require continued collaboration and an increased level of effort by both Anaergia and Palm Springs. This document package is intended to not only describe the proposed facility as it is currently envisioned, but also to define the work required for the next phase of the project (30% design package) that will clearly illustrate the design with 3D renderings, provide a project schedule and a refined price proposal.

We are confident that the robust and reliable equipment introduced herein will help Palm Springs achieve diversion and organics recycling goals, and we trust that this proposal contains the information required to move the project forward. I look forward to discussing this further Please feel free to contact me anytime at 949.874.1118 with any questions.

Regards,

Yaniv Scherson, Ph.D., P.E.
Managing Director, Western US

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T +1 760 436 8870 F +1 760 448 6847
www.anaergia.com

Scope of Work for 30% Design Package

The Anaergia Team is prepared to begin work on a 30% design package based on the preliminary process design described herein. A pre-selection and design assistance agreement will help Anaergia and Palm Springs produce detailed information to help a contractor develop a Guaranteed Maximum Price (GMP) for the Project. The components anticipated in the 30% design package are shown in the Table Below

The Anaergia Team will build on the mutually agreed upon process flow diagram and preliminary layout included in Appendix B to develop a firm 30% process design package which includes the components included in Anaergia's Scope of Supply.

	30% Design Package Components
1	Client Approved Scope of Work
2	Conference calls
3	Engineering Review
4	Preliminary Installation - Scope of Work
5	Process Layout in 2D / 3D (including machinery & steel package)
6	Process Flow & Mass Balance Diagram
7	Capital Cost of System (CAPEX)
8	Cost of Operation (OPEX)
9	Equipment Specification Sheets (dimensions, static and dynamic loads, civil info)
10	Preliminary Project Schedule
11	Preliminary Installation Schedule
12	Preliminary Commissioning & Training Program
13	Electrical Drawing / Top Level (Loads)

Cost and Payment Schedule

The deliverables described in this section is offered for a lump sum of $X, and can be produced within X months of NTP. This schedule is projected with the understanding that the described process will guide the design development as is. Process changes have the potential to impact the delivery projection.

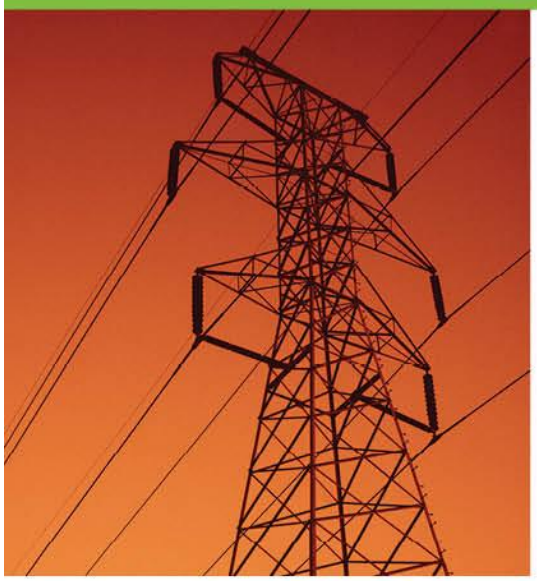
Milestone	% of Contract
Upon Execution of Engineering Services Agreement	50%
Upon Submittal of final 30% Design Package	50%

Upon signing of this proposal Anaergia will provide an engineering services agreement that will reflect the lump sum payment and schedule herein. Invoices are to be paid net 30 days.

Anaergia
Breaking Barriers to Sustainability

Organic Waste Diversion RFI Response

City of Palm Springs
11/1/2018



anaergia.com

City of Palm Springs

Attn: Palm Springs City Council,

Anaergia has been pleased to collaborate with Palm Springs as your Team considers incorporating organic extraction and processing technologies into a new Materials Recovery Facility (MRF) to extract organics from solid waste to recover renewable energy and fertilizer at the City's wastewater treatment facility located nearby.

Composed of reliable equipment that will help the City achieve mandated diversion targets, the approach introduced herein is designed to maximize organics recovery and minimize downtime while helping the City realize multiple benefits:

- Maximize recovery of putrescible organic waste from the municipal waste stream.
- Generate a high value organic fraction that can be converted to renewable energy and fertilizer products via anaerobic digestion.
- Maximize flexibility with the ability to process solid waste with any contamination level and multiple streams such as source separated organics, wet commercial waste, and municipal solid waste.
- Minimize diversion cost compared to other organics separation technologies and processes.
- Minimize GHG Emissions compared to all other approaches to food waste resource recovery.
- Utilize Existing Infrastructure and leverages partnerships.

We propose to produce a design package that will outline and describe an organic recovery and recycling project in the City of Palm Springs including an evaluation and recommendation of the optimal solid waste solution and retrofits to the City wastewater treatment plant to enable organics co-digestion. Further, the project will be described with engineering drawings, 3D renderings, schedule, and capital and operational cost estimates.

We trust that this proposal offers a strong introduction to the state of the art approach which is being utilized in four continents and here in California. We are confident that the robust and reliable equipment introduced herein will help Palm Springs achieve diversion and organics recycling goals, and we trust that this proposal contains the information required to move the project forward. I look forward to discussing this further Please feel free to contact me anytime with any questions.

Regards,

Yaniv Scherson, Ph.D., P.E.
Managing Director, Western US
Yaniv.scherson@anaergia.com
949-874-1118

1. Approach Overview

Figure 1: Example Organics Recovery Line

The City of Palm Springs is reviewing approaches to divert organics from landfill, and Anaergia, located in Carlsbad, CA delivers innovative solutions that are setting new benchmarks for global waste diversion and generation of useful products from waste. This proposal for a project design highlights key innovations and opportunities which allow us and our partners to not only divert oranics from landfill but also to maximize value from those waste streams. Anaergia's recovery facilities operate on four continents including in California at the Recology organics recovery line in San Francisco. Additional California proejct are being desigend and constructed now such as the East County Bioenergy Project in Antioch and Waste Management's OREX Line in Sun Valley. More informaiton on each of these projects and a few others are included for reference in Attachment 1.

Organics diversion goals and mandates are driving the waste industry to prevent organic material from reaching landfills, making organics recovery and processing an integral component of a truly modern mixed waste management stragety. Anaergia's organics recovery lines can be installed in existing transfer stations of materials recovery facilities, and are tailored to separate organics from a variety of waste streams, even those which are highly contaminated.

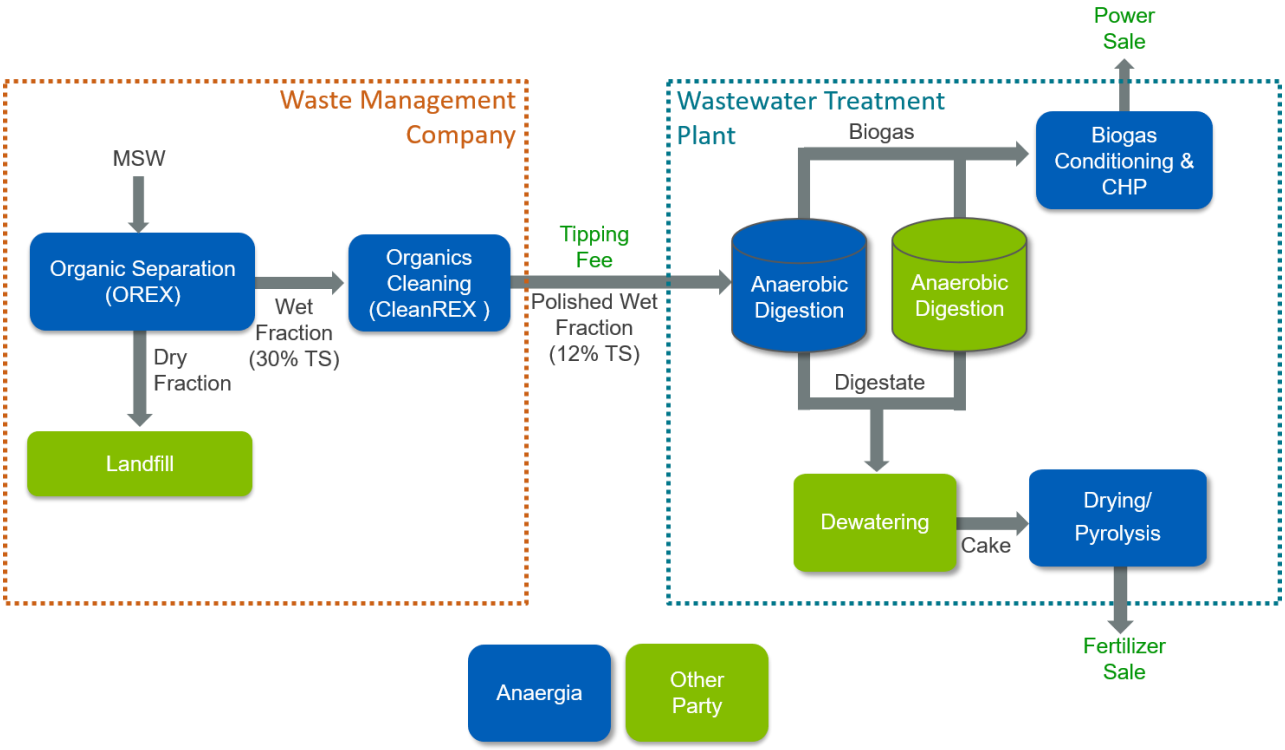


Figure 2: Linking Transfer Stations and Wastewater Infrastructure is Cost Effective and Rapidly Deployable

Figure 3: Example Organics Recovery Line – 50 TPH of Mixed MSW Feed

These facilities do not rely on source separation, and are very accommodating to high levels of contamination. Not only does this approach offer control, flexibility, and lower overall cost for organic waste management, it also produces a clean and highly digestible wet organic fraction which is ideal for conversion to biogas and fertilizer via anaerobic digestion.

2. Organics Recovery

The Palm Springs Facility will be designed according to the specific waste characterization and to meet the City's diversion goals. Following are brief descriptions of some components which are typically included in organics waste processing facilities. These may or may not be included in the final facility design.

Benefits of Anaergia's Organics Recovery Lines

- **Maximize recovery** of putrescible organic waste from the municipal waste stream.
- **Lowest cost organics diversion solution**
- **Highly flexible** for mixed waste feedstock with various contamination levels.
- **Generate a high value clean wet fraction** suitable for Anaerobic Digestion.
- **Enhance calorific value** of reject fraction.
- **Effective extraction** leads to smooth operation and **low maintenance costs** for the digesters

2.1. Tip Floor and Feeding

Municipal Solid Waste (MSW) collection trucks deliver MSW or Source Separated Organcis (SSO) to tip floor where it is held until it is loaded into the processing line feeder by a front end loader.

2.2. Bag Opener

Bag openers are used to liberate waste from bags and prepare it for downstream processing. Waste falls on a drum equipped with fixed hammers arranged in a helical manner. The slow rotating drum moves the material along an adjustable counter plate on which robust wear-resistant counter knives are mounted, with spacing that can be adjusted to accommodate the waste stream. After opening the bags, the torn bags and the material inside them will be dosed out of the bottom of the machine and evenly distributed onto a belt that sends material downstream.

Figure 4: Anaergia's Bag Opener

2.3. Disk Screen

Anaergia's disk screen is an economical screening step that concentrate organics in the material stream directed toward the downstream OREX™ while recovering potentially recyclable material (such as cardboard and paper) in the overs fraction without contamination from co-mingled wet waste. Anaergia's energy efficient disk screen was designed to minimze downtime, allow easy maintenance, and effectively recover the organic-rich material stream with minimized cross-contamination of valuable recyclables.

Figure 5: Disk Screen in Production

2.4. OREX Press

Anaergia's OREX extracts over 90% of the putresible organics from the material fed to it and generates a clean and highly digestible wet fraction ideal for conversion to biogas and fertilizer through anaerobic digestion.

Figure 6: Orex 1000 installation

How it Works

Waste is fed into a perforated chamber, where it is compressed. As pressure is applied, wet organics squeeze through the crevices formed by the compression of the comingled dry material. These crevices create a serpentine path for the wet organics to travel, trapping small and medium sized inert particles along the path. As pressure increases, the crevices become smaller, trapping even smaller particles, until the organic material is ultimately extruded through the perforations in the extrusion plate. The product is a wet fraction that is dually filtered by the perforated plates of the press and the dry fraction matrix itself.

Figure 7 shows wet commercial waste feed and the wet and reject fractions generated by the OREX. The wet fraction is generated as a cake with approximately 25-35% TS and 85-95% volatile solid content which means it has large biogas production potential. Additionally, the extraction process does not require dilution water, which minimizes storage volume and truck transportation.

Figure 7: The OREX Separates Mixed Waste Streams into Wet Fractions and Dry Fractions

2.5. Pilot Opportunity

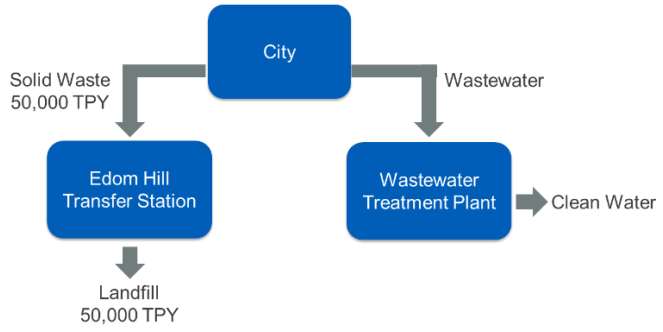
Is recommended that tests are conducted to test the existing waste stream's organics recovery potential using Anaergia's mobile test press. Anaergia regularly use this approach to gather valuable waste stream information for potential applications. Anaergia's engineers can work with the City to develop and execute a test plan.

3. Palm Springs Conceptual Project

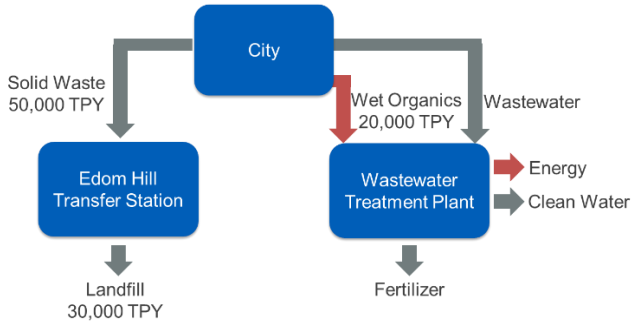
The Anaergia team has worked in collaboration with the Palm Springs Sustainability Commission, City representatives, and Palm Springs Disposal Systems (PSDS) to develop a conceptual organics diversion and recycling project utilizing the City's wastewater treatment plant infrastructure.

The City of Palm Springs currently landfills approximately 50,000 tons per year of solid waste (left image below). The proposed project would divert an estiamted 20,000 tons per year of organics to generate clean energy at the City's wastewater treatment plant (right image below).

Current Practise



Future Organics Diversion



4. Retrofit Palm Springs Wastewater Treatment Plant to Produce Energy from Solid Waste

The conceptual project envisions a new MRF built adjacent to the Palm Springs Disposal (PSDS) transfer station. Inside this MRF, and OREX line will be built to produce clean organic slurry from the MSW collected by PSDS. The clean slurry would be transported to the City's wastewater treatment plant and fed to the anaerobic digesters to enhance biogas production. Preliminary estimates indicate a potential to produce up 2 MW of power, enough power for 2,500 homes, or 140,000 MMBTU/year of renewable natural gas as vehicle fuel for the PSDS fleet of waste collection trucks,

creating a closed loop sustinable system. Moreover, the Palm Springs Wastewater Treatment Plant has two anaerobic digesters with capacity to process not only the organics from the city of Palm Springs, but also the organics from neighboring cities. These organics could be imported with a tip fee to enhance revenue to the City. This work that will be conducted in this proposal will detemine what retroifts are needed at the Wastewater Treatment plant to enable the reception and digestion of the organics as well as the utilization of the biogas for either electricity or vehicle fuel.

Figure 8: Proposed new MRF building to extract organics from MSW and delivered to the City's wastewater plant.

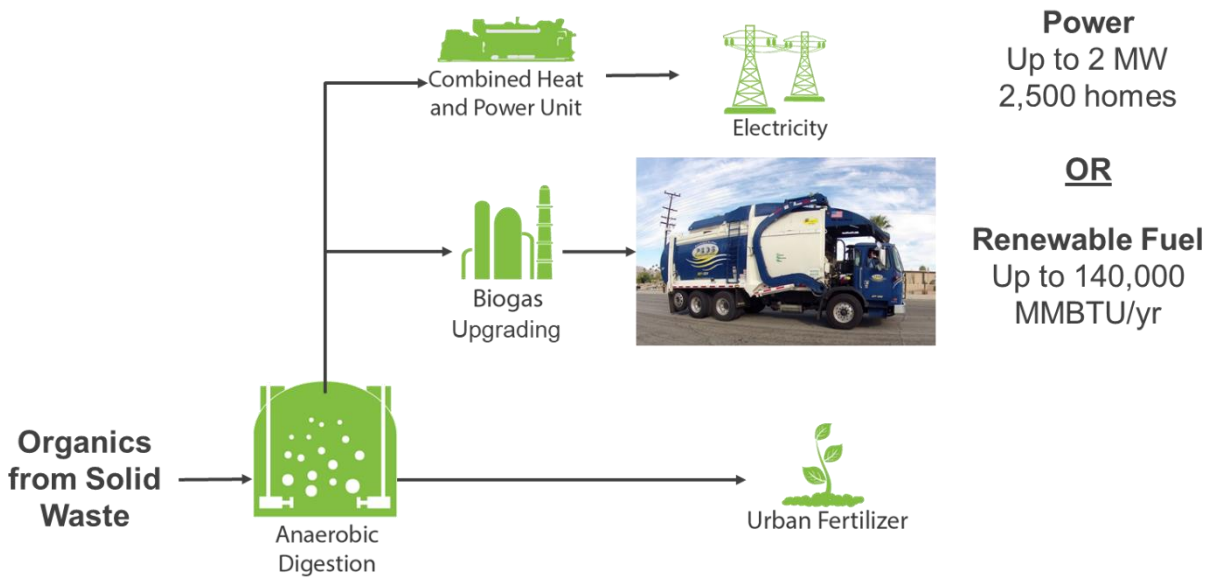


Figure 9: Potential biogas production and use as electricity or transportation fuel.

Figure 10: City wastewater treatment plant has sufficient capacity to process organics from neighboring cities.

5. Scope of Work

The Anaergia Team is prepared to begin work on a preliminary design package based on the preliminary process design described herein. A pre-selection and design assistance agreement will help Anaergia and Palm Springs produce detailed information to help a develop a cost and optimal design for the Project. The components anticipated in the design package are shown in the Table Below

The Anaergia Team will build on a mutually agreed upon process flow diagram and preliminary layout to develop a process design package which includes the components included in Anaergia's Scope of Supply.

	Design Package Components
1	Client Approved Scope of Work
2	Conference calls
3	Engineering Review
4	Major Equipment / Systems Scope of Supply
5	Process Layout in 2D / 3D
6	Process Flow & Mass Balance Diagram
7	Estimated Capital Cost of System (CAPEX)
8	Estimated Cost of Operation (OPEX)
9	Equipment Specification Sheets
10	Preliminary Project Schedule

Cost and Payment Schedule

The deliverables described in this section is offered for a lump sum of $68,900 and can be produced within 4 months of NTP. This schedule is projected with the understanding that the described process will guide the design development as is. Process changes have the potential to impact the delivery projection.

Milestone	% of Contract
Upon Execution of Engineering Services Agreement	50%
Upon Submittal of final Design Package	50%

Upon signing of this proposal Anaergia will provide an engineering services agreement that will reflect the lump sum payment and schedule herein. Invoices are to be paid net 30 days.

Exclusions

Detailed engineering is not included, such as the design of structural supports or any design work associated with modifications to the existing plant (for example demolition plans, structural modifications, foundations, or geotechnical). Detailed fabrication drawings for equipment and detailed electrical panel interior drawings are not included as Anaergia would need to issue a purchase order with down payments to suppliers to obtain such drawings.

Terms and Conditions

Anaergia Services, LLC Standard Terms and Conditions – available upon request

Proposal Acceptance

Proposal Acceptance:

Company:_____

By:_____

Title:_____

Signature:_____

I have authority to bind the Company.

Date:_____

6. About Anaergia

6.1. Company Overview

Anaergia sees waste not as a problem but as an opportunity to recover value — in the forms of renewable energy, high quality fertilizer and recyclables. Anaergia provides complete, integrated solutions for municipal solid waste management, wastewater treatment operations and large-scale farming and food production operations.

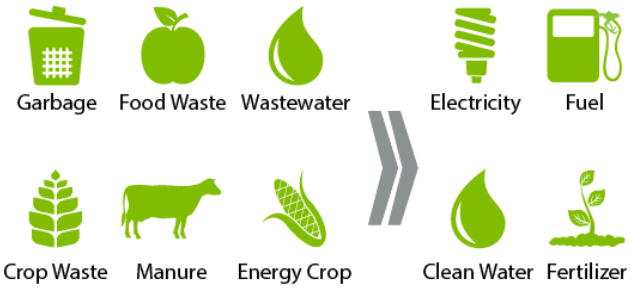


Figure 11: Anaergia's Approach to Resource Recovery

With a history of delivering innovative projects, Anaergia is uniquely positioned to provide unmatched solutions to the most pressing resource recovery challenges using an innovative portfolio of proven technologies and project delivery methods.

Recover Resources from Wastewater

Anaergia provides solutions to capture and convert waste gas into renewable electricity or a refined natural gas. Innovative anaerobic digester technologies can be used to reduce facility footprints, retrofit existing infrastructure and increase biogas yield through co-digestion.

Anaergia's integrated solutions use proprietary technologies to dewater, dry and pelletize sludge, reducing biosolids volumes by up to 80%. The end product is a high quality, marketable fertilizer product that is not only sustainable, but can generate revenue.

Maximize Recycling and diversion

Anaergia delivers innovative solutions that are setting new benchmarks for waste diversion and generation of renewable energy from waste. Our approach maximizes the recycling of plastics, paper and metals, and continues the process by converting biodegradable material into energy and fertilizer. The remaining non-degradable and non-recyclable waste can be transformed into a sustainable fuel for coal-fired power plants or cement kilns.

Figure 12: Global Office Locations

Anaergia's propriety Organics Extrusion Press (OREX) offers a highly efficient approach to extract organics from a wide range of waste sources regardless of contamination levels, while the Organics Polishing System (OPS) removes the majority of physical contaminants from organic feedstock, resulting in improved digester performance and production of clean digestate. Once it is polished, the organic fraction can be fed directly to Anaeriga's industry leading anaerobic digesters to produce renewable gas, vehicle fuel or electricity.

Goa, India
Processes 36,000 TPY of MSW using OREX and a digester to produce electricity, biogas, and refuse derived fuel (RDF) achieving a 94% recovery.
Operational: March 2016

Singapore
Processes 35,000 TPY of SSO with 25% contamination using OREX and a digester and generating 2MW of power.
Operational: November 2016

Cardiff, UK
Processes 42,000 TPY of SSO food waste using OREX
Operational: December 2016

Cape Town, South Africa
Processes 140,000 TPY of MSW using OREX to produce wet fraction for AD and bio-methane.
Operational: March 2017

San Francisco, CA
Processes 36,000 TPY of MSW using OREX at Recology
Operational in April, 2017

Limassol, Cyprus
Processes 140,000 TPY of MSW using OREX and a suite of Anaergia technologies to produce biogas, recyclables, and RDF to achieve 89% recovery
Operational: September 2017

Figure 13: Materials Recovery Facilities on Four Continents

Sustainable Agricultural and Food Operations

Anaergia provides long-term, leading-edge solutions for organic waste management and regulatory compliance to large agriculture operations and commercial food producers. Unlike traditional approaches, Anaergia's solutions produce energy, heat, fuel, fertilizer and clean water, all of which can be supplied back to clients with predictable, long-term purchase agreements.

The Anaergia group of companies has a long history in the agriculture and food production sectors with hundreds of turn-key anaerobic digestion projects delivered. Industry leaders trust Anaergia's solutions because of their dependability, quality engineered parts and service support to ensure optimized performance.

6.2. Capabilities

Modes of Solution Delivery | Anaergia offer a wide range of delivery options to best suit a project's needs, from the sale of capital equipment and services to design-build-own-operate approaches that remove technology and operational risk.

Continuous improvement | Anaergia is innovating the next-generation solutions that make our clients leaders in their field. A partnership with Anaergia enables access to the best resource recovery technologies available.

Global footprint with local expertise | Anaergia has over 200 employees in 14 global offices, with technologies are in use at hundreds of resource recovery facilities in more than 20 countries, generating over 355 MW of renewable power.

Best-in-class-technologies | Anaergia's core technology offerings include waste processing technologies, membrane systems, anaerobic digestion systems, and residual management technologies. Backed by the strength of a global group of companies and research teams, Anaergia's enabling technologies are dramatically reducing the cost of resource recovery infrastructure.

Integrated Financing | The experience of the developer and their overall commitment to a project, the strength of the EPC contractor, and the project operator are key considerations in project financing. Lenders also demand high bonding capability, transparency, and integration experience of the developer. Anaergia has demonstrated capabilities in private project financing, with a network of financial partners who support project finance requirements.

Figure 14: Over 1,600 High Solids Digesters Globally

Attachment 1: Select Organics Recovery Projects

Press Release: Partnership with Waste Management - Sun Valley Facility

Towards a "Zero Organic Waste Future" for Los Angeles: Anaergia to Build a Food Waste Recovery Facility for Waste Management and Generate Renewable Energy

Carlsbad, Calif. – December 6, 2017 – Anaergia Inc. announced today an agreement to construct an innovative waste organics facility at Waste Management's Sun Valley site. This project is designed to recover food waste from Los Angeles' municipal solid waste stream.

Anaergia will build a turnkey state of the art solid waste processing line at Waste Management's Sun Valley Recycling Park. This processing line will feature Anaergia's patented Organics Extrusion Press (OREX), a robust cutting-edge technology that recovers organics from contaminated municipal solid waste through high pressure extrusion. The OREX line will be used to extract up to 300 tons per day of organic waste from the Los Angeles municipal solid waste stream. The Sun Valley facility is expected to begin operations in 2019.

The organic waste diverted from the solid waste stream will be processed at Anaergia's Rialto Bioenergy Facility in Rialto, California. Using Anaergia's advanced anaerobic digestion technology, the organic waste will be converted into renewable electricity, renewable natural gas, and fertilizer. A portion of the renewable natural gas can be used to fuel Waste Management's compressed natural gas(CNG) trucks.

Anaergia's Rialto Bioenergy facility will utilize its industry leading high solids wet anaerobic digestion system. This facility is expected to reduce greenhouse gas emissions up to 220,000 metric tons of CO2 each year, the equivalent of taking about 47,000 passenger vehicles off the road. These environmental benefits are to result from diverting organic waste from landfills and from replacing fossil fuels with renewable energy.

"This technology expands our capability as a leader in organics recycling and sustainability by recovering organics from the waste stream and meeting the current and future organics diversion needs of Los Angeles" said Larry Metter, Area Vice President for Waste Management of Southern California.

"Working together with Waste Management is an important step in our Company's mission to recover value from waste streams. The project will introduce leading-edge organics recovery technologies to Los Angeles that will enhance recovery of organics, renewable energy, and fertilizer," said Andrew Benedek, CEO and Chairman of Anaergia.

About Anaergia

Anaergia Inc. is the global technology leader in recovering value from waste for the municipal, industrial, and agriculture sectors. Through its proven portfolio of proprietary technologies, Anaergia's integrated solutions create value for its customers in the forms of clean water, renewable energy, and quality fertilizers while reducing the cost of waste management. Anaergia's global head office is located in Burlington, Ontario, Canada and its US headquarters is in Carlsbad, California. Anaergia operates out of fourteen regional offices as well as three manufacturing plants. Anaergia's technologies are in use at over a thousand resource recovery facilities worldwide, reducing greenhouse gas emissions while creating new revenue sources for its clients.

For more information, please contact:
Anaergia Inc. Yaniv Scherson, Ph.D., P.E. +1.760.436.8870
info@anaergia.com

Attachment 2: Example OREX References

OREX Reference List

Year	Project	Country	Feedstock	Capacity
2006	Kaiserslautern	Germany	MSW	50,000 tpy
2007	Alessandria	Italy	MSW	100,000 tpy
2008	Castelceriolo	Italy	SSO & Green Waste	25,000 tpy
2008	Viareggio	Italy	SSO & Green Waste	20,000 tpy
2011	Fossano	Italy	SSO & Green Waste	60,000 tpy
2011	RTS Latvia	Latvia	MSW	30,000 tpy
2012	Cesa	Italy	SSO & Green Waste	160,000 tpy
2012	Bioman	Italy	SSO & Green Waste	80,000 tpy
2013	Viareggi	Italy	SSO & Green Waste	30,000 tpy
2015	Gescher	Germany	MSW	15,000 tpy
2016	Goa	India	SSO & Green Waste	58,000 tpy
In Construction	Limassol	Cyprus	MSW	160,000 tpy
In Construction	Wastemart	South Africa	MSW	150,000 tpy
Contracted	Toronto	Canada	SSO	25,000 tpy
Future	Boleslav	Czech Republic	MSW	60,000 tpy

OREX Select Reference Snapshots

OREX 1000H - Kaiserslautern	
Year installed	2006
Client	Zweckverband Abfallwirtschaft Kaiserslautern (ZAK)
Feedstock	MSW
Capacity (ton/year)	100,000
Quantity processed (ton/year)	45,000
Wet fraction yield (%)	25
Extrusion hole diameter (mm)	16
Wet fraction use	Anaerobic digester, digestate to compost
Wet fraction solids content (%)	36
Rejects use	Offset processing to RDF by Meinehardt in Meinz
Rejects moisture content (%)	28
Rejects calorific value (MJ/kg)	11-13

OREX 1000H – Alessandria, Italy	
Year installed	2007
Client	ARAL Alessandrina
Feedstock	MSW
Capacity (ton/year)	110,000
Quantity processed (ton/year)	90,000
Wet fraction yield (%)	38
Extrusion hole diameter (mm)	16
Wet fraction use	Anaerobic digester, digestate to compost
Wet fraction solids content (%)	35
Rejects use	Onsite processing to RDF
Rejects moisture content (%)	25