

US EPA ARCHIVE DOCUMENT



**Presentation to:**

**California Bioresources Alliance 7th Annual Symposium**

# Who is CleanWorld?

## **CleanWorld** is...

- a leader in successfully commercializing ***proprietary anaerobic digestion technologies***.
- a ***nationally recognized systems integrator*** – our partner technologies maximize AD performance and provide a complete solution.
- an industry leader in developing ***valuable revenue streams from effluent***, including organic soil products, fertilizers and composts.
- a subsidiary of Synergex International Corporation, an ***industry leader*** at the forefront of technology for over 35 years.

# What makes us different?

- CleanWorld **proprietary technology** – developed over a decade by the University of California, Davis in partnership with California Energy Commission and CalRecycle
- Easily handles **diverse mixed feedstocks** up to 50 percent total solids including mixed food and green yard waste, crop residue, animal manure, poultry litter, animal bedding
- **Shorter retention time** and rapid waste digestion
- **No fresh water needed**
- No enclosed receiving station needed and **minimal vapors and odor**
- **High system stability** regardless of spikes in loading and fluctuations in waste composition
- **Advanced automation** and remote monitoring capabilities

# *Dramatic Reduction in Capital and Operating Costs*

- **Lower capital costs** because CleanWorld mechanical systems are “productized” and can be delivered and connected to tanks on site
- Less water + shorter retention time = **smaller tanks**
- Shorter construction schedule—**operational in three to four months**
- Simple, modular design engineered for **easy scale-up**
- **Smaller system footprint**
- **Advanced instrumentation and control systems** allow remote monitoring (ipad or cell phone) and reduces staff requirements

# Success Story #1: American River Packaging

## *American River Packaging Organic Waste Recovery Facility*

### ***Problem:***

- Disposal of unrecyclable, low value corrugated waste
- Need for reliable, low cost electricity

### ***Solution:***

Clean World designed and built this **10 ton per day facility** that co-digests corrugated waste with local food processing waste to produce **electricity** with micro-turbines.



### ***Innovation:***

Adding wet waste from local food processing companies reduces costs and produces clean, reliable energy while creating **new revenues – and business relationships –** for American River Packaging.



# Success Story #2: South Area Transfer Station

## *South Area Transfer Station Organic Waste Recovery Facility*

### *Problem:*

- Alternative disposal of 25 tons per day of pre- and post-consumer food waste
- Waste hauling fleet requires CNG Fueling Facility
- Non-producing property owned by County

### *Solution:*

Clean World is building this scalable, **25 ton per day AD facility** at Sacramento's South Area Transfer Station that will produce **electricity**, and **renewable natural gas to power a fleet of 10 refuse trucks**. Clean World also uses the digester effluent to produce and sell **valuable soil amendments**.



### *Innovation:*

CleanWorld is building an efficient, low cost solution that produces renewable natural gas for area CNG fleets and received CEC funding to **scale-up the facility to 100 tons per day** by July, 2013.

# Success Story #3: UC Davis READ

## *UC Davis Renewable Energy Anaerobic Digester (READ)*

### **Problem:**

- Need to divert organic waste from landfills
- Create reliable source of renewable electricity
- Showcase UCD technologies that solve environmental challenges

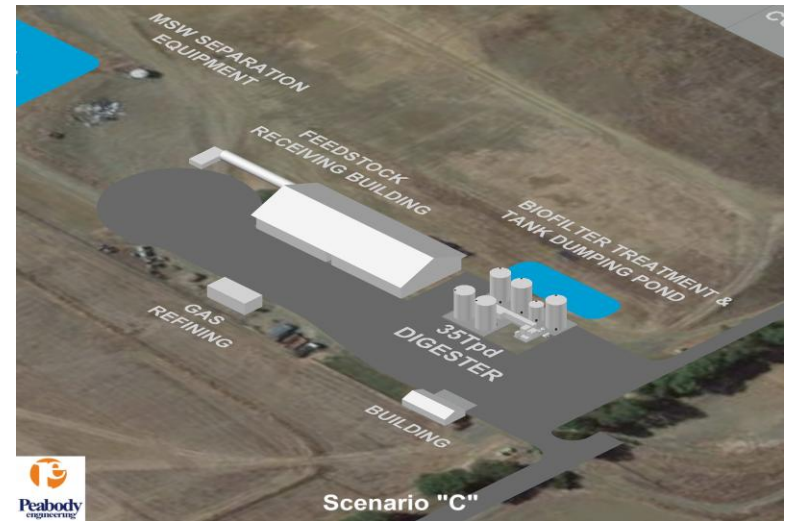
### **Solution:**

In partnership with UC Davis, California Energy

Commission and the US Department of Energy, CleanWorld is designing and building this **scalable, 50 ton per day facility** that blends food waste and agricultural waste generated on campus to generate **renewable electricity and organic soil amendments**.

### **Innovation:**

CleanWorld is **combining landfill collection and digester gas streams** to produce electricity for UC Davis' NET ZERO community and has developed a sophisticated pre-processing system to serve this unique client.





# What is Working Today?

- Technology is Working Today...
  - CleanWorld Technologies
  - Proven and Demonstrated
  - Productized
  - Commercialized
  - Technology Partners
  - Integration

# What is Working Today?

- Manufacturing is Working Today
  - California Manufacturers – California Jobs
  - Made in USA
  - 3 to 4 months to construct

# What is Working Today?

- Private Enterprise is Working Today...
  - Waste Hauling companies quickly adapting to new market demands and regulatory forces
  - Food Processing Companies seeking new revenues from waste streams
  - Banks and lenders

# What is Working Today?

- Believe it or not, Legislators and Regulators are Working Today...!
  - A coordinated, integrated approach amongst multiple agencies and branches of government
  - CalRecycle (75% Diversion, RMDZ Loan)
  - Air Resources Board (Cap and Trade, LCFS)
  - California Energy Commission (Funding and Policy Directives)
  - California State Treasurers Office (CAEAFTA)
  - Governor's California BioEnergy Action Plan

# What is Working Today?

- The people in this room are working today...
  - As a direct result of the work of this organization – **and the people at this Symposium** – these technologies have gone from an idea to a commercial opportunity in less than 10 years
  - **Your vision** of a technology that could simultaneously eliminate organic waste, capture greenhouse gases, power buses and trucks, and create soil for California farms is being realized.

# What is Working?

- For more information, contact:

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