UC Davis READ BioDigester

READ (Renewable Anaerobic Digester)
Commissioned December 2013

Designed and built by CleanWorld, using innovative, proprietary anaerobic digestion (AD) technology developed and patented at the University of California, Davis (UCD), the UCD BioDigester represents a unique public-private partnership, enabling the university and its surrounding region to be a direct recipient of the many economic and environmental benefits of this third commercial high-solids AD facility of its kind in North America.

Made possible by technology invented by Dr. Ruihong Zhang, a UC Davis researcher and professor, READ was commissioned in January of 2014, and built to completion in less than six months. It represents CleanWorld's third commercial AD facility in less than two years. CleanWorld's digesters are pre-fabricated, value-engineered, modular-by-design, and require minimal additional water for solid waste digestion - making the system less expensive, quicker to build, and smaller by its footprint.

Project Benefits:

- Gives the university an environmentally and economically sound alternative for disposing of organic waste.
- Generates 5.6 GWh of renewable electricity and diverts 20,000 tons of organic waste from local landfills annually.
- Reduces greenhouse gas emissions by 13,500 tons annually, as well as produces over 4 million gallons of fertilizer and soil amendments – enough to provide low cost, natural fertilizers for 145 acres of California's farmlands every day.
- The university is a significant partner for testing the benefits of its digester effluent, which strengthens the opportunities for commercial applications of the nutrient byproducts of its AD facility and organic waste streams.

Project and Technology Innovation:

- The **high loading rate and high-solid digestion** capability of CleanWorld's BioDigester technology make it particularly beneficial to institutional, commercial, and municipal solid waste producers.
- The processing system design – **a patented three-stage proprietary system** – allows for the higher rate capability and a greater yield of methane, among many competitively unique processing benefits.

- This **facility blends with the landfill gas from the now closed UCD landfill** to produce renewable electricity, which **feeds the university's West Village micro grid** and its **electric car charging stations**.

Project financing: provided by First Northern Bank, CalRecycle, and the U.S. Department of Energy. Key project partners include Otto Construction and University of California, Davis. Additionally, Carson Development Company, Peabody Engineering, TSS Consultants, Regatta Solutions, Capstone Turbine Corp., and Vasko Electric have played key roles in the development of the READ facility.

For more information about CleanWorld, please visit: cleanworld.com.

About the technology: In addition to UC Davis' own Dr. Ruihong Zhang, who invented the innovating technology, Assistant Vice Chancellor Sid England, who is the university's steward of sustainability, was instrumental in supporting the development of this project. Chancellor Linda P. B. Katehi supported the university's extraordinary commitment, and CleanWorld's CEO Michele Wong led the pioneering team who designed and built this first-of-its kind facility in the UC System.

Farm-to-Fork-to-Fuel: The UCD READ BioDigester is a global example of what's possible in zero waste economies, and in climate resiliency and organic waste management leadership, where the bridges between research and academic discovery and commercialization have been built and crossed. This is the new model for Farm-To-Fork-To-Fuel for organic waste repurposing, the new "Zero Waste" value chain: food grown locally, consumed locally, and anaerobically converted to valuable, sustainable "fuel" byproducts locally, in the form of green electricity (or renewable natural gas RNG), soil enhancements, cleaner air, and cleaner land.

About UC Davis

UC Davis has more than 33,000 students, over 2,500 faculty and more than 21,000 staff members. At UC Davis, more than 21 percent of food purchases for the 1.8 million meals served per year in campus's four residential dining halls are from local, organic or sustainable sources. Now they will be able to divert all organic waste from their facilities, showcasing the closed-loop example of growing, consuming, and repurposing food sustainably.