

Harvest Energy Garden - Central Florida

Lake Buena Vista, FL

Owner: Harvest Power*

Developer: Harvest Power*

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Harvest Power's Energy Garden in Central Florida is designed to simultaneously address four challenges – to recover energy and nutrients from food waste, manage odors, process biosolids beneficially, and improve the fertilizer end product quality – with one integrated solution.

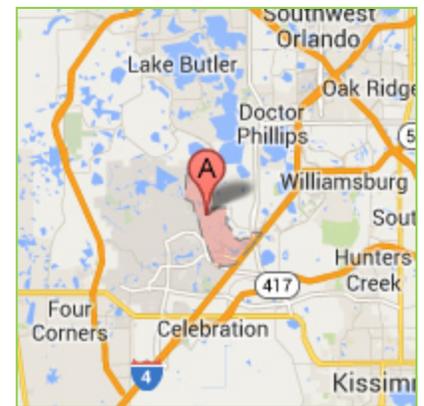
Located at Reedy Creek Improvement District, this anaerobic digester processes 130,000 tons per year of biosolids, fats, oils, grease, and food waste and has 3.2 MW of installed power generation capacity and 2.2 MW of recoverable heat from a biogas-fueled combined heat and power system (CHP), plus class AA granular fertilizer sold as an additive.

Organizations involved: *LOCAL PARTNERS: Reedy Creek Improvement District (RCID), Reedy Creek Environmental Services (RCES), Walt Disney World Resort, and all local participating hotels, restaurants, food processors and haulers. PROJECT SERVICE PROVIDERS AND VENDORS: Bio-Conversion Solutions (BCS), Biorem Technologies Inc., Caterpillar (CAT Finance), Crystalactor(R), Entec Biogas GmbH*, Environ, Inc., Florida Aquastore, Flottwegg, Golder Associates, Komline-Sanderson, Layne, Inc.*, Odo-Tech, World Water Works Demon(TM), Ring Power Corporation, Sattler*. PUBLIC RELATIONS: Featured in BioCycle*, the front page of the Orlando Sentinel, the Orlando Business Journal, WFTV News 9, Green Lodging News, and on National Public Radio's (NPR) Morning Edition.*

*ABC member

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See more biogas project profiles: americanbiogascouncil.org



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Inputs and Outputs

Biogas production:	As of September 2018, the facility produces ~22,000 cubic meters of biogas on average per day and the biogas is fed into the 3.2 MW electrical combined heat-and-power unit.
Feedstock(s):	Biosolids, fats, oils and grease (FOG), and SSO food waste from industrial, commercial and institutional (IC&I) sources including local theme parks, hotels, restaurants, and food processors.
End use:	The biogas is primarily being used to produce electricity for internal use and for sale; the high temperature heat from the combined heat and power (CHP) unit is used for indirect drying of digestate with thermal oil, and hot water is used for process heating.
Additional byproduct(s):	In addition to electricity this facility produces Class AA granular fertilizer.

Finances, Beneficiaries, and Expansion

Project financing:	The project financing was P3 (Public-Private Partnership)-type structure: privately-financed and private-risk facility at municipal site; a non-recourse bank facility secured by municipal feedstock supply and off-take agreements; plus ARRA Section 1603 Grant-in-Lieu of Tax Credit.
Customer:	Reedy Creek Improvement District is buying the electricity, enough to power the entire 20MGD wastewater treatment plant.
Environmental and economic beneficiary:	Multiple partners receive the environmental and economic project benefits: the local organic waste generators (increased recycling; steady costs) the local municipality (innovative treatment of the liquid fraction of the digestate with Demon annamox system to convert ammonia into nitrogen gas, e.g. air); and the local community (landfill diversion and increased capture of recycles such as metals and plastic during repackaging).
Long term plans?	The future looks even brighter: Harvest is investigating the use of CNG for resort vehicles. In addition, longer term plans include expansion of Orange County schools' cafeteria waste diversion – now an early pilot – and piloting cutting-edge sludge destruction technology for increased volatile solids (VS) removal.

