



energy economy environment

Who We Are **quasar energy group, llc**

quasar energy group, llc (quasar) is a Cleveland, Ohio based waste to energy company. **quasar's** anaerobic digestion renewable energy systems represent an aggregation of the best available technologies from over thirty European providers using US components. **quasar** provides turn-key design build services, engineering, regulatory guidance, outside biomass supply, and an additional revenue stream in the forms of: energy sales, tipping fees, renewable energy credits and valuable byproducts.

Our three basic systems are the: F330, F550 and F825.

Laboratory

In 2008, **quasar** relocated its Engineering & Laboratory Offices to The Ohio State University's Ohio Agricultural Research and Development Center (OARDC) campus in Wooster, Ohio to collaborate with the largest university agbioscience research center in the nation. This private public partnership combines agricultural and biological research with an emerging American industry.

quasar's laboratory is home to a fleet of "pilot scale" digesters that simulate the operations of full-scale systems. The day to day activities of **quasar's** laboratory are validated by an OSU professor and his team of graduate and post-doctoral students.

	Capacity (gal.)	Ratio (m:fw)	Wet Tons/Day Manure	Wet Tons/Day Food Waste	Electricity Per Day (kWh)	or Natural Gas Per Day MMBtu
F825	825,000	75%:25%	87	29	\$1,154	\$1,380
F825	825,000	50%:50%	50	50	\$1,445	\$1,730
F825	825,000	25%:75%	22	65	\$1,645	\$1,970
F550	550,000	75%:25%	58	20	\$777	\$930
F550	550,000	50%:50%	33	33	\$954	\$1,140
F550	550,000	25%:75%	14	42	\$1,061	\$1,280
F330	330,000	75%:25%	33	12	\$375	\$540
F330	330,000	50%:50%	20	20	\$593	\$690
F330	330,000	25%:75%	8	26	\$661	\$790

* Information above is based on 15% TS, 80% VS, and 55% methane. Actual energy values will vary regionally. The table above is based on a rate of \$0.075 per kWh for electric and \$10.00 per MMBtu for natural gas.

Opportunity

The American Recovery and Reinvestment Act of 2009 (ARRA) offers a **30% tax free grant** to companies who initiate renewable energy projects before Dec. 31, 2011. Partnering with **quasar** to

construct an **ecoFARMsystem** allows farmers, developers, manufacturers, and entrepreneurs to secure ARRA tax-free capital to significantly reduce the cost to own a system.

- 1) quasar** has a proven process to secure 30 to 55%* of the system price.
- 2) quasar** systems are the least expensive process to generate energy.
- 3) Our systems stabilize energy, waste disposal, and fertilizer prices.
- 4) Our systems** provide no cost capital which reduces your total investment and can be reinvested into your core business.

* 30 - 55% includes ARRA, USDA and accelerated depreciation.

Building

ECO FARM SYSTEMS



renewable **ENERGY**

for Ohio's **ECONOMY**

and a cleaner **ENVIRONMENT**
www.quasarenergygroup.com

Corporate Headquarters:
7624 Riverview Road
Cleveland, OH 44141

Laboratory & Engineering:
2705 Selby Road
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Energy from Waste



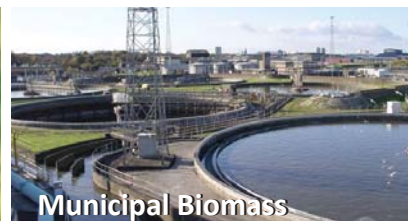
Crop Residuals



Food Waste

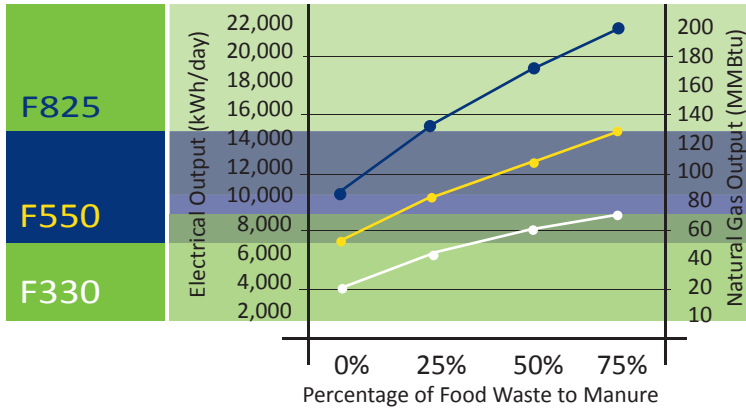


Animal Manure



Municipal Biomass

Daily System Increase in Electrical and Natural Gas Output with the Addition of Food Waste



Today, the most common methods for disposing of organic waste are landfilling and incineration. Both options pollute the air, soil, and water in surrounding communities without producing any beneficial products. **quasar** systems improve the regional environment by diverting organic waste from landfills and incinerators and processing it naturally to produce clean, renewable energy and nutrient rich soil amendments. Many food processing companies are interested in implementing clean methods of waste disposal. **quasar** can act as your outside biomass broker to secure these sources for your project.

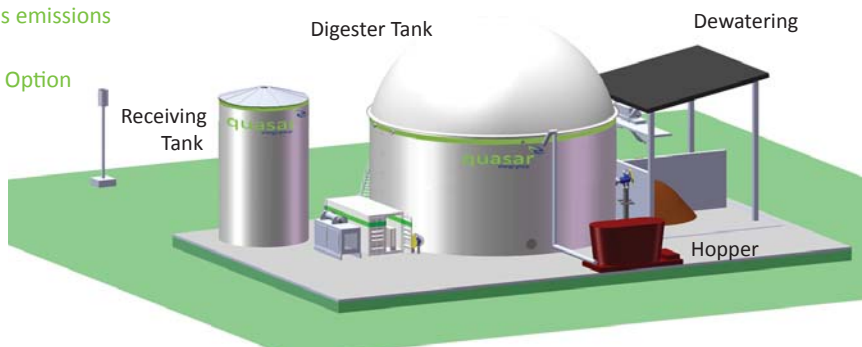
The energy and byproduct outputs a system can generate will vary based on the types and quantities of biomass it processes. The addition of food waste to a typical digester significantly increases biogas outputs. Food waste from manufacturers who produce products high in oil or sugar will yield higher energy results than waste from vegetable processors.

Our facilities provide a "green" alternative to traditional waste management practices. **quasar** systems help to balance the delicate ecosystems of American farms and cities. Our **ecoFARMsystems** produce renewable energy, encourage sustainable economic development and protect our environment.

Environmental Benefits:

- Reduce greenhouse gas emissions
- Odor Reduction
- Nutrient Management Option

ecoFARMsystem Layout

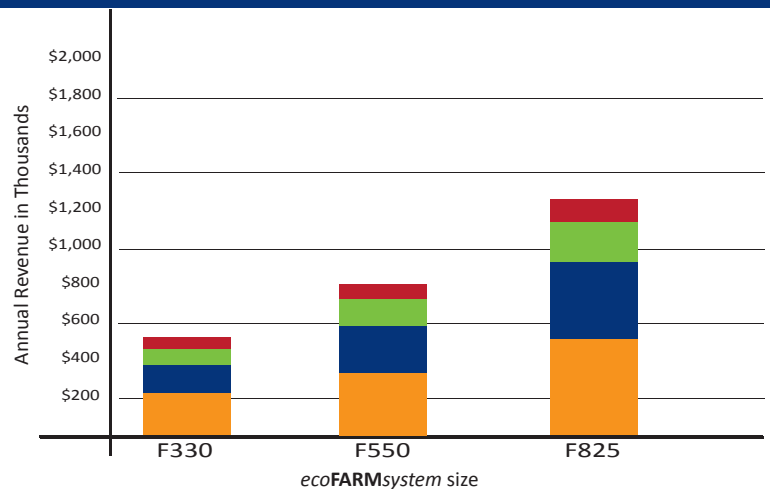


quasar designed its **ecoFARMsystem** line of anaerobic digestion plants to process a wide variety of biomass sources including: food waste, crop residuals, manure and waste water treatment plant biosolids.

quasar's systems produce biogas which is composed of approximately 60% methane and 40% carbon dioxide. Biogas can be used to generate electricity and thermal heat. Alternately, biogas can be cleaned, separated and dried using technology provided by Biogas Technologies Unlimited, LLC (BTU is a division of **quasar**) to produce natural gas (or biomethane) or further compressed to produce CNG (compressed natural gas).



System Revenue



- *Revenue from byproducts: liquid fertilizer @ \$3.60 per ton and bedding @ \$10.00/yd³
- *Revenue from Renewable Energy Credits (REC's) @ \$25.00 per MWh
- *Revenue from Tip Fees @ \$25.00 per wet ton
- *Revenue from Electric Sales @ \$0.075 per kWh and thermal heat at \$5.75 per MMBtu

*Note: Actual values will vary regionally. Based on 50% food waste and 50% manure.



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Engineering & Laboratory

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