



The bioQUBE is designed in a re-purposed 20 foot shipping container to transform organics into biogas for optional uses such as heat, hot water, electricity, or transportation fuel-quick, efficient, and easy to operate.

Capacities range from 500 to 950 metric tonnes per year. Configuration options include receiving and feeding system choices and output utilization options. The solution is designed to be energy self-sufficient. The required sub-systems are linked by a highly automated control system that allows remote access.

The digestion process occurs in an insulated tank built inside the container. The biogas is created in the digester head space and stored in a flexible, multi-layered bladder. Required ancillary systems can also be housed in containers.

Internal digester heating and the patented mixing design are controlled within the digester to retain the optimum conditions for biogas production and to achieve the necessary retention time required for the feedstock input profile.

### Valuable Biogas Production & Use

The bioQUBE is a compact, modular and flexible system that will transform recovered organic material into biogas. The bioQUBE is energy self-sufficient.

The options for utilizing the remaining biogas include:

- ✓ Create energy in the form of electricity and hot water when combusted in a Combined Heat & Power (CHP) cogeneration system.
- ✓ Upgrade and create a compressed renewable natural gas (CRNG) that can be used as an alternative transportation fuel.
- ✓ Create biomethane for pipeline injection or to off-set internal natural gas consumption.

### Who Can Use It ?

Anyone that generates and can recover 1.5 to 2.5 metric tonnes of organics daily, such as:

- ✓ An innovative food processor or wholesaler that wants to produce renewable energy for internal operating needs.
- ✓ Dense populations like universities and offices where diverting post-consumer food scraps leads to achieving sustainability objectives.
- ✓ A generator such as a grocer or hospitality provider in search of ways to reduce carbon and other emissions in the supply chain.
- ✓ A healthcare provider (ex. Hospital, Nursing Care) motivated to divert food preparation trim and post-consumer food scraps.

### Business Case Parameters

Parameter	Multiple Input Capacity Options		
	1.5	2.0	2.5
Input Tonnes Per Day	1.5	2.0	2.5
Input Tonnes Per Year	500	725	950
<b>Biogas Production Per Year (m<sup>3</sup>)</b>	<b>104,025</b>	<b>138,700</b>	<b>173,375</b>
<b>CHP Cogen Option (For All The Biogas)</b>			
Electrical Output - Internal Or To Grid	171,470 kwh	228,630 kwh	285,780 kwh
Thermal Output - For Hot Water	236,515 kwh	315,350 kwh	394,190 kwh
Self Sufficiency - System Operations	10%	8%	8%
<b>CRNG Fuel Option (After Self-Sufficiency)</b>			
Litres Equivalent	80,770	107,685	134,605
Van Travel - KM's	895,000	1,195,000	1,495,000
<b>1. Annual Biogas Revenue Opportunities</b>	<b>\$60 - \$80,000</b>	<b>\$80 - \$110,000</b>	<b>\$105-\$135,000</b>
<b>2. Cost Displacement Opportunities</b>			
Current Disposal System	Highly Valuable Due To Individual Practices & Costs		
Internal Energy Consumption Off-Sets			
<b>3. Up-Side Revenue Opportunities</b>			
Voluntary Carbon Credit Sales	Driven by Climate Change Programs & Local Nutrient Needs		
Liquid Bio-Fertilizer Value			



## How Does It Work?

