Case Study of Gas Turbine Power Usage vs. Grid Electric: Growing Operation

Currently legal grow cultivation in the U.S. consumes an estimated 1.1 million mWh of electricity and this number is forecasted to grow 162% in the next 4 years. These numbers mean an increase in energy demand resulting in increased cost for electricity. A gas turbine CHP system can stem brunt of the anticipated grid electric price hike, while being eco-conscious. Like the beer brewing vertical, indoor grow room and greenhouse grow operations are especially suited for CHP and gas turbines. Not only do they permit power 'off the grid', when utility electric often cannot deliver power, they reduce the cost of the power itself, in the arena of 45% or more. Finally, the 'waste heat' can be used for climate controls, to dry hemp or loose leaf herms, while CO2 'waste' can be used to actually feed plants in grow rooms or greenhouses. In the end, CHP is around 90% efficient, compared to grid electric's 30% efficiency. This means, in effect, that - provided you can utilize the 'waste heat' through thermal or other means, you're producing 3x the CO2 greenhouse gases with grid electric, vs. on-site gas turbines, for the same power produced. Below is a power consumption chart in the hemp and grower vertical.

Flex Energy GT1300S Financed over 10 years		1,300,00 Watts		$ 0.048394 fuel cost per kWh	
	Sub-Category	Percentage (1.3 mW)	Power Draw (kW)	Grid Electric Cost	GT1300S - 10 Year
Total Power Consumption	Ventilation, Cooling & Dehumidification	51%	663000	$76,500	$32,085.22
	Lighting	38%	494000	$57,000	$23,906.64
	Space heating	5%	65000	$7,500	$3,145.61
	Water Pumping	3%	39000	$4,500	$1,887.37
	CO2 Injection	2%	26000	$3,000	$1,258.24
	Drying	1%	13000	$1,500	$629.12
Micro-turbine Monthly Payment				Not Applicable	$23,000
Maintenance Charge					$17,000
Monthly Gas Cost ($.45/therm)					$45,000
Total Monthly Payment				$150,000	$85,000