

PORTABLE CHP BIOMASS SYSTEM

Hybrid Brayton Combined Heat and Power

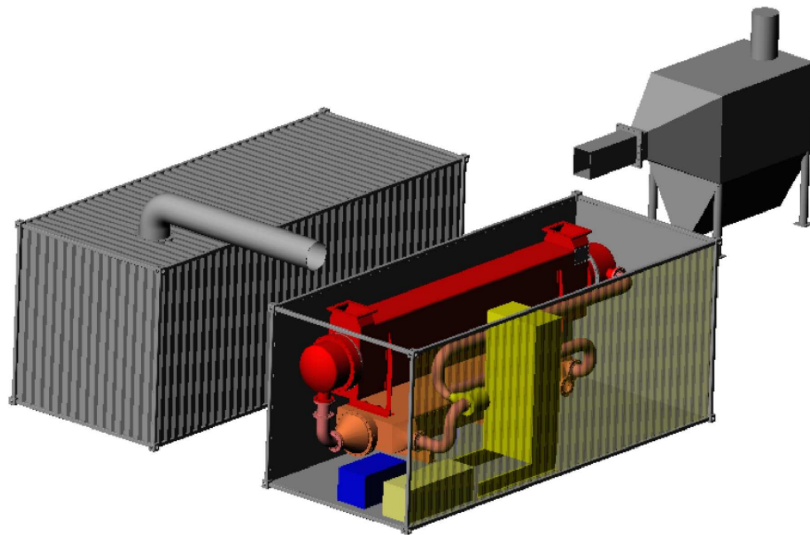
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Small-scale power and heat derived from biomass is a flexible renewable resource that can support a number of beneficial applications in a multitude of locations and available to a variety of users. The many applications can include opportunities from diesel displacement (for off-grid communities) to wildfire threat mitigation (using forest underbrush material around forest settlements) to light industry (such as sawmills, greenhouses, etc.) to distributed renewable energy (for urban CHP or industrial parks). System portability means shop tested equipment, quick installation, flexible fuel supply contracts, low cost and retained capital value.

Combined Heat and Power (CHP) is preferred for its efficient use of energy, achieving over 65% utilization of the higher heat value. Biomass is recognized as a relatively high density energy fuel, transportable short distances, with energy available on-demand, having a controlled emission profile and recognized as greenhouse gas (GHG) neutral. Using small-scale biopower to displace fossil-fuel based power and heat significantly reduces GHG emissions. Small-scale portability adds flexibility, affordability, increased available investment and unique market application. Distributed biomass CHP technology is ideally suited to be used in sustainable community projects because of the renewable and load following aspect.

The Hybrid Brayton (HBC) system by Entropic Energy Inc. is a self-contained power conversion system that extracts heat from a flue gas and produces electricity and clean, very hot air. The HBC is designed to output 100 kWe of power and 135 kWth of clean air (3230 kg/hr @ 170°C). Hot water for district heating can be produced from both the clean hot air and flue gas exhaust (2880 kg/hr @ 195°C).

A self-contained chain grate combustor within a second standard shipping container can be supplied to deliver the flue gas to the HBC. An optional baghouse can be added for particulate removal.



Biomass represents one of the largest resources of recoverable renewable energy. Unfortunately most biomass is widely distributed and available only in limited quantities at any location. The small-scale CHP provided by the Hybrid Brayton system provides a unique solution for biomass utilization to bring renewable energy into mainstream applications. This integrated system provides an economically viable step into green energy.