



## BIOPOWER TURBION™ SERIES

**FINALLY**, a simple biomass conversion system that can cleanly combust waste, efficiently produce electricity, and functionally supply co-generation heat. Turbion™ converts any combustible waste into electricity and heat using a system that operates as directly and conveniently as a refrigerator – well, almost! Turbion™ is cost-effective in the lower power levels. It operates with automatic controls and safety systems. Turbion™ has been specifically designed to minimise the need for high qualification personnel.

**WHY TURBION™:** First it should be recognised that combustion is the most effective and consistent technology to apply to convert biomass to energy. Any other conversion technology (gasification, bio-oil, methanol, etc.) requires consistent feedstock and

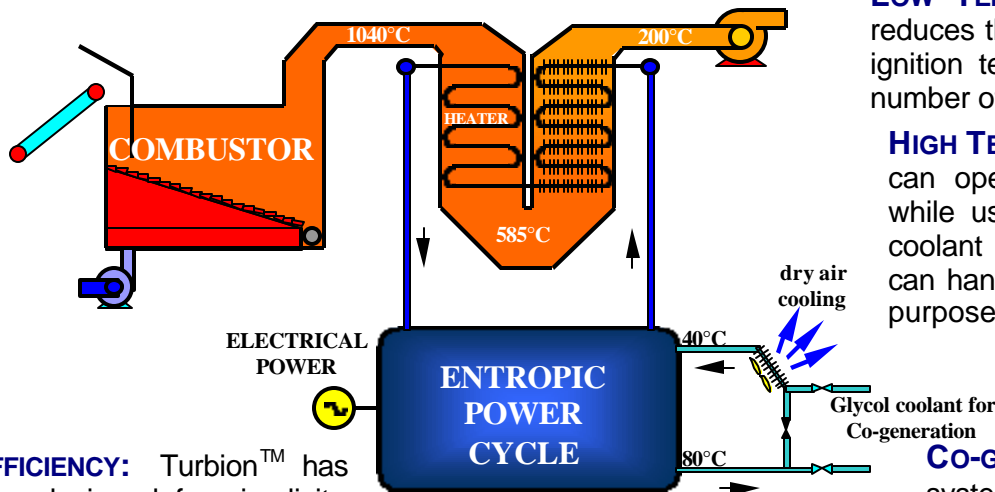
skilled operators. But combustion can use almost any feedstock and any operator. And proper equipment makes combustion environmentally friendly.

**BIOMASS** is readily available in more locations than any other green energy source. In many places there is more biomass “waste” available than there is requirement for the energy it could supply. What has been lacking is a suitable way to use this waste and to convert it into a convenient form.

**MODERN SOCIETY** thrives on electricity and fossil fuels. It is often the case that one or both of these high-grade energy forms are used to satisfy low-grade energy needs (such as area heat). Turbion™ will produce electricity without compromising its ability to satisfy secondary needs such as space heating.

### EXAMPLE APPLICATION

PATENT PENDING



**EFFICIENCY:** Turbion™ has been designed for simplicity while maintaining remarkable electrical conversion efficiency. Turbion™ can obtain a respectable 20%-22% net cycle efficiency. Using “waste” as a fuel makes this rate of conversion very reasonable.

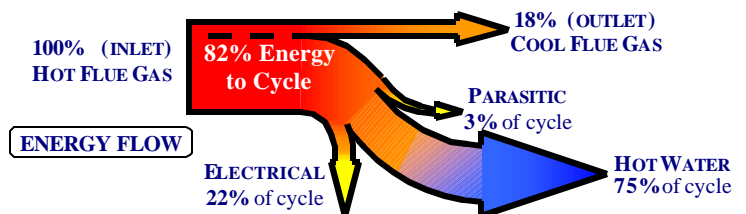
**POWER:** Turbion™ has been developed for systems less than 2000 kW electrical output. Although Turbion™ technology is scaleable, small users will see the greatest benefit. Traditional steam systems require very large installations to justify their high operating costs.

**LOW TEMPERATURE EXHAUST:** Turbion™ reduces the flue gas to well below cellulose ignition temperatures. This increases the number of available gas cleaning options.

**HIGH TEMPERATURE COOLANT:** Turbion™ can operate at its best efficiency even while using a relatively high-temperature coolant (40°C or higher). Dry-air cooling can handle any heat not applied to useful purposes.

No cooling water  
No cooling tower  
No make-up water

**CO-GENERATION:** Although many systems claim to offer co-generation heat, it is often available as hot dirty gas. Turbion™ supplies usable heat in a convenient form. The very high temperature glycol solution (80°C or higher) gives true district heating potential.



IT'S TIME FOR A NEW DIRECTION