# Entropic
Energy, Power and Solutions

# RECOUP-HEAT TURBION™ SERIES

**Don't waste your waste heat!** For all the processes producing heat that can't be used, now there is a simple conversion system that will efficiently generate electricity and functionally supply co-generation heat. Turbion™ converts reasonable flue gas temperature into electricity and hot water (glycol) 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™:** High flue gas temperature means lost energy. Many processes have no alternative but to produce such a byproduct. However the amount of rejected heat can represent a significant cost of input energy. Recovering this heat can represent a significant cost saving.

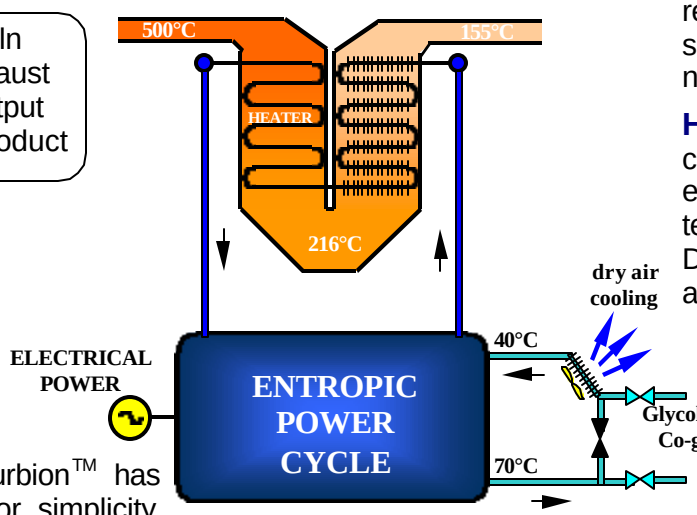
**Cleaning** of flue gasses before release has become a greater concern in recent times. Environmental emission standards are becoming ever more stringent. Cooling a flue gas offers more technical opportunities to effectively clean the exhaust.

**Co-generation** is a desire of many, however it is seldom realistic to directly use a high volume flue gas. Similarly, it is usually uneconomical to convert it into a more convenient form such as hot water. However a system such as Turbion™ that can convert a significant percentage into electricity and still produce useable hot water makes co-generation viable.

PATENT PENDING

## EXAMPLE APPLICATION

Cement Kiln
Turbine Exhaust
Furnace Output
Process Byproduct




**LOW TEMPERATURE EXHAUST:** Turbion™ reduces the flue gas temperature to significantly low levels. This increases the number of available gas cleaning options.

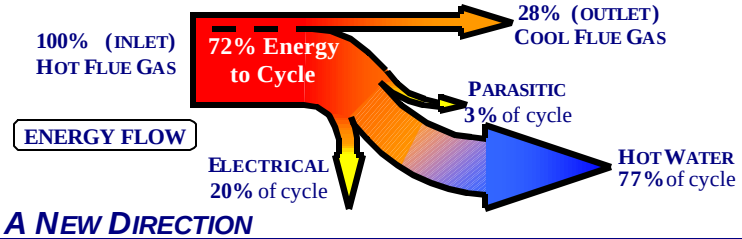
**HIGH TEMPERATURE COOLANT:** Turbion™ can operate at its exceptional efficiency even while using a relatively high-temperature coolant (40°C or even higher). Dry-air cooling can handle any heat not applied to useful co-generation purposes.

No cooling water
No cooling tower
No make-up water

**EFFICIENCY:** Turbion™ has been designed for simplicity while maintaining remarkable electrical conversion efficiency. Turbion™ can attain 20% net cycle efficiency from a 500°C flue gas and can be designed for flue gas temperatures as low as 300°C.

**POWER:** Turbion™ has been developed for small systems; typically less than 2000 kW electrical output. Although the Turbion™ technology is scaleable, small sizes exhibit the greatest opportunity. Very large installations can justify traditional steam systems with their associated high operating costs.

**CO-GENERATION:** It is seldom practical to use rejected process heat in the form of a hot, and often dirty, gas. Turbion™ supplies usable heat in a convenient form. The very high temperature glycol solution (70°C or higher) gives transportable space heating potential.




*IT'S TIME FOR A NEW DIRECTION*


106-1656 Martin Drive, Suite 189
White Rock, BC, Canada V4A 6E7
www.EntropicEnergy.com

Tel: 604.538.3033
Fax: 604.538.3553
email: info@EntropicEnergy.com