WASTE TO ENERGY SYSTEM DESCRIPTION

Pyrolytic Gasification is not new, but its specific application to waste streams and the proprietary process utilized by Balboa's patented technology has not been efficiently employed by others for the generation of power. This is achieved by operating the Pyrolytic Converter at elevated temperatures, as high as 1600˚F in an oxygen starved environment (.05% – 2.5%), which causes the organic solid wastes to volatize in the Thermal Oxidizer Gasification phase, operating at temperatures up to 2250˚F, thereby producing molecular decomposition–causing the formation of lower weight gas molecules.

The closed system process is designed to maximize conversion of the calorific energy or BTU's contained in the waste stream, which is then used for the production of power by either direct combustion to produce heat, or by utilization in either a spark ignition combustion engine then to a gas turbine generator. Alternatively, the flue gases can be routed through a steam producing waste heat boiler then to a steam turbine generator for production of electrical power. A wide variety of waste streams can be utilized for power production once they have been modified to a size and form, which can be introduced through the system. For example, whole tires must be shredded by material reduction equipment, which will produce two-inch chips. The moisture content in sewage sludge and other toxic liquids or waste materials having high oxygen content will be dehydrated prior to system introduction.

A Material Recovery Facility–sometimes referred to as a Municipal Recycling Facility (MRF), for front-end material handling, will be waste-stream specific in design. Liquids will be conveyed by a cavitation pump whereas solids are generally transported be a conveyor system.

Transportable electrical power that is generated by the process is in the region of 3.8kWh per 7000± BUT's, which is the average value per pound produced by Municipal Solid Waste (MSW) being one of the lowest in calorific value. Higher BTU values of 14,000+ per pound in materials such rubber or plastics will produce 8+mWh. Incineration systems are typically 50% efficient, but with the BalPac Systems, 75% to 90% of the BTU value (depending on the waste stream) is available as an energy source. The process has been designed so that power can be generated on demand; therefore, allowing maximum advantage to be taken during peak period demands. It is possible to generate power to match the demand curves by varying the volume of throughput material by utilizing stockpiled storage.

Although, Balboa's technology of converting waste-to-energy is highly efficient, the greatest achievement derived from a BalPac Pyrolytic Gasification System is in the molecular decomposition and the destruction of organic waste material, solid or liquid, toxic or non-toxic. However, waste management, particularly on a Municipal scale, is exponentially more efficient by utilizing Mixed-Use projects, where there is a variety of waste material being processed with higher BTU values–thereby producing more electricity, higher tipping fees and a broader spectrum of byproducts.