

## **Garbage In, SynGas Out**

The stench of your local landfill is about to become the smell of sweet success. One of the most important sources of alternative energy is piled high in the millions of tons of organic and inorganic garbage being dumped into landfills year after year.

Cleantech start up Sierra Energy [[www.sierraenergycorp.com](http://www.sierraenergycorp.com)] has figured out how to convert municipal solid waste and biomass — as well as the abundant reserves of coal and oil-shale -- into zero-emission, high-quality synthesis gas that can be used to produce cost-effective alternative energy and transportation fuels.

How? The company is commercializing a breakthrough technology that is converting traditional iron-making blast furnaces into “thermal gasifiers”.

Sierra Energy’s patented FASTOX™ technology is a thermo-chemical process that vaporizes organic components such as paper, food waste, plant materials, and plastics into a clean, high-quality syngas that can be used to produce electricity or very clean diesel or ethanol. Sierra’s gasifier also melts inorganic waste components such as metals, glass and stone for collection and reuse as “slag” for concrete and other building materials.

Sierra’s thermal gasifier is a complete departure from inefficient incinerators. Not only are incinerators unable to repurpose organic and inorganic waste into useful by-products, they create hazardous ash and environmentally harmful emissions.

The ramifications of Sierra Energy's gasifier solution are enormous:

- While competing technologies are limited to processing approximately 500 tons of waste byproducts per day, FASTOX™ can process more than 25,000 tons of “omnivorous” feedstock per day with a single gasifier.
- This scalability allows Sierra Energy to produce energy on a cost-per-kilowatt basis that is competitive with current practices and offers a viable means of converting the nearly 240 million tons of municipal solid waste produced in the US each year into zero-emission syngas
- The energy produced through gasifying the waste produced by the United States alone can provide over 6 quadrillion BTUs of energy—that's 6% of the nation's total demand for energy—offsetting 50 billion gallons of fossil fuels annually, more oil than the United States imports from Venezuela each year.
- By applying FASTOX™ to gasify biomass as well as municipal solid waste could produce more than 20% of the energy the United States needs each year.
- Sierra's FASTOX™ process will end the need for landfills (and their toxic methane by allowing for the recycling of 100% of all waste remaining after primary recycling.
- Thermal gasification represents the most versatile and environmentally-friendly way to convert coal and oil shale into electricity, hydrogen, and other valuable energy products.
- Global oil shale deposits are estimated to contain approximately three trillion barrels of recoverable oil. This is more than twice the amount of oil estimated to be available in proven conventional oil reserves.

Arguably, this is one of the most important Cleantech stories of the decade being headed up by Sierra Energy CEO Mike Hart — named an “Environmental Hero” by the U.S. Environmental Protection Agency.