

4th International Conference on
GREEN ENERGY & EXPO

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6th International Conference on
RECYCLING: REDUCE, REUSE & RECYCLE November 06-08, 2017 | Las Vegas, USA



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FastOx gasification: An integrated solution to zero waste

Sierra Energy has developed a technology that makes it possible to eliminate waste disposal in landfills while generating new, salable resources and energy. FastOx[®] gasification breaks down waste at the molecular level, via ultra-high heat (up to 4,000°F), converting it into energy dense syngas and inert stone and metals. The FastOx system is ideal as an add-on to existing recycling and waste diversion sites, providing the final phase solution for product recovery from remnant and non-recyclable waste. Sierra Energy's first commercial-scale system is set to begin operations in 2017. The 10 tonne per day FastOx gasification demonstration system will accept municipal solid waste and biomass, with potential of handling various hazardous waste solids, at U.S. Army Garrison Fort Hunter Liggett in Monterey County, California. This commercial size system includes thorough syngas cleaning and conversion to electricity and Fischer Tropsch (renewable diesel additive) liquids. This FastOx system is co-funded by U.S. Army and the California Energy Commission. FastOx gasification involves several processes including waste preparation, gasification, syngas cooling and conditioning and end-product conversion. Waste is shredded, dried and fed into the airlock charging system at the top of the gasifier via a conveyor. Oxygen and steam are injected at supersonic speeds at the base of the gasifier using patented nozzles. The resulting thermochemical reaction converts the waste into syngas at temperatures of up to 4,000°F. Syngas exits the gasifier and flows into the polisher to reform volatile compounds into additional syngas. The stream then travels to the gas cleaning isle, where it is conditioned for final product creation. The remaining inorganic waste melts into a vitrified mixture of stone and metals that is collected from the base of the vessel. The gasifier's high temperature ensures that the stone and metal are non-leaching and safe for reuse.

Biography

Mike G Hart, President and CEO of Sierra Energy, has over 24 years of active experience in forming and running industrial companies with a proven record of success. He is a passionate Environmentalist who has been named an "Environmental Hero" by the US EPA and a "Champion of Change" by the Obama administration. He actively works with public agencies- local and regional governments, academia and private industry on regulatory and environmental issues ranging from waste processing and disposal to renewable energy production.

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