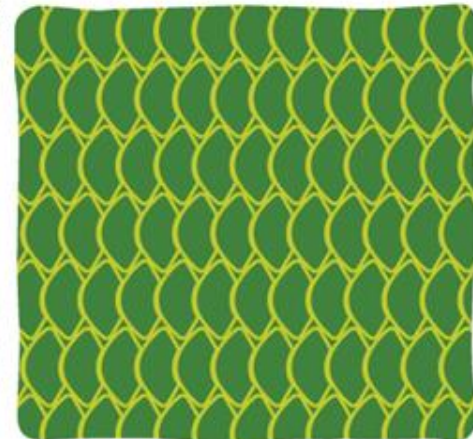


Denver Zoo

Waste to Energy System



Denver Zoo Waste to Energy System

Historical Background



- Toyota Elephant Passage – A Vision for Renewable Energy
- 10 Years Research & Development in collaboration with City and County of Denver, NREL, CDPHE, Colorado School of Mines & University of Colorado



Denver Zoo Waste to Energy System



Benefits

Trash + Poop = POWER

- Utilizing Gasification Technology
- Clean Energy
- Will produce 20% of zoo energy needs
- Will eliminate 90% zoo waste from landfill = 1.5 million pounds
- Will save \$150,000 annually
- Helps us reach our goal to become Zero Waste by 2025

Denver Zoo Waste to Energy System

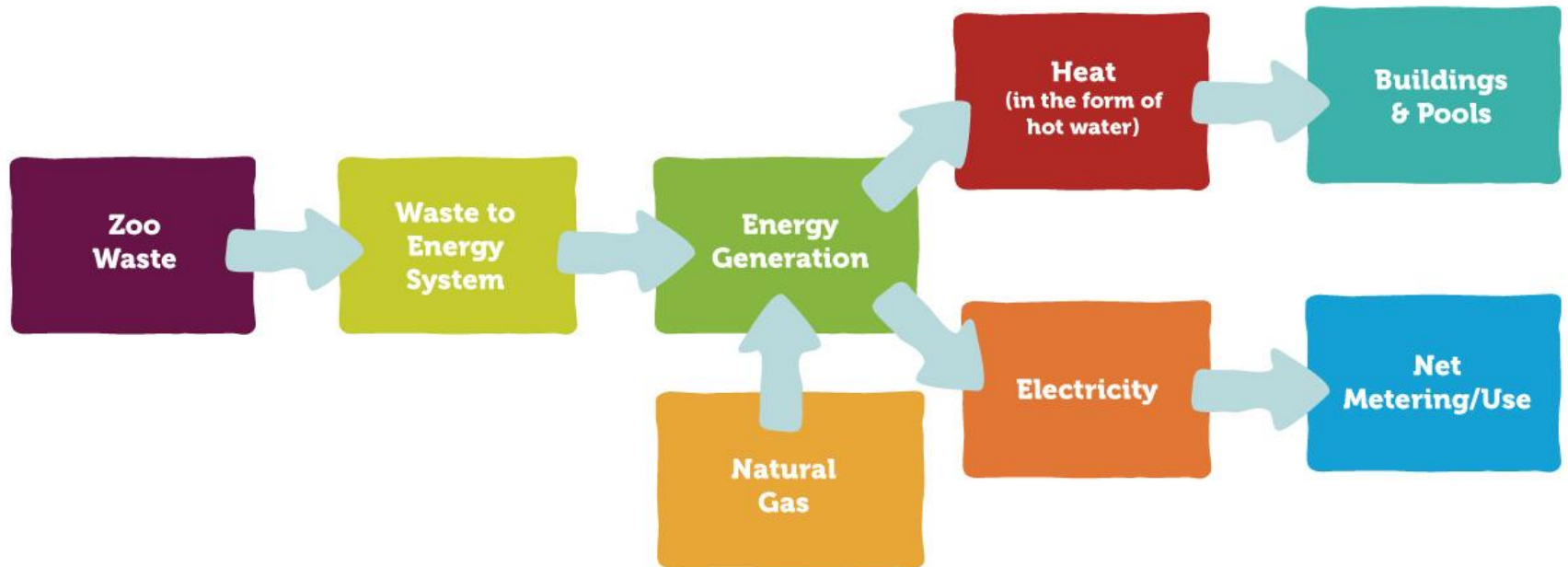


The Most Important Thing...

- Biomass gasification involves the thermo chemical conversion (high temperature, low oxygen process) of biomass, or in the zoo's case, zoo waste, into a combustible gas, called synthetic gas or syngas.
- Syngas contains hydrogen, carbon monoxide, methane, and other inert gases. This gas provides a fuel source to power a generator to produce electrical energy and heat.
- Gasification is safe and has been used for more than 100 years. Our process will meet stringent emission standards.

Denver Zoo Waste to Energy System

Process



Denver Zoo Waste to Energy System



By-Products

- Ash is the single largest bi-product. It is being tested for use in commercial composting or as an ingredient in concrete.
- Minimal air emissions will be consistently monitored to ensure standards are met.



Denver Zoo Waste to Energy System



Working Prototypes



Denver Zoo Waste to Energy System

Working Prototypes



Denver Zoo Waste to Energy System

Where we are now



Denver Zoo Waste to Energy System

Sharing Our Story



- City Council Individual Members
- Parks & Rec Advisory Board
- Neighborhood Groups
- Open House

Denver Zoo Waste to Energy System



Any questions? How can we help you?



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