

Tucson Citizen

Turning trash into energy

UA students envision their Waste2Energy will turn trash and sewage into usable products

[ALAN FISCHER](#)

Published: 05.07.2007

A business formed by University of Arizona students plans to convert Tucson's solid waste and sewage into salable products.

Waste2Energy partners met with the Tucson City Council on March 27 and with city staff late last month to discuss the project, which they say could save Tucson more than \$50 million in landfill expenses over the next 20 years.

City officials are reserving judgment until they learn more.

The project would generate products from a trash-sewage mixture, including a crude oil equivalent that can be refined into gasoline, lubricants, tar and asphalt; such gases as methane and hydrogen; trace elements such as copper, zinc and magnesium; and sterile water for gray water applications, said Martin Reed, a company partner.

Waste2Energy plans to use all of the solid waste and a portion of the raw sewage produced locally, doing away with most landfill costs, said Andrew Nicholas, another partner.

Rather than visiting a local dump, trash trucks would deposit their cargos at a Waste2Energy facility near the sewage treatment plant at Ina Road.

Recyclable materials - glass, metal, cement and nonorganic materials - would be separated for sale or distribution.

The remaining organic carbon-based waste materials, which include plastics and paper, would be mixed with raw sewage in a 1-to-1 ratio and heated and pressurized using the firm's patented Organic Fusion Process. The process breaks down the

material to a molecular level. It is a closed system, where everything is contained and no emissions escape.

The process separates and extracts the end products - oils, gases, water and elemental solids - which are then sold, Nicholas said.

A small, manual prototype has proved the Organic Fusion Process works, he said.

About half of the combustible gases culled during the processing would be used to produce the power needed to run the plant, he said, adding that operations will be self-sustaining with no grid power necessary.

"We make more energy than we use," said partner Melvin Cooper.

In addition to selling the end products, the company would also charge the city and trash companies a per-ton fee for accepting their solid waste and sell the recycled materials.

Reed said he and Justin Cummins presented their plan to the Tucson City Council in March, and the group had a follow-up meeting with engineers at the Los Reales Landfill April 27.

"I'm very interested in this," Mayor Bob Walkup said at the March council meeting. "Ask staff to take a look at this."

It is too soon to make a judgment call on the technology's viability, said Jim Mikolaitis, engineering manager with the city's Environmental Services Department.

"At this point, we really don't have a lot of technical information on how the system works to comment on its feasibility. We just got briefed last week," Mikolaitis said. "We have not seen the prototype.

"Looking to the future, there will be advances in how solid wastes are handled. We do look for alternatives for landfills. We encourage research and development. We look at the impact to the environment, reliability and the financial impact," Mikolaitis said. "I think there is going to be a substantial amount of work that needs to be done before we reach a point where we will make a hard decision on this."

The four Waste2Energy partners, all graduating this month from UA's McGuire Center for Entrepreneurship, are moving forward to make their plan a reality.

The next step will be a 1-acre automated demonstration. Later, up to 40 acres will be needed to sort, recycle and process solid waste and sewage for a city the size of Tucson, Cummins said. The plants are scalable for growth or operations in other cities, he said.

Plans call for Tucson to be first, Nicholas said: "We plan to be fully operational and handle all the city's waste in five years."

ADDITIONAL INFORMATION

ON THE WEB

Contact Waste2Energy at Info@Waste2EnergyUSA.com