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Hopes high to turn trash into energy

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LifeGrid Solutions LLC is moving to incorporate its renewable energy division here after seeing what it thinks is a golden opportunity — O'ahu's mountains of trash.

LifeGrid wants to build a \$550 million plant capable of taking tons of trash and converting it into ethanol and biodiesel.

"Everybody sees the opportunity because trash is something that is a huge problem because our landfills are full," said David Ushio, vice chairman and director of Pacific Operations for LifeGrid.

LifeGrid is just one of at least five companies proposing to use municipal garbage, green waste and other trash to power renewable energy projects or produce environmentally friendly products.

"It's the whole thing about one man's trash being another man's treasure," said Derrick Fleszar, who handles sales and marketing for Carbon Diversion Inc., a Waipahu-based firm.

The five companies have bills pending in the state Legislature asking for special purpose revenue bonds that would be used to fund their facilities. This session, lawmakers are considering authorization of almost half a billion dollars of such bonds, including proposals to help a Canadian company locate a photovoltaic manufacturing plant here and another to help with Better Place's plan to deploy an electric car network.

But most of the revenue bond requests revolve around garbage, so to speak.

That's a big issue on O'ahu, where municipal solid waste weighs in at about 1.76 million tons annually. There's so much garbage that the City and County of Honolulu has plans to ship more than 100,000 tons annually because the municipal landfill at Waimanalo Gulch in Leeward O'ahu has come close to capacity at times.

About 600,000 tons of trash in Honolulu is burned up at the city's H-Power garbage-to-energy plant while another 600,000 tons is recycled. That leaves possible projects in a potential scrap for the remaining garbage.

"It does seem like an enormous number of people want to gain a foothold in it," said Henry Curtis, executive director of Life of the Land, a nonprofit environmental group.

He said there are many questions about tying up land for biomass crops, whereas wind and solar don't tie up large acreage. But "if we can reuse most of our trash, that would really be fantastic," Curtis said.

LifeGrid wants to pursue municipal solid waste as some of the feedstock for a planned biorefinery that would pump out 100 million gallons of ethanol (used for blending in gasoline here) and 40 million gallons of biodiesel. It's asked the Legislature to approve an \$80 million revenue bond.

That plan would seemingly put LifeGrid in competition with Diamond Head Renewable Resources LLC, a venture headed by Warner Kimo Sutton. Diamond Head's proposal calls for building a \$200 million plant that would use a number of types of waste to generate electricity and ethanol.

Sutton estimates there probably is 400,000 to 500,000 tons of trash available annually for the ventures, not counting sewage sludge that can also be used.

"Isn't that great?" Sutton said. "Waimanalo (Gulch) will become the last big landfill."

Others aren't waiting around for garbage handouts from the city. Carbon Diversion is using a University of Hawai'i-developed technology to reduce tires and green waste into a "biochar" that can be used to enhance soil or burn as a fuel.

The list of potential clients for the carbon-reducing technology is lengthy, ranging from hog farms in Colorado to municipal trash in Carlsbad, N.M. It also could be used to dispose of gorse, an invasive plant, growing on thousands of acres of Department of Hawaiian Home Land property on the Big Island.

Bill Bathe, Carbon Diversion's chief financial officer, said the company is pursuing green or biomass feedstock, along with tires from junkyards, at eight sites around the state.

"The thing that we don't want to do is have people transport feedstock to us," said Bathe, explaining the company's equipment can be transported to places where the feedstock exists, such as acreage on Kaua'i that's filled up with tires.

"Those are great clients for us because they have a lot of waste," Carbon Diversion's Fleszar said.

In Hawai'i County, BioEnergy Hawaii is proposing to use trash gathered all over the island by an affiliated company, Pacific Waste, the largest Big Island refuse hauler, as the feed stock for a \$100 million facility.

Pacific Waste dumps almost 200 tons of municipal solid waste each day. Instead, much of this would be put through a "gasification" process and be used to run a power plant producing enough energy to power more than 6,000 homes.

BioEnergy Hawaii would then use carbon dioxide from the plant to feed fast-growing algae, which in turn would be harvested and turned into thousands of gallons of biodiesel annually. Residual high protein material would be turned into animal feed.

Back on O'ahu, One Planet Pacific Energy also hopes to avert competition for garbage by staking out construction and demolition materials that are now being buried at a private landfill in Nanakuli. It wants to build a plant that would use a gasification process to produce synthetic gas.

It remains to be seen which projects will move forward through time-consuming finance, design and permitting stages. What also may be a limiting factor is the city's plans to expand H-Power, which would increase garbage requirements at the plant to about 900,000 tons a year in the next three years.

As such, Honolulu's municipal government is the garbage gatekeeper, controlling where refuse goes on the island. A complicating factor for the proposed operations is that metal, concrete and some other items don't figure into their processes, lessening the amount of refuse available beyond H-Power and recycling.

Tim Steinberger, director of Honolulu's Department of Environmental Services, said the city has had a number of discussions with proposed operators of plants that would turn trash into electricity, biofuel, or other environmentally friendly products.

He said the city is willing to consider a 25-ton a day trash project with increases to 250 tons a day over time if there is a benefit to the city. Currently, the city has no plans to delay its H-Power expansion or pull back on plans to ship garbage to a landfill in Washington state.

"We probably have told at least six vendors the same thing over the past two years and none have returned to request that we issue an RFP (request for proposals) for such a demonstration project," he said.
