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Subject: SB 2756 SD 1 SPRB for Sewage Derived Fuel
Date: Wednesday, February 19, 2014 12:36:29 PM
Attachments: [Clean Communities LLC Brochure 021114.pdf](#)

Aloha Chair Ige and WAM Committee Members,

I am submitting testimony in SUPPORT of SB 2756 SD1 and encourage your committee's approval.

Over the past three years, LYON (a locally owned Civil Engineering company) has been assisting the South Korean conglomerate POSCO Plantec to introduce a new Sludge to Energy technology to Hawaii. We have met with the City and County of Honolulu's Department of Environmental Services to see if this new technology can be implemented to help improve the wastewater treatment process at various plants on Oahu, and at the same time, save energy costs for how they treat the island's sewage. During all these visits, the City ENV staff has been interested about the Sludge to Energy technology. However, due to the high capital investment cost to implement any new type of treatment process, combined with limited special funds from sewer fees and sewer facility charges, creates a dilemma for the City by not being fully able to pursue newer treatment technologies.

This dilemma of operating existing wastewater treatment plants with limited funding, forces many municipalities around the country to continue spending money on older 1960's or 1970's technology just to keep plants running. If the SPRB funds could be authorized for Clean Communities LLC to study and implement a pilot project to develop a phased approach to totally upgrade one of the City and County of Honolulu's treatment plants with new state of the art technologies, then they could break free of the endless cycle the City is stuck in to remain with older technologies that consume a lot of electrical energy. The ultimate goals of authorizing SPRB funds for implementing sewage derived fuel in Hawaii is to save the citizens of Hawaii money in the long run by using less electricity to power newer technologies that will result in a cleaner sewage effluent being released into the ocean, and also to reduce green-house gases that contribute to climate change impacts.

Attached is a brochure highlighting the processes for the Sludge to Energy technology.

Based on the above, LYON strongly encourages the WAM committee to pass Bill 2756 SD1.

Mahalo,

Jiro Sumada
Vice President
LYON Associates, Inc.

Who is Clean Communities LLC?

Clean Communities, LLC (CCL) is formed and owned by James Frank (Jim) Lyon. Jim is also the president of LYON Associates, Inc. (LYON), a successful engineering firm founded by his father Frank Lyon. CCL was formed primarily to pursue SPRB funding for sludge to energy (S2E) projects.

For the last three years, Jim has been collaborating with Korean Scientist Dr. Hee Dong Bae on a sewage sludge-to-energy process. The technology is ready for a demonstration in Hawaii, but because of the new and unique application of the technology, conventional funding may not be available. Thus CCL intends to work with LYON's associates and affiliates and may issue additional membership interests as the project progresses.

Why use Special Purpose Revenue Bonds?

The SPRBs are intended to assist CCL in achieving the following public purposes:

- Reduction of environmental pollutants. By taking more solid waste out of the sewage, fewer pollutants will flow into the ocean, making Hawaii's oceans and beaches cleaner, and fostering a healthier wild life.
- Creation of electricity and power. Waste will be transported more efficiently using CCL's technology to dry and compact waste solids, and burned in a boiler to create steam to generate electricity. Waste products, conventionally expensive and difficult to treat, can now be used to generate power and burn less fossil fuels.
- Reduction of greenhouse emissions. Utilizing the new technology will reduce power usage, helping to slow global warming and sea level rise.
- Innovation. LYON is a world leader in applying the science of sea level rise to infrastructure projects. Introducing new technologies like S2E is an example of LYON's commitment to improving vital earth sciences work.

On Going Project in South Korea.

On Going Projects

Yeosu Industrial Complex



On Going Projects

Yeosu Industrial Complex Bird's- Eye View

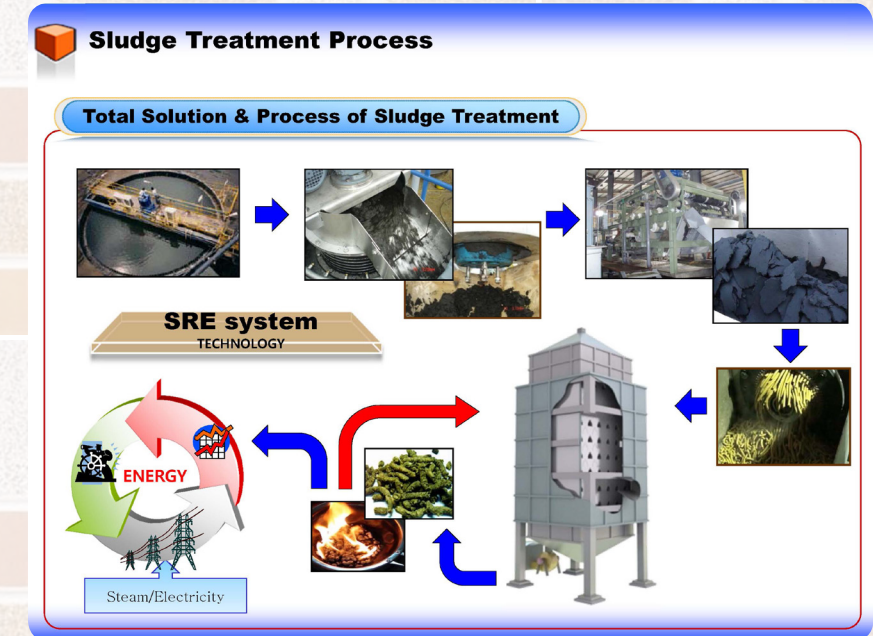
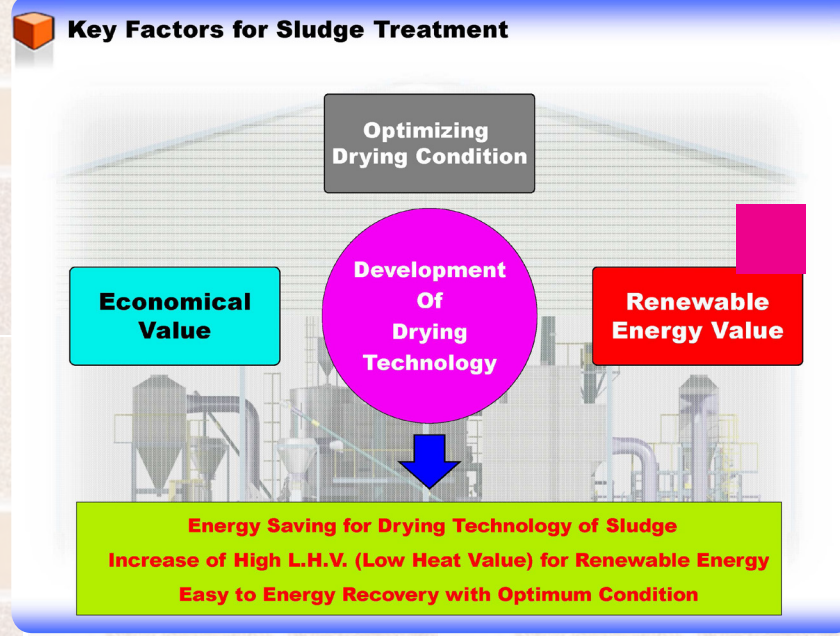
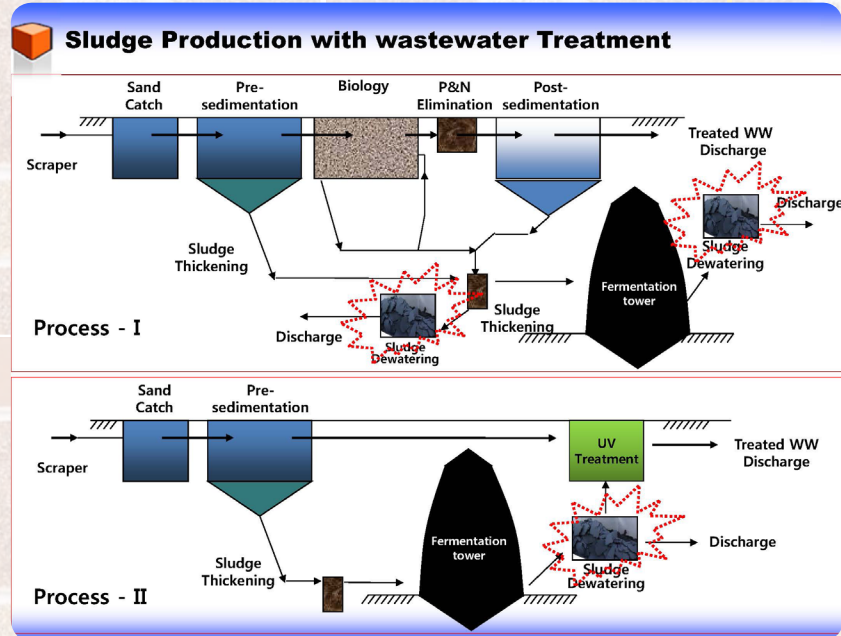


**PERPETUAL
FUEL SOURCE**

ENERGY



Clean Communities



Dear Elected Officials:

Aloha,

The most incredible technology we have witnessed over our 53 years of solving infrastructure challenges around the world is converting human waste into usable energy.

In Hawaii we have 1.4 million residents and 9 million annual visitors all generating a tremendous amount of sewage that needs treating and disposing. The current method of removing water from the sewage results in a wet sludge being disposed into landfills.

The good news: wet sludge does not need to end up in our landfills. New technology being utilized in Korea creates a renewable energy source by burning dry sludge pellets converted from wet sewage sludge. Imagine this, a never-ending source of energy for Hawaii's future.

Sewage treatment in Hawaii is controlled by various government and county agencies. Using \$50M available in the Special Purpose Revenue Bonds, this new energy-producing technology can be brought to Hawaiian wastewater treatment plants. Not only will this eliminate expensive hauling costs, it will produce enough energy to sell back to the plants, and provide a perpetual power source for future generations.

We estimate 250 unionized construction jobs will be created to build the facility, and 25 jobs will be created annually for 20 years to maintain operations.

In summary, the 3 key points I believe this is an incredible opportunity for Hawaii:

1. Only fuel source that has zero transportation costs; its delivered to the front door with soon-to-be world-class \$5B investment into the waste collection system.
2. Oahu's feces heat value is equivalent to wood; highest Dr. Bae has seen and it probably has something to do with our diet of beef and rice.
3. I have personally seen over 20 different Japanese and Korean waste to energy systems for the past decade and this makes sense as the one to embrace living on an island. It would be nice to stop dumping feces into the ocean.

Mahalo for your Consideration.



Hee Dong Bae, Ph.D.
Sludge to Energy Inventor



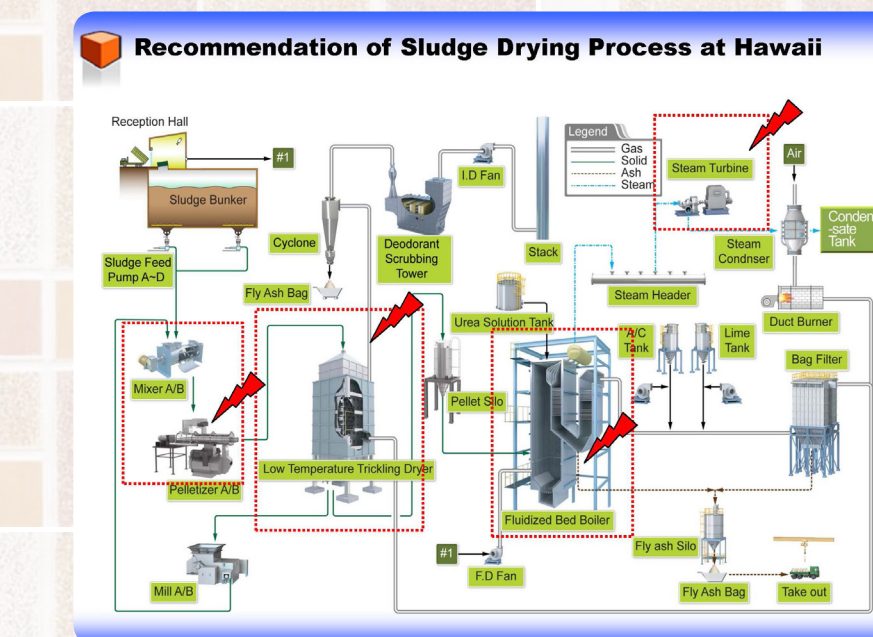
Jim Lyon, PE, LEED AP
LYON.US.com

Beneficial Effect of Sludge Drying and Energy Recovery

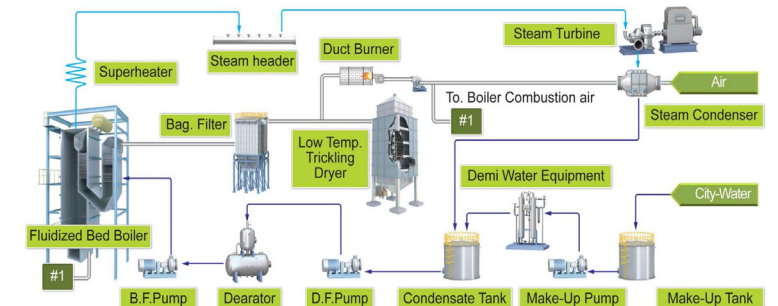
Application of SRE System



- Provide Total Solution of Wastewater and Sludge Treatment
- Space Saving for Sludge Treatment Plant
- Low Operation Cost
- No Energy Required for Sludge Drying
- Power Generation with Surplus Energy
- Complete Disposal
- Odour Control



Energy Recovery System



- STEAM TURBINE** Horizontal axial flow, two-stage back pressure turbine
60kg/m²G×450°C super heated steam
- GENERATOR** Totally enclosed type with air to water cooler salient pole, revolving field brushless type
- CONDENSOR** Air cooled : 4kg/m²G