

From organic waste to value.

Bioforcetech system generates renewable energy, and UpCycle biosolids into Biochar.

About Bioforcetech.

Bioforcetech's mission is to create systems that can dispose of and enhance on-site waste products such as biosolids, green waste and biomass through new technologies and reactors capable of minimizing the use of external energy sources and making the system as automated as possible. All this is possible thanks to our team of talented individuals who possess tremendous skills, which range from biotech, engineering and mechanical energy, to industrial automation and financial management.

Biosolids to energy @ SVCW

A successful Public Private Partnership

In June 2017, the first Bioforcetech's "Biosolids to Energy plant" started its operations to UpCycle 7000 tons (20% solid content) of biosolids into energy and biochar. The Bioforcetech plant is composed of 6 BioDryer units coupled with a P-FIVE pyrolysis system.

BioDryer and Pyrolysis together:

To achieve the final goal of energy production and biosolids transformation, 6 BioDryers are coupled with a P-FIVE pyrolysis system. The BioDryers only require 220 kWh/ton of energy to remove all the moisture from biosolids, and the pyrolysis system produces 150 kW of energy 24/7, which is used to run the facility.

The result is a self-sustained system that autonomously manages biosolids, reducing the total volume by 90% and producing a valuable, nutrient rich soil amendment.

Biochar from biosolids

The "Bioforcetech BDB 550+", is a biochar produced from biosolids, with the most advanced pyrolysis system available on

the market: the Bioforcetech P- FIVE Pyrolysis machine. This guarantees consistent production of high quality biochar, all year long. Biochar is mostly know as a great soil amendment, but it can be used also as absorber in functional clothing, insulation in the building industry, as carbon electrodes in super-capacitors for energy storage, food packaging, waste water treatment, air cleaning, silage agent or feed supplement, for drinking water filtration, sanitation of human and kitchen wastes, and as a composting agent.





Highlights:

SVCW has entered into an agreement with Bioforcetech, Corp., for a full service biosolids disposal contract.

SVCW was approached in 2012 by Bioforcetech, a firm from Italy, with a new process that uses very little energy to dry the biosolids. They were looking for a partner in the United States to test their process, with the ultimate goal of installing a facility utilizing their equipment in this country. SVCW agreed to work with them in the testing process and to evaluate the potential for a full-scale installation at the Authority's site.

The testing has gone very well. Beginning with a successful pilot plant and then a successful full scale drying unit, the BioForceTech process had proven successful and resulted in the outcome they expected and promised.

SVCW and Bioforcetech have developed a system through our combined testing over the past three years that will allow for disposal of the biosolids and production of a small amount of electricity for use in the treatment facility for a cost of \$59 per ton of biosolids during the first year of operations. This cost is lower than Bioforcetech's expected retail cost to other future facilities due to the fact that the SVCW installation is the first in the country and is, at least in theory, at their "cost" of providing the service.

The current average cost per ton of biosolids disposed by Synagro for SVCW is approximately \$49 per ton and is expected to exceed \$60 per ton within two years. The goal of the Bay Area Biosolids to Energy Coalition (BAB2E) is to find a disposal option that will allow the production of some level of energy to be created from the disposal of biosolids and at a cost of less than \$100 per ton.

SVCW has worked very closely with BioForceTech in the development of a facility at the SVCW site. Bioforcetech wants a full scale operating facility to demonstrate to others that the technology works and is cost effective. Initially, BioForceTech proposed that SVCW purchase a full-scale facility to treat 100% of the SVCW biosolids for a reasonable price. SVCW and Bioforcetech negotiated a 10-year service contract The contract calls for Bioforcetech to build, operate and maintain a facility that is capable of drying and disposing of approximately one-half (50%) of the biosolids produced by SVCW today. SVCW provided a level site for the facility.

From an operational standpoint, the financial impact over the long term is expected to save SVCW money. This also does not take into account the value of energy that will be produced by the BioForceTech system and used in the treatment facility. The quantity and reliability of power generated will be determined as the facilities come on line. An added benefit of the BioForceTech process is the elimination of many truck trips from the SVCW facility to the out of county disposal locations. It is estimated that over 500 truck trips per year will be eliminated due to the drying and power production onsite versus disposal at the current offsite locations.

