Konoike Construction's Circular Approach to Dairy Manure Management



Image Source: Nikkei Inc.

Konoike Construction Co., Ltd. has launched an innovative methane fermentation plant in Fujinomiya City, Shizuoka Prefecture, Japan, that converts dairy cattle manure into biogas and compost without generating liquid waste.

The plant uses a closed-loop digestate circulation system to overcome challenges associated with conventional methane fermentation, such as complex mixing processes and additional liquid waste treatment. Dairy manure is broken down by microorganisms in an oxygen-free fermentation tank, producing biogas. The remaining solids are processed into compost, while the liquid digestate is continuously reused within the system.

2G Energy's avus 500plus CHP system plays a key role in converting the biogas into usable energy. The CHP unit uses the biogas produced during fermentation as fuel for a gas engine that drives a

generator to produce electricity. At the same time, heat generated during engine operation is recovered and can be used to maintain the fermentation process at the required temperature or supply other on-site heating needs. By generating electricity and useful heat simultaneously, the avus 500plus maximizes the energy recovered from the biogas.

The project demonstrates how methane fermentation and 2G Energy's CHP technology complement each other to create an integrated circular waste-to-energy solution, combining renewable electricity and heat generation, compost production and zero liquid waste discharge.



Konoike Construction Co., Ltd.

avus 500plus
Biogas
600 kW electrical
569 kW thermal