

CASE STUDY



Sunoma
Renewable
Biofuel Project





OPPORTUNITY

The Paloma Dairy, located in Gila Bend, AZ, is about 90 minutes southwest of Phoenix. Owned by the Robert Van Hofwegen family, the farm has 14,000 cows ranging from newborn calves to full-sized milking cows. These cows are housed in a series of open-lot pens, known as Saudi Barns. The dairy desired to increase farm sustainability by generating biogas through anaerobic digestion methods.

CHALLENGE

At the time of project startup, the farm handled its manure by flushing techniques. The dilute waste flowed by gravity to a series of storage and settling lagoons, where it was held for land spreading as a fertilizer on their 10,000 acres of cropland.

The farm and its representative in the project's development and financing, Black Bear Environmental, sought new revenue opportunities by generating Renewable Natural Gas (RNG) from the digester biogas.

By sending the gas into the California Low Carbon Fuel Standard (LCFS) market, the project would monetize the opportunity for selling carbon credits because of the low carbon intensity (CI) properties of dairy RNG. Based on the federal GREET Model, dairy gas receives a very favorable CI score, indicating that dairy RNG is a powerfully beneficial environmental story as the lowest carbon intensity fuel available in today's marketplace. Another revenue opportunity will be generating D3 Advanced Cellulosic RINs under the Federal Renewable Fuel Standard.



Anaerobic digester tanks (1.5 million gallons each) under construction.

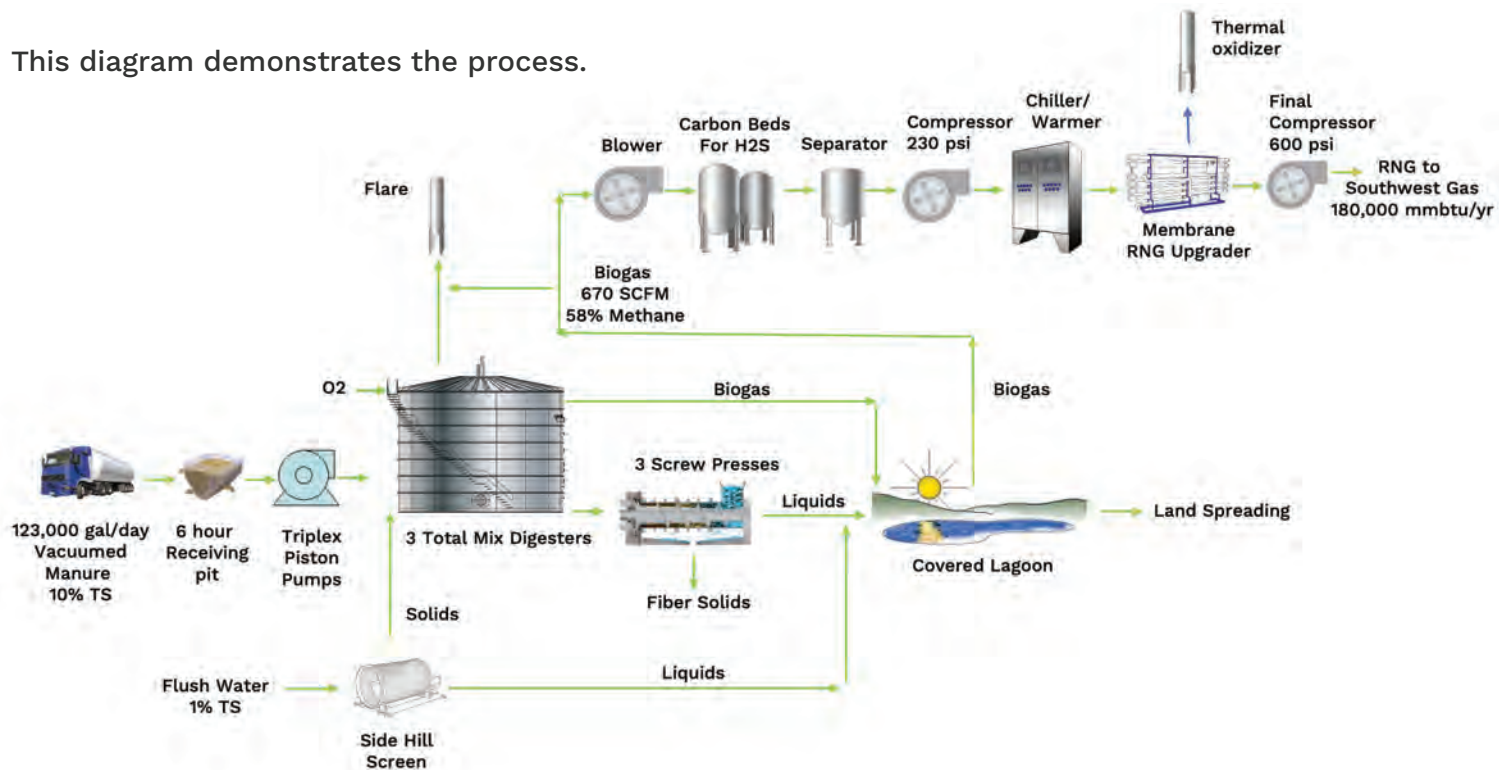
SOLUTION

A new digester RNG system was installed that did not require any capital investment by the farm. All equipment was third-party financed through a combination of equity and an USDA guaranteed loan.

Montrose recommended the farm convert away from flushing to vacuum collection techniques for the manure. The farm is now implementing a twice per day barn vacuuming in conjunction with a nightly flush of the barn lanes. A series of three total mix digesters that are 1.5 million gallons each were installed.

The covered lagoon for the daily flush water generates additional gas. The resulting biogas is cleaned and upgraded in a bank of membrane fibers that separate the gas under pressure to create pure methane or RNG. The RNG is compressed on-site and sent to a neighboring pipeline owned by Southwest Gas, then transported into California and dispensed as RNG.

This diagram demonstrates the process.



Montrose provided all the process equipment for the project and handled scheduling and on-site contractor oversight.

The project was fully operational and in compliance with all specifications at time of completion in November 2021.

“ Montrose came highly respected and has a lot of knowledge in this field, and has been very hands on with our project and been really good to work with. We’re really happy with how the project’s turned out.”

- Allan Van Hofwegen, Sunoma Dairy Owner

“ Montrose has shown itself to be a reliable, innovative partner.”

- Peter Drasher, Black Bear Environmental



Aerial view of completed Sunoma Renewable Biofuel Project

PROJECT RESULTS

DAILY MANURE FLOW
123,000 gallons a day

DAILY RNG GENERATION
180,000 MMBtu per year