



# Sunoma Renewable Biofuel Project

INTERIM CASE STUDY: SUMMER 2021

Industry Leading Project

## Background

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 housed in a series of barns known as Saudi Barns open-lot pens.

The farm currently handles its manure by flushing techniques. The dilute waste flows by gravity to a series of storage and settling lagoons where it is held for land spreading as a fertilizer on their 10,000 acres of cropland. The dairy desired to increase farm sustainability by generating biogas through anaerobic digestion methods.

## Desired Situation

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 will 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 realized by generating D3 Advanced Cellulosic RINs under the Federal Renewable Fuel Standard.



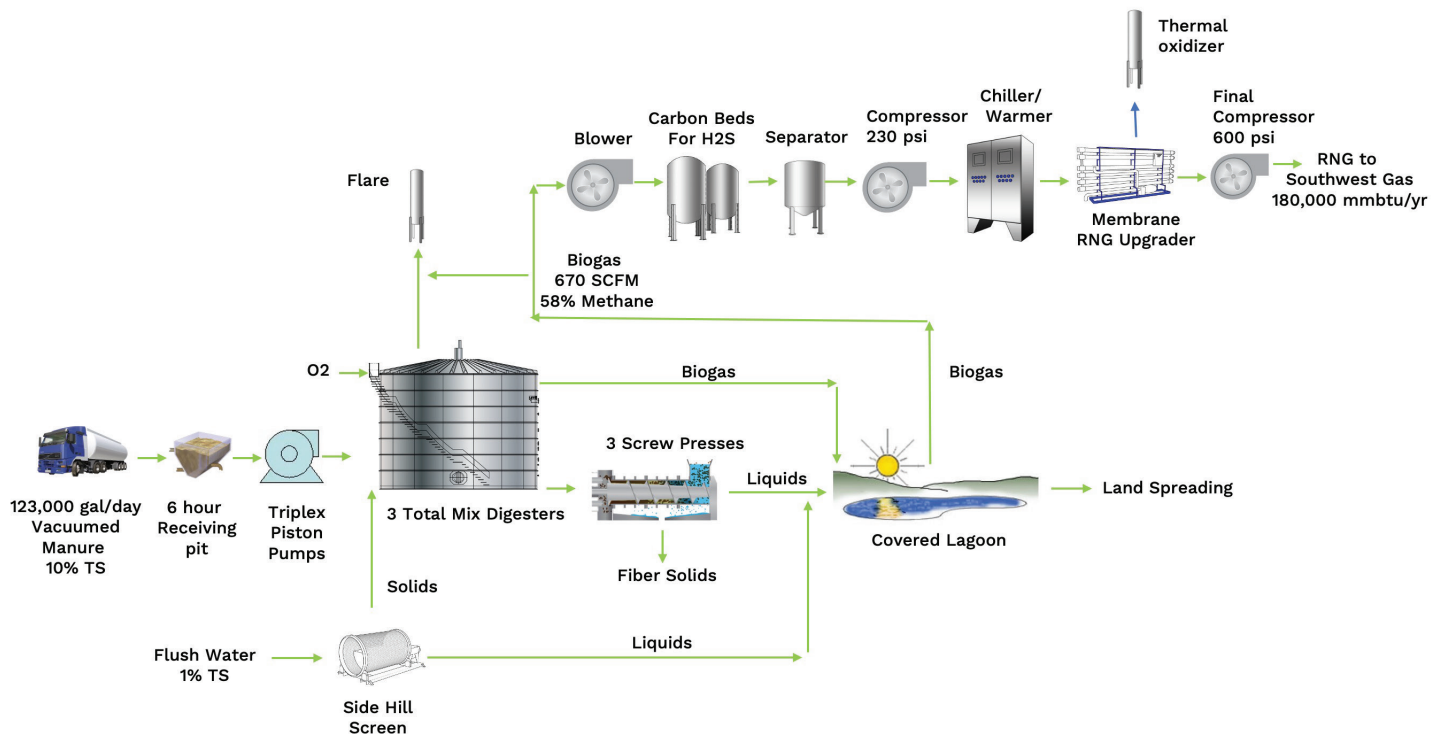
Digesters Under Construction

## System Implementation

A new digester RNG system is currently being installed that did not require any capital investment by the farm. All equipment was third-party financed through a combination of equity and a 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 are currently being installed that are 1.5 million gallons each.

The covered lagoon for the daily flush water will generate additional gas. The resulting biogas will be cleaned and upgraded in a bank of membrane fibers that separate the gas under pressure to create pure methane or RNG. The RNG will be compressed on-site and sent to a neighboring pipeline owned by Southwest Gas, transporting the gas into California and dispensing as RNG. The diagram below demonstrates the process.





## Sunoma Dairy Farm

"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  
Owner

## Why Montrose

"Montrose has shown itself to be a reliable, innovative partner," according to the farm's representative in the project's development and financing, Peter Drasher of Black Bear Environmental. Montrose is providing all the process equipment for the project and is giving scheduling oversight and on-site contractor oversight. As of this writing, in August 2021, the project is slightly ahead of schedule and will be commissioned later this summer.

### Project Design Data

**Daily Manure Flow**  
**123,000 gallons a day**

**Daily RNG Generation**  
**160,000 MMBtu per year**

**The system is due to be fully online by October 2021**