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Case Study

Swine waste in Power Generation

Siemens engines and gen-sets

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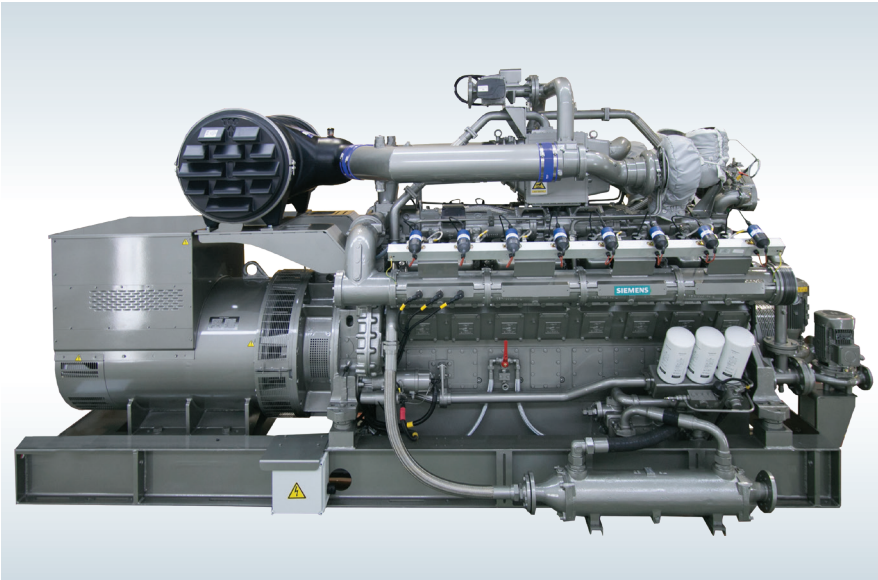
The Opportunity

Every day there are many farms accumulating a large amount of manure and agricultural waste that is either destined for a landfill or is land-applied as a fertilizer taking advantage of the nutrients and organic matter to aid in crop production. But there have been complaints that the waste from large-scale swine operations can contaminate groundwater and streams and create sickening odors.

Additionally, the open-air waste pits allow methane, a powerful greenhouse gas, to escape into the atmosphere.

However, there is another useful option for waste treatment; one that produces renewable energy.

In North Carolina, Storms Hog Power uses the bio-waste created at its farm to create a renewable power source. The power resources are then purchased by the local utility company to off-set local power needs.



Siemens SGE-48SL gen-set.

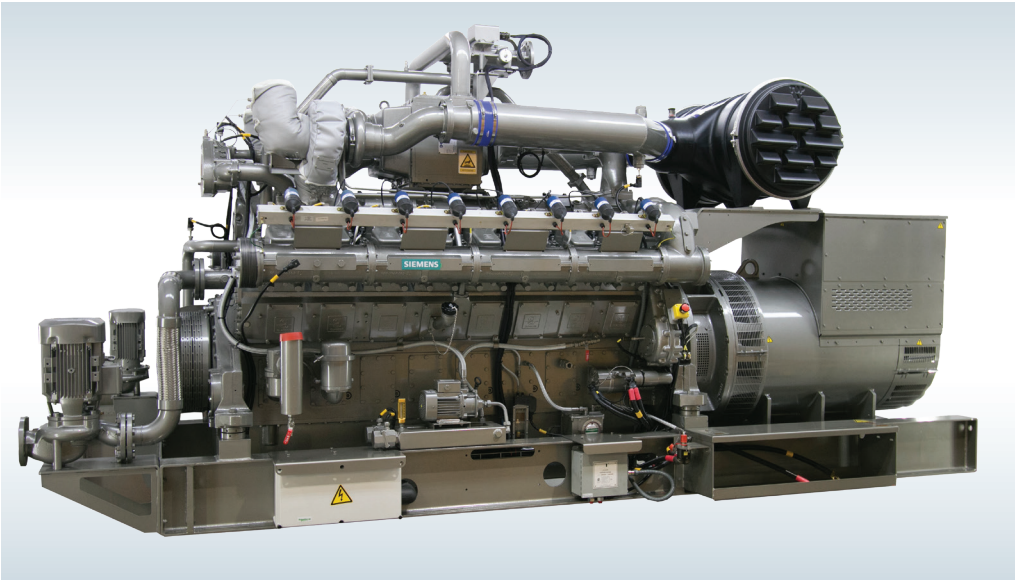
The Solution

Storms Hog Power (SHP) swine waste-to-energy plant located near Blandenboro, North Carolina, U.S.A, is functioning at full capacity producing 600 kW. The plant, the largest of its kind in the state, has been in constant operation since October 2013.

The manure that previously was treated in open-air lagoons now is loaded into an oxygen-free, anaerobic digester that breaks down the streams of organic waste and produces biogas. This destroys almost all odor and pathogens. Successively, the energy-rich biogas is available to create

renewable power that is purchased by the local utility North Carolina Electric Membership Corp.

Storm Hog Power processes more than 1.32 million L of swine waste a week, generating enough power for about 290 residential homes. Siemens provide a fully remote-controlled SGE-48SL gen-set through Martin Machinery Inc. to give a power output of 600 kW.



Benefits

Environmental Sustainability

- Use of anaerobic digester reduces methane-rich greenhouse gas emissions
- Reduces unpleasant odor
- Improves waste water treatment
- Reduces diesel consumption for power generation

Economic Sustainability

- Biogas is a renewable energy source
- Reduces dependency on diesel to generate electricity

Social Sustainability

- Construction of the anaerobic digester system creates new jobs
- Improves technical skills of employees operating and maintaining the new anaerobic digester system

The Business

Siemens is among the largest suppliers of rotating equipment solutions worldwide. The company offers some of the most efficient and environmentally friendly technology platforms, products and services in distributed power generation for oil and gas, industrial, institutional, and commercial clients and rural electrification programs.

Our solutions include combined heat and power (CHP) systems, biogas-fueled gen-sets, hybrid systems (solar photovoltaic and engine-based gen-sets), biomass and waste-to-energy steam turbine generators, compressed air energy storage (CAES), and more. We are also developing new technologies that use fossil fuels and renewable energy resources more efficiently, such as our wave energy-based HydroAir® turbine.

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