



Methane Digester

A methane digester is a system in which methane gas from manure is captured and used to generate electricity. But how exactly does it work?

The first step in turning cow poop into power is to put the manure through something called a separator, which separates the solid manure from the liquid. The solid manure is turned into compost, and the liquid is stored in a pond where bacteria produce methane gas from the organic liquid through a process called 'anaerobic digestion.' In anaerobic digestion, organic waste (like manure) is broken down by microorganisms without using oxygen, and methane and other gases are produced. The pond is covered by a tarp so that the methane gas produced is trapped. It is then pumped into a combustion engine, like an engine in a car or truck. The engine fuels a generator, which produces electricity.



Methane is a powerful greenhouse gas. This means that it is really effective at trapping heat from the sun near the surface of the earth and warming the climate. Capturing methane from the anaerobic digestion process and converting it into electricity prevents the methane from being released into the atmosphere where it would contribute to climate change.

Manure isn't the only organic material that can be used in anaerobic digestion. Food scraps, oil, and grease are other organic materials that can also be processed in a digester. And since animal waste and other organic materials are continually being produced, they are renewable energy sources. One downside to using a methane digester for energy, however, is that the system can be expensive to install.





Weighing the Benefits and Drawbacks of a Methane Digester

For a complex problem, we need to evaluate how a solution fares across multiple dimensions:

Benefits

Drawbacks

**Environmental
Factors**

**Social & Cultural
Factors**

**Economic
Factors**



Exploring Energy



Weighing the Benefits and Drawbacks of a Methane Digester

For a complex problem, we need to evaluate how a solution fares across multiple dimensions:	Benefits	Drawbacks
Environmental Factors	<ul style="list-style-type: none">▪ The system prevents methane from being released into the atmosphere and contributing to climate change.	
Social & Cultural Factors	<ul style="list-style-type: none">▪ A methane digester can help small family farms be more self-sufficient and sustainable.	
Economic Factors	<ul style="list-style-type: none">▪ The fuel for a methane digester (manure) is free.	<ul style="list-style-type: none">▪ The system can be expensive to install on a farm.

