

Dung, offal make clean gas at Costa Rica slaughterhouse

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A man processes manure at the El Arreo slaughterhouse in Belen, Costa Rica

Imagine tons of stinking dung, blood and offal, tipped into a giant tub for germs to feed on.

It sounds vomit-worthy, but experts say this project at a Costa Rican slaughterhouse will help the environment—and spare neighbors from the awful smell.

Hot weather sharpens the stench of animal waste at the El Arreo abattoir. The owners hope the environmental gains from the new system will be a lot sweeter.

Aimed at producing methane gas, it is the latest clean-energy idea in this Central American country, which is setting an example by producing nearly all its power from renewable sources.

The abattoir is launching a system to convert the waste into gas to power the site by pouring it into a big metal container called a "biodigester."

Such devices are already used in Europe but this is among the first such projects in Central America.

In goes the yucky waste that usually gets thrown away. Microbes devour it, producing methane "biogas" in the process.

"The first thing we have done is cultivate the microbes by feeding them with waste such as dung from the slaughterhouses," said Lucia Gomez of the Del Valle abattoir.



Two slaughterhouses in Costa Rica have united to find a solution to the environmental problem of treating their waste by transforming it into clean energy

Rival companies Del Valle and El Arreo teamed up to set up the biodigester on the grounds of the El Arreo abattoir near the capital San Jose.

They jointly invested nearly \$3 million dollars in a program backed by the state Costa Rican Electricity Institute (ICE).

"We had been looking for some time for a solution for the waste that was building up from our production process, mainly dung and blood, which cause [bad smells](#) and contamination," said Jonathan Molina, manager of the El Arreo slaughterhouse.

"We operate in a residential area and that was unpleasant for the neighbors."

They hope to start operating the biodigester next month.



View of animal bones to be processed in the biodigester at Del Valle slaughterhouse in Belen, Costa Rica

Costa Rica drew world attention last year when it said it managed to generate 99 percent of the electricity for its 4.8 million people from renewables, chiefly hydropower.

The biodigester not only generates energy but will allow the slaughterhouse to stop using fuel oil to power the site's boiler.

"When operated with the necessary safety measures, the biodigester is like a source of [natural gas](#), but without pressure storage or gas tanks," said Carolina Hernandez, an official in the ICE's biogas program.

Goodbye to bad smells

Near the barns housing the herds of cows at the slaughterhouse stands a depot that stores dung, blood and offal in separate compartments.



People walk past an 8,000 cubic-meter biodigester at El Arreo slaughterhouse in Belen, Costa Rica

Beside it is the biodigester, a shiny round metal structure several meters high, with a capacity of two million gallons (7.6 million liters).

A cabin next to it houses machines that regulate the operation of the system.

The man in charge of running the [biodigester](#), Marco Sanchez, says the system is programmed to indicate how much of each waste product the bacteria need in order to make gas.

Molina hopes the biogas will cover up to 80 percent of the slaughterhouse's needs. The rest will come from regular natural gas fuel.

By not burning the waste directly, they will emit less greenhouse gas and unpleasant smells.

Hernandez says Costa Rica has 2.2 megawatts of capacity in biodigesters—enough in theory to power hundreds of homes.

It hopes to add 1.7 megawatts of capacity when a new biogas plant run by the state Aqueducts and Sewers body starts operating.

That plant will use human [waste](#) extracted from sewage.

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