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Business turns manure into power

State nutrient-trading program could take 'increased role' soon

By ELISHA SAUERS, Staff Writer
 Published 11/07/10

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At a time when the U.S. Environmental Protection Agency and President Barack Obama are calling for drastic reductions to pollution in the Chesapeake Bay, one Annapolis company thinks it has found an answer, lying under a pile of chicken poop.



Courtesy photo by George Emsurak

At the Hillandale Farms egg-laying plant in Gettysburg, Pa., the farm's environmental manager, Ron Ballew, left, and Annapolis-based EnergyWorks CEO Patrick Thompson stand before heaps of chicken manure stored in a barn on the premises. The Annapolis company signed final agreements with the farm last month to process the waste into electricity, while removing harmful nutrients to the Chesapeake Bay, such as nitrogen and phosphorous.

EnergyWorks has developed a way to convert tons of animal droppings into electricity - enough to power up to 2,500 homes in a day.

Because environmentalists have identified nitrogen and phosphorous, two nutrients found in farm animal waste, as major hazards to the bay, technologies that aim to create agricultural solutions are in high demand.

Just weeks ago, EnergyWorks signed formal agreements with Hillandale Farms, the largest egg-laying chicken farm in Pennsylvania with 3.5 million birds, for the project.

Situated near the mouth of the Susquehanna River, the farm is in a sensitive location for the Chesapeake Bay watershed. Currently, its manure is disposed of by spreading it across thousands of acres as fertilizer. Inevitably, rain carries some of the waste into streams that feed into the bay.

Environmentalists say these nutrients spur the growth of algae, which suck oxygen

from the water when dead, creating zones where crabs, oysters and other marine animals can't survive.

Beth McGhee, senior water quality scientist with the Chesapeake Bay Foundation, said she is heartened by the project and hopes it will springboard more solutions from the private sector.

"Over the last five years, we've seen many companies suggest they have a sort of silver bullet for manure-to-energy, but, for whatever reason, we haven't seen many get on the ground," she said. "This project is showing that it can be done."



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With private equity, EnergyWorks plans to build a \$30 million plant near the chicken houses that will process the manure daily. Company executives believe this facility will be the first of its kind in the United States and hope to complete the construction by early 2012, said Patrick Thompson, EnergyWorks' president and CEO.

The engineers will use a staged heating process to turn the manure into gas, while extracting nearly 94 percent of the nitrogen and almost 100 percent of the phosphorous. The process will also eliminate considerable ammonia pollution that releases into the atmosphere

when dung sits in stagnant, hot heaps for long periods of time.

"What (watershed) farmers are doing with best management practices is really important for reducing sediment runoff, but technology projects like the one we're developing will make a huge contribution for phosphorous and nitrogen pollution," Thompson said. "We're measuring everything that comes into the plant and everything that comes out, and we can say with certainty how much of a difference we're making."

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If EnergyWorks' program proves successful, not only will the environment benefit, but the business will be able to capitalize on a nutrient-trading program in Pennsylvania, one of several recently started or under development in the region, including one in Maryland. The programs offer a market-based approach to improving water quality.

States establish a total amount of allowable pollution in a specific area. Registered businesses can earn credits by reducing their pollution below the maximum allowed. They can then trade the credits with other businesses for whom it would be more costly to make the same pollution reductions.

With Maryland developing its own nutrient-trading system, it is EnergyWorks' hope that it may soon be gasifying manure at farms on the Eastern Shore.

A new state law took effect June 1 that has empowered the Maryland Department of Agriculture to establish nutrient credits for state agriculture.

John Rhoderick, the department's Resource Conservation Operations administrator, said the state program's online trading tools are already up and running, at www.md.nutrienttrading.org, and 126 people have already undergone training to use the resources.

Right now, only one business has made it into the processing phase to receive credits. But Rhoderick said they're getting positive feedback, and there are signs the number of participants will grow.

"Based on what we've seen from the (pollution reduction) plans from Maryland and other states, trading is going to take on a very increased role going forward by providing these offsets," he said.

Nutrient-trading may even expand beyond the state's boundaries. U.S. Sen. Benjamin Cardin, D-Md., and Rep. Elijah Cummings, D-Baltimore, are working on a national bill that would establish interstate trading within the Chesapeake Bay region.

Closing the nutrient cycle

Thompson said his company's new program is not just about renewable energy but sustainability. A by-product of the manure heating process is an ash that is so refined, EnergyWorks anticipates receiving a federal certification to label it a food-grade substance, meaning it could be used as an animal feed supplement.

"In other words, we're sending it back where it came from, which has always been my goal," Thompson said. "We're trying to close the nutrient cycle."

Many chicken farms exist on the Eastern Shore, where agricultural pollution is also a major concern for the Chesapeake Bay. Though those plants are predominantly broiler



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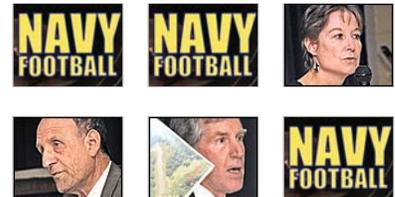
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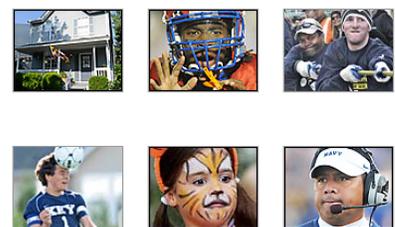
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chickens as opposed to egg layers, Thompson said his company is eager to work on modifying their plant designs to accommodate their diverse needs.

And the company isn't going to limit its prospects to just chickens - even cattle and swine manure will work.

"We've been in touch with farms in Maryland and are very anxious to bring them these solutions," he said. "It's definitely feasible."

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manure into power--NOT - 2010-11-07 18:10:07

These types of folks are going all over the country, promising to deal with "garbage" and "waste" problems, and produce energy. Sounds good, but wait. They'll use your tax dollars (Stimulus money) to heat manure or whatever (near me it's green waste like yard trimmings) and produce energy. Except, they get the money and decide how much the county gets, not the other way around. Be careful, very careful. Plus, composting manure or green waste is more sustainable (and doesn't take huge amounts of energy to do). Plus, phosphorus is a limited but needed ag resource and should be recycled not burnt. Check these "waste to energy" proposals very thoroughly. They aren't what they seem.

Cecile Mills - Royal Oaks, ca - Karma: Neutral

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Did I miss it? - 2010-11-07 11:13:36

"Business turns manure into power"
I saw this headline and got excited to read an article on how they were turning poop into power, but this isn't a "How do they do that?" article. It is only but a piece about pollution credits... guess I should have stopped reading once the CBF was given a plug.

Would be nice to know the carbon footprint of the process (i.e., how to they heat it? What is the final process of creating Energy, burning? Chemical reaction? What to they do with the waste now? What is the emission/by-product?) Need to either change the headline or finish the article.

George Herlth III - Linthicum, MD - Karma: Good

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