Duck Farm Taps Waste Product to Create Methane

TIM VANDENACK - The Elkhart Truth - Associated Press

There's solar power and wind power.

Now Culver Duck Farms is taking the move toward use of renewable energy resources a step further — it plans to use the duck parts that don't make it to the dinner plate to help power the facility. Duck offal would be put into what's called an anaerobic digester to produce methane, making Culver Duck one of a select group of ag operations nationwide using such technology.

"It's just good stewardship and it should reduce the carbon footprint of the plant," said Tim McLaughlin, Culver Duck's plant manager, in a story published Friday by The Elkhart Truth (http://bit.ly/N4ZePg [1]).

Over the long haul, it will also cut energy costs and turn Culver Duck — which processes around 6.5 million ducks per year — into a "zero discharge plant," according to McLaughlin. That means the facility will largely recycle, on site, all the waste and byproducts it generates, including the duck offal — blood and innards — that'll help fuel three generators.

"The bottom line here — being green does have an economic basis," said David Turner, an environmental consultant out of Winona Lake working with Culver Duck.

The new $4 million power-generating facility — fired by methane produced from the duck parts and other inputs — is under construction north of the main Culver Duck building outside Middlebury. Work started last spring and it should be partially operating by Thanksgiving.

When fully operable, perhaps by year's end, it will generate around 1.2 megawatts of power. That's more than the 0.7 to 0.8 megawatts Culver Duck actually needs and, to put it in perspective, is enough to meet the energy needs of around 120 homes.

The heat exhaust from the three 0.4-megawatt generators will also be tapped to heat cleaning water at the Culver Duck facility, a family-owned business headed by Herb Culver Jr.

As is, Culver Duck pulls energy from the power grid, the Northern Indiana Public Service Co. grid. NIPSCO, according to a 2011 U.S. Environmental Protection Agency press release, operates four coal-fired plants that, between them, have a generating capacity of 3,300 megawatts.

That arrangement would actually continue when Culver Duck's power-generating

facility comes on line. The energy from the new complex would be sold by the company to NIPSCO per a special 15-year agreement and distributed over NIPSCO's network.

However, the energy produced at Culver Duck would offset NIPSCO power generated by fossil fuels, reducing carbon emissions by that much, at least theoretically. A Culver Duck press release estimates the firm's new power generating facility will help reduce carbon emissions by more than 11,000 tons per year.

Culver Duck will get a return on the $4 million investment in as little as four years, according to McLaughlin. The plans are being privately financed, but as a renewable energy project, Culver Duck can tap into special federal tax incentives.

The firm has also applied for a U.S. Department of Agriculture grant.

Duck offal may not seem like a traditional energy source, and it isn't, at least here in the United States. Turner knows of just three other facilities in Indiana utilizing anaerobic digesters to produce methane, and cow manure, not duck offal, is the main input at those complexes.

Likewise, Norma McDonald of Organic Waste Systems, the Belgium-based firm assisting Culver Duck, said there's just one other U.S. duck processing facility using the technology, in New York. Around 200 agricultural facilities in the United States in all use anaerobic digester technology, but most are on dairy farms, cow manure being the chief input.

"That is probably about 1 percent of the number that there could be if the U.S. market were mature, similar to Germany, Denmark, Norway," said McDonald, who's based in Cincinnati. The technology is much more common in Europe, in part because higher energy prices there make it more economically feasible.

At the Culver Duck plant, duck offal will be combined with corn silage and other materials and placed in the digester, a huge, 900,000-gallon cylindrical vat still getting the finishing touches. The mix devised by Organic Waste Systems facilitates bacteria growth, which in turn breaks the offal and silage down, leading to methane production.

"There's nothing synthetic about it," said Turner.

The methane will be collected and then used to fire the three generators, which have yet to be installed. The properties of methane are similar to natural gas, which, when burned, releases fewer pollutants than, say, coal, according to McDonald.

Culver Duck had sold the unused duck offal — 18,000 pounds of it a day — for use in animal feed. Following a controversy in 2008 over tainted animal feed from China, though, the company started moving away from the practice, not wanting to get caught up in any repeat flap.

That was perhaps the most immediate spur for Culver Duck officials, aided in their plans also by Wightman Petrie, an Elkhart engineering consultant. Even so, McLaughlin said such an operation had long been mulled among company officials.

"Taking care of our environment always pays back," he said.

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