



The Net-Zero Egg Barn has Arrived

With seed money from Growing Forward 2, Egg Farmers of Alberta (EFA) has helped achieve an industry first: a laying facility that aims to produce as much energy as it uses.

In Alberta's successful, progressive egg industry, the opening of a new laying barn isn't all that unusual. Take a closer look at the new barn operated by the Brant Colony south of Calgary, however, and it's clear this one is different.

This 13,000-hen, loose-housing operation is designed to achieve net-zero status in terms of energy consumption. In other words, it is projected to produce as much energy as it uses. That's a first for Alberta.

The story of Brant Colony's net-zero barn goes back to 2014. *Growing Forward 2's* energy management team was looking to spark interest in technologies for livestock operations that could do two things: reduce the use of energy, and produce or capture energy. Their thinking was, if energy consumption could be *reduced* enough, and capture or production *increased* enough, the result could be a true net-zero facility. If this was shown to be practical and profitable, it could change the economic and environmental profile of livestock-related production.

In March 2014, EFA received a \$250,000 grant from *Growing Forward 2* to assess, design and implement technologies for a net-zero egg-laying facility. (Net-zero grants were also provided to Alberta Pork and Alberta Milk. Watch for stories on these projects during 2016).

Right for The Times

"At the time, we had been doing quite a bit of work on life cycle analysis," says Jenna Griffin, Industry Development Officer with EFA, which represents more than 160 registered producers in the province. "On-farm energy use was a major consideration. In fact, it was found that 62 percent of Alberta egg farmers' input costs relate to energy."

As EFA saw it, the example of the net-zero barn could show the way for significant cost reductions, and much more. It could also allow the industry to reduce its environmental footprint and build trust with consumers.

In the end, EFA selected the Brant Colony near Brant, Alberta for its pilot project. The Colony had been planning to construct a new facility and the proposed energy-saving and energy-capturing technologies were a good fit. While the *Growing Forward 2* funding was just a portion of the project's overall cost, it provided a helpful incentive. Being located just an hour from Calgary, the net-zero barn concept could also enable valuable outreach with consumers.



Ventilation System Is Key

When the Brant Colony's new facility opened in February, 2016, several game-changing energy technologies were operational. As Griffin explains, ventilation plays a key role in a laying operation. By venting heated barn air from inside to outside, it removes ammonia from the barn and improves air quality. That helps the birds as well as the operation's workers. The trouble is, that heat is normally lost.

At the Brant Colony's new facility, an innovative Heat Recovery Ventilation (HRV) system captures heat from air as it's vented outside and uses it to heat the barn. Add a range of other technologies – from the use of solar modules to newly designed refrigeration compressors – and the Colony's state-of-the-art operation could approach net-zero in terms of energy use.

Consumers are an important audience for news about this facility. So are egg farmers themselves. As Griffin sees it, Brant Colony's achievement is setting an example that others will follow.

"Right now, many producers are close to or at their capacity," she says, "so there's a very large appetite for new barn construction. If we can show that these technologies are effective and have a reasonable payback period, more producers may be inclined to go in this direction."

To Jason Price, who leads the *Growing Forward 2* On-Farm Energy Management Program within Alberta Agriculture and Forestry, there's every reason to believe that net-zero will gain momentum.

"Energy is a substantial expense for producers and offers great opportunities as far as social license," he says. "We can show that these technologies will reduce costs. If that's money that doesn't have to be spent, why not pick it up?"

Growing Forward 2 is a federal – provincial – territorial initiative.