

Sustainable solutions in egg farming:

A case study on solar-assisted barn heating



Farm overview

Near Brownlee, Saskatchewan, Huron Poultry is part of the Huron Hutterite Colony. Managed by Ben Entz for over 30 years, the egg farm has evolved to embrace a number of new technologies, including a major sustainability update in 2019 with the integration of solar wall technology during the construction of a new barn.

Farm operations

- ▶ 52,800 laying hens in an enriched colony system
- ▶ On-farm feed mill
- ▶ Independent egg grading station

The solar wall system

Installed across 4,100 square feet of exterior barn wall, the solar wall system consists of dark, perforated steel panels that preheat incoming air using solar energy. This warm air is drawn into the attic and used for barn ventilation during winter, reducing reliance on propane or natural gas as a heat source. The system is bypassed during the summer, and the HVAC draws air directly from ambient air. This type of technology can be retrofitted to existing barns, helping to reduce the emissions caused by energy consumption required to heat barns that are not equipped with energy-saving features.

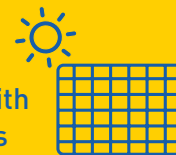
Highlights

Estimated
126 tonnes
of CO₂ saved in one year,
which is equivalent to
the carbon sequestered
by 2,083 tree seedlings
grown for 10 years¹



Up to **6 hours**
daily without
conventional heat in
the winter months

Zero
maintenance with
no moving parts



Key project components

Project category	▶ Renewable energy—solar
Technology	▶ SolarWall®
System components	▶ Metal panels made from 26-gauge steel
Maximum airflow	▶ 41,000 CFM
Project partner	▶ Conserval Engineering Inc.

Huron Poultry partnered with Conserval Engineering Inc., who developed SolarWall®² in the late 1980's with the assistance of the National Renewable Energy Laboratory (NREL) and Natural Resources Canada (NRCan). SolarWall® efficiency has been validated by NREL and NRCan – CANMET laboratories as well as several major engineering firms.



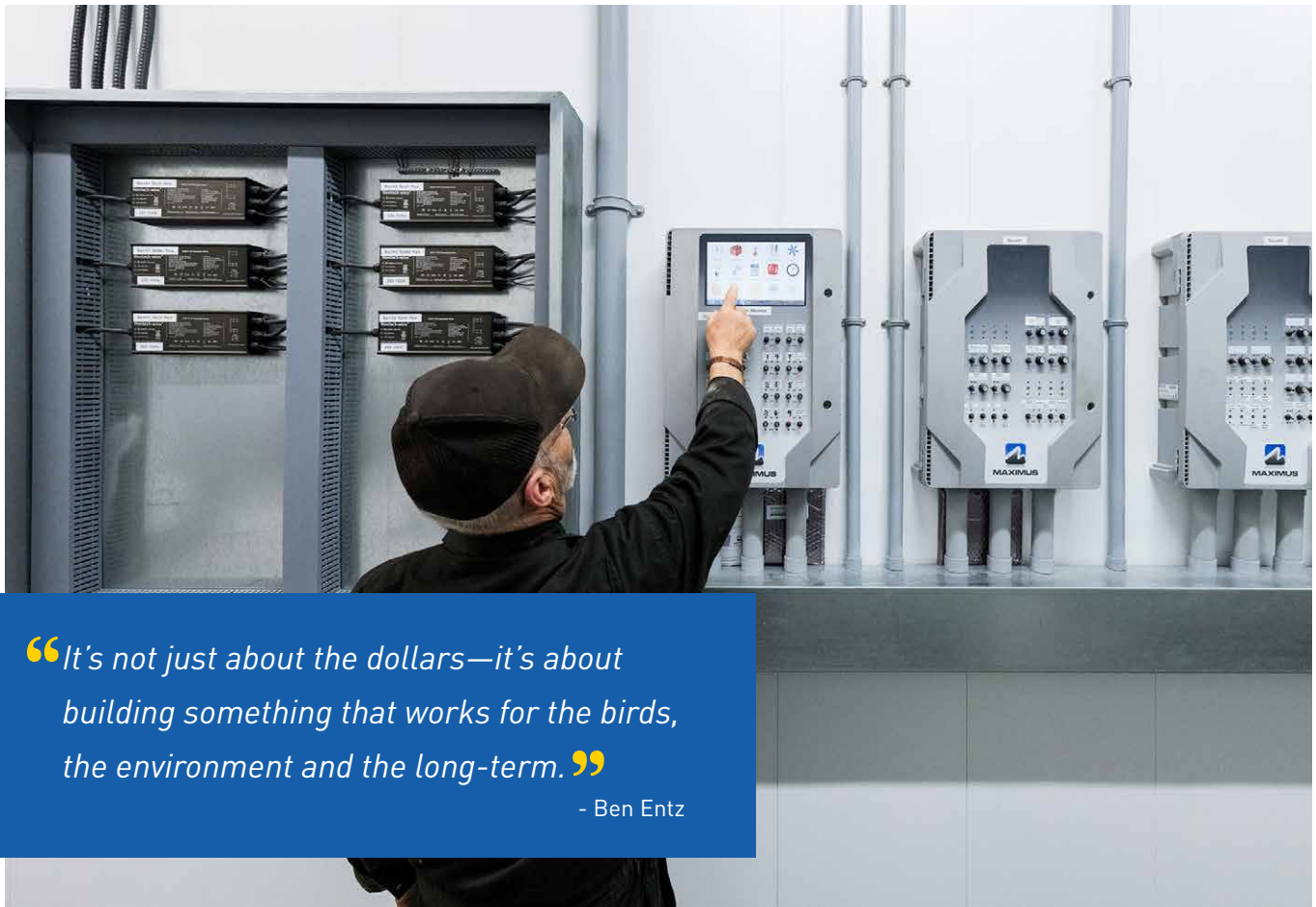
Why solar heating?

Facing the challenge of heating a large barn with a relatively low bird density, Ben sought a solution that would reduce energy costs without compromising comfort or performance. Saskatchewan's long, cold winters and high solar potential³ made air heating an ideal solution, particularly in a province that receives more than 2,300 hours of sunlight annually.⁴

Results and impacts

By reducing reliance on natural gas as a heat source, the SolarWall® system has brought multiple operational benefits to Huron Poultry.

- ▶ The system offsets approximately 22,000 m³ of gas annually, leading to significant energy savings. This is the equivalent of heating approximately nine Canadian homes.⁵
- ▶ Consistent solar-heated airflow helps maintain a more stable barn climate by enabling higher ventilation rates without compromising warmth during the winter months.
- ▶ System performance is monitored by comparing the temperature of outdoor air to solar-heated intake air. The energy delivered is then calculated based on this difference and the volume of air drawn in.
 - ▶ For example, during extremely cold days when outside temperatures reach -20°C, the SolarWall® can raise incoming air temperatures to approximately 2°C before it enters the barn.
- ▶ Warmer airflow naturally dries manure inside the barn, which improves hygiene and removes the need for additional drying equipment.
- ▶ Pre-heated and filtered air may help reduce airborne contaminants, contributing to stronger biosecurity outcomes.⁶
- ▶ Increases the R-value of the existing wall and reduces insulation costs.
- ▶ With no moving parts, the system requires little ongoing maintenance.



“It’s not just about the dollars—it’s about building something that works for the birds, the environment and the long-term.”

- Ben Entz

The integration of the SolarWall® system at Huron Poultry demonstrates how practical, tested technologies can deliver positive environmental and operational outcomes. By reducing energy demand and improving the barn environment, farmers can further support animal well-being and also pursue their green goals.

While direct before-and-after comparisons are challenging—since the solar wall system was installed alongside a new barn—Ben notes that on winter days, the heat remains off for approximately six hours with direct correlation to noticeable energy costs savings. This case study highlights the opportunities for other farms to explore sustainable solutions that support their operations’ unique needs.

Scalability and future plans

Ben is not new to embracing innovative solutions on his farm. Cooling pads were installed at the same time, and he is considering installing a solar wall system in a future pullet barn. Huron Poultry is also exploring

other renewable solutions, such as integrating a rapid composting system powered by renewable energy.

Advice to others

Ben advises understanding your barn ventilation system before implementing similar technology. Working closely with the SolarWall® provider was key in optimizing system design and airflow. He mentioned that this system can be integrated in new construction projects or retrofitted in existing barns. Further, given the simplicity of the design, farmers can install the technology themselves.

Various provincial and federal funding and incentives may be available to those considering solar walls on their farm. For example, [Alberta’s On-Farm Efficiency Program](#)⁷ offers support to producers in achieving environmental benefits by improving the efficient use of agricultural inputs. The [Clean Energy Investment Tax Credit](#)⁸ and the [Accelerated Capital Cost Allowance](#)⁹ program are both federal incentive programs.



References

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- ⁵ Statistics Canada. (2024). *Table 25-10-0060-01 Household energy consumption, Canada and provinces* [Data Table]. <https://doi.org/10.25318/2510006001-eng>
- ⁶ Osborn, L. (2025). *Sunniest places in Canada*. Current Results. <https://www.currentresults.com/Weather-Extremes/Canada/sunniest-places.php>
- ⁷ Government of Alberta. (n.d.). *On-farm efficiency program*. <https://www.alberta.ca/on-farm-efficiency-program>
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- ⁹ Government of Canada. (2024, August 18). *Accelerated investment incentive*. <https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/sole-proprietorships-partnerships/report-business-income-expenses/claiming-capital-cost-allowance/accelerated-investment-incentive.html>

About this case study

This case study is part of Egg Farmers of Canada's (EFC) *Innovative farmer series*—a collection of on-farm profiles that highlight real sustainability and innovation initiatives underway in Canadian egg farming. This series offers a first-hand look at the opportunities and challenges farmers face when adopting new practices or technologies. They reflect a long-standing commitment to continuous improvement, environmental stewardship and innovation that is rooted in science and best practices. Through this series we reinforce our shared journey and vision of a thriving Canadian egg industry that delivers high-quality food while caring for hens, the environment and our communities.

