INNOVATIVE FARMER SERIES

Sustainable solutions in egg farming: A colony's path to energy independence

Farm overview

Located in Bassano, Alberta, Green Acres Colony has a long-standing reputation for embracing new technologies and innovative practices. In 2015, the colony took a major step towards energy independence by establishing what was then the largest solar farm in Western Canada.[2] Larry Hoffer, the layer operations manager, sat with us to share insights into the motivation behind the investment in solar power, how it has performed over time and the broader impacts it has had across their operation and community.

Farm operations

- 64,000 laying hens in an enriched colony system
- On-farm feed mill
- Pullets for own use
- Other livestock farming

Solar farm

Spanning 14 acres, Green Acres' impressive two megawatts solar farm features nearly 8,000 solar panels that are directly tied into the local power grid. Installed in 2015, the system was designed to power the layer barn while also supporting the broader energy needs of the colony.

Highlights

1,444 tonnes of CO_2 saved in one year which is equivalent to the carbon sequestered by 23,885 tree seedlings grown for 10 years[1]

100% of the farm's energy from solar since 2015

Up to **$200K** in extra revenue earned each year

EGG FARMERS OF CANADA

Key project components

Project category	Renewable energy—solar
Technology	Conergy panels
System components	7686 solar panels, grid tied to power system through Fortis Alberta
Project partner	SkyFire Energy
Investment	$4.8 million

Half of the solar electricity produced is dedicated to an on-site plastics recycling plant, while the remaining power helps sustain the layer operation and other facilities. They system's bidirectional meter continuously tracks electricity drawn from the grid and surplus sent back, ensuring a seamless balance between on-site generation and grid supply.[3]

> *"For us, sustainability means to be self-sufficient at the end of the day, knowing that you can rely on yourself and being able to more forward and leave something for the kids."*
>
> - Larry Hoffer

Why solar energy?

The idea of investing in solar energy first emerged as Green Acres sought ways to reduce their growing electricity costs. With both the egg operation and plastics recycling plant requiring significant energy, the colony began exploring options that could serve the entire community's energy needs while improving long-term sustainability.

Larry attributes the low maintenance requirements and strong return on investment (ROI) for making solar energy particularly attractive. By working closely with experts from SkyFire Energy[4] and leveraging in-house support for installation, Green Acres was able to bring the solar farm online in an efficient and effective manner. The entire process, from planning and design to installation and bringing the system online, was completed in under a year. This collaborative approach supported a smooth rollout, and also advanced the colony's long-term sustainability vision of reducing operating costs and securing energy independence for future generations.

Results and impacts

The solar investment has delivered tangible benefits to the farming operation, as well as the wider colony. Beyond providing a stable and renewable power source, the system has proven to be a sound financial decision—drastically reducing operating costs, generating additional income and supporting Green Acres' commitment to sustainability. Some of the observed benefits include:

- 100% of the layer operation is powered by renewable electricity.

> *"Even after years of operation and a few severe hailstorms, the panels have held up exceptionally well."*
>
> - Larry Hoffer

- 2.15 GWh or 2,150,000 kWh of energy produced annually to supply power to the farm, plastic recycling plant and other facilities. This is roughly equivalent the amount it would take to power about 193 average Canadian homes for an entire year.[5]
- 372,000 kWh of excess electricity is sold back to the grid each year, generating up to $200,880 annual revenue at floating rates ranging from $0.02 to $0.54 per kWh.
- ROI initially projected at 18 years; green energy credits and consistent performance allowed the solar farm to be paid off eight years earlier.
- Reduced exposure to fluctuating electricity rates and the risk of power outages, which enhanced the long-term energy security for the farm.
- The original panels from 2015 remain in use today and maintain an estimated 95% efficiency after 25 years of expected operation.

Other initiatives and future plans

Green Acres is no stranger to innovation. Long before the solar farm project, the colony had already demonstrated a strong commitment to sustainability and circular economy practices. The colony operates the Crowfoot Plastics Recycling plant, a specialized recycling facility that processes large agricultural grain bags. Every year, the plant recycles an average of five million pounds of plastics, turning it into pellets used to manufacture new products such as garbage bags. Remarkably, a single grain bag can produce about 10,000 garbage bags.

Looking ahead, Larry is thinking about upgrading their barn, including the potential to integrate additional renewable energy technologies. Given the building's orientation, Larry is interested in incorporating solar wall technology to further improve energy efficiency and reduce heating costs.

Advice to others

When asked what advice he would offer to other farmers considering renewable energy or new technologies, Larry emphasized the importance of doing research. He stressed that every farm is different and understanding your operation's specific energy needs and local conditions is key to making a successful investment. He also noted that Alberta farmers are well positioned to benefit from solar energy—despite the cold winters, plenty of sunshine comes through.

While Green Acres pursued the project without external funding, Larry encourages others to explore available programs and supports. Opportunities exist through organizations such as Enmax Corporation[6] and initiatives like Sustainable Canadian Agricultural Partnership[7], which can help offset upfront costs for renewable energy projects.

References

[1] United States Environmental Protection Agency. (2024). *Greenhouse gas equivalencies calculator.* https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

[2] SkyFire Energy (n.d.). *Shared Solar – Affordable Renewable Energy for the Whole Community!* https://skyfireenergy.com/blog/shared-solar-affordable-renewable-energy-for-the-whole-community

[3] Manitoba Hydro. (n.d.). *How to read your meter.* https://www.hydro.mb.ca/account/meters/how-to-read-your-meter

[4] SkyFire Energy. (n.d.). *Utility-scale projects.* https://skyfireenergy.com/utility-scale-projects

[5] energyrates.ca. (n.d.). *Residential Electricity and Natural Gas Plans.* https://energyrates.ca/residential-electricity-natural-gas

[6] ENMAX (n.d.). *Solar costs and credits.* https://www.enmax.com/solar/solar-costs-and-credits

[7] Alberta.ca. (2025). *On-Farm Efficiency Program.* https://www.alberta.ca/on-farm-efficiency-program

About this case study

This case study is part of Egg Farmers of Canada's *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.

EGG FARMERS OF CANADA