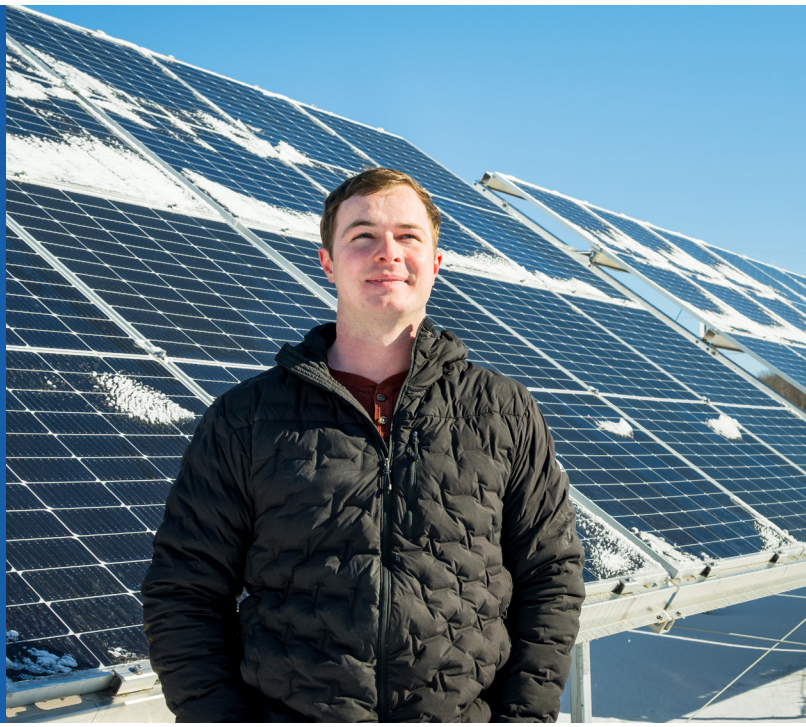
INNOVATIVE FARMER SERIES

# Sustainable solutions in egg farming: A case study on solar energy



## Farm overview

Located in Keswick, New Brunswick, Dunphy's Poultry Farm Ltd. is a fourth-generation family farm that has been in operation since 1970. We sat down with Justin Dunphy, who oversees poultry production at the farm, to hear about the farm's latest project and learn about their experience with solar energy.

### Farm operations

- 67,000 laying hens
- 120,000 pullets raised annually, supplying farms in New Brunswick and Prince Edward Island
- On-farm feed mill
- Independent egg grading operation

## Micro solar farm

Dunphy's Poultry took a significant step in their sustainability journey in 2023 by embarking on a solar energy project. Benefiting from an efficient installation process, which took close to four months, the system was operational and fully connected to the grid by the end of the year. The farm installed a micro solar farm—a compact, on-site system tailored for agricultural energy needs.

## Highlights

**88 tonnes**
of $CO_2$ saved in one year which is equivalent to the carbon sequestered by 1,455 tree seedlings grown for 10 years[1]

**63%** of the farm's energy from solar over the last 12 months

Nearly
**$22,000**
saved in the farm's energy bill over 12 months

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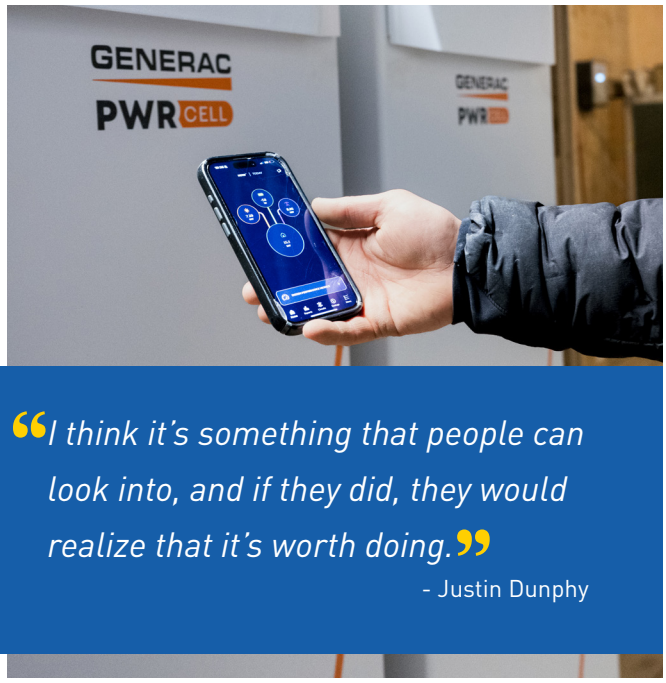
## Key project components

| | |
|---|---|
| **Project category** | Renewable energy—solar |
| **Technology** | Noreaster® 120 kW ground-mount micro solar farm[2] |
| **System components** | 12 solar arrays (10kW each) connected to the grid and a backup battery |
| **Project partner** | Smart Energy Company[2] |
| **Financial support** | NB Power Retrofit Program, Atlantic Investment Power Credit, 30% Clean Tech Investment Tax Credit |

## Enhancing energy resilience with solar and battery storage

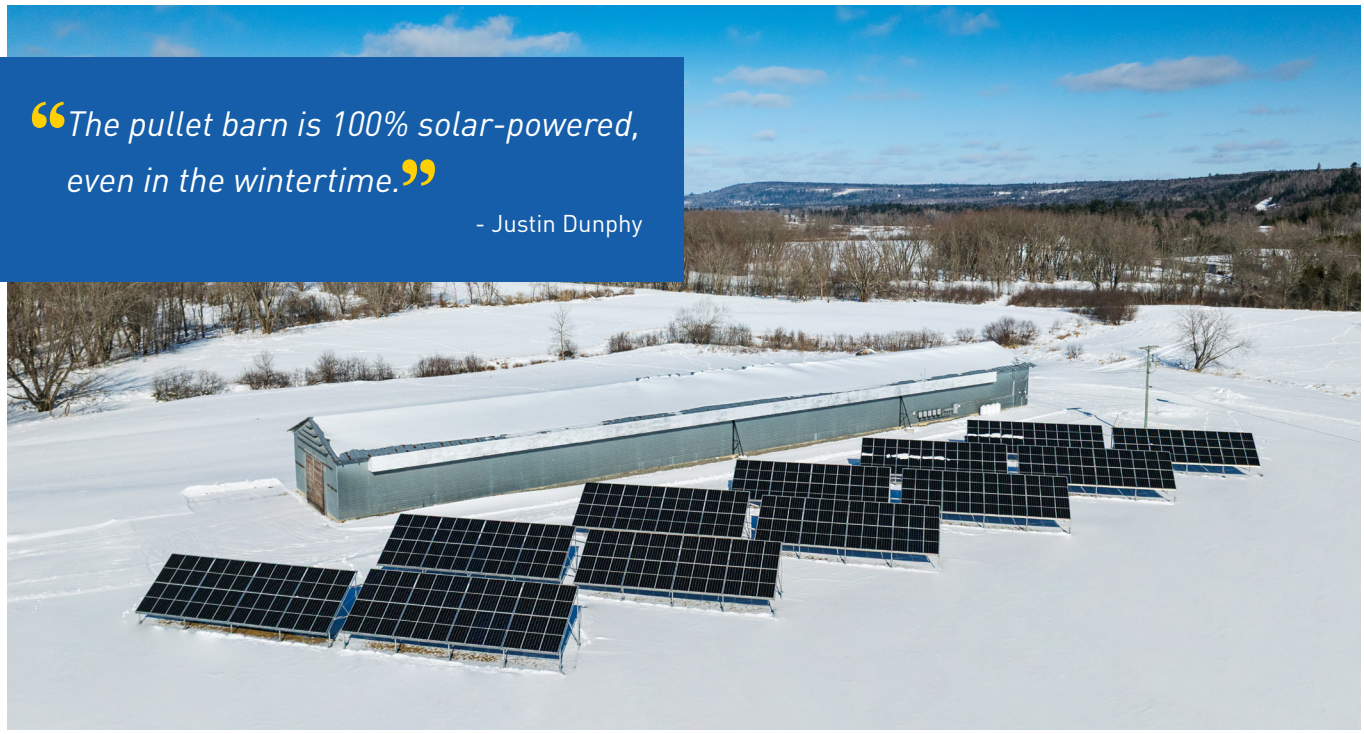
Dunphy's Poultry is the first farm in Atlantic Canada to integrate solar-powered battery storage, strengthening its energy security and enhancing efficiency by ensuring consistent access to power and better control over energy costs. The Generac Power Cell system provides backup power during outages, while smart automation optimizes energy use—switching to battery power during peak-rate times and ensuring full charge before storms. By securing reliable backup power and reducing dependence on the grid, Dunphy's Poultry is helping to set a new standard for energy resilience in Canadian agriculture.




> *"I think it's something that people can look into, and if they did, they would realize that it's worth doing."*
>
> - Justin Dunphy

## Why solar energy?

Dunphy's Poultry selected solar energy because it offered low maintenance[3] and a strong return on investment (ROI). A feasibility study by the province's primary electricity utility, as well as insights from other farmers and expert guidance from Smart Energy Company, provided valuable information to assist the farm in their decision. Given the suitability of solar systems for Atlantic Canada's climate and energy needs[4], the technology stood out as the most practical and cost-effective solution for the farm. His first-hand experience has resulted in a strong belief that solar energy initiative is bringing value to his farming operation and Justin encourages other farmers to explore the option.



> *"The pullet barn is 100% solar-powered, even in the wintertime."*
>
> - Justin Dunphy

## Results and impacts

A micro solar farm offers an immediate financial advantage—reducing reliance on purchased electricity and turning energy savings into long-term profitability.

- Approximately 63.3% of the farm is powered by solar energy
- Eliminated 88 tonnes of $CO_2$ since installation
- Generates an estimated over 200,000 kWh/year, which could represent up to $22,000 in power savings per year
- From April 2024 to March 2025, the farm used a total of 342,480 kWh of electricity, with 216,880 kWh supplied by its solar energy system
- Combined with incentives and upfront capital cost, the ROI is estimated to be seven years. Panels are guaranteed for 30 years at 80% efficiency, frames for 50 years and batteries for 10 years at 70% efficiency—highlighting its long-term durability and value.
  - The NB Power Retrofit Program provided performance-based incentives tied directly to energy savings[5]
  - The Atlantic Investment Power Credit supported the farm's investment in renewable infrastructure[6]
  - The federal 30% Clean Tech Investment Tax credit helped offset costs associated with adopting clean energy technology[7]

This solar initiative is an example of how egg farmers are embracing innovative technology to reduce their environmental impact and support the transition towards net-zero greenhouse gas emissions. Justin hopes their success encourages more egg farmers to explore solar energy and/or other sources of renewable energy, while considering the unique requirements of their operations.

## Scalability and future plans

The solar project is still in its early stages. The focus now is on evaluating its performance and the ROI of the initiative, as well as how the system performs during power outages. Justin approached the project with caution, ensuring the unique energy demands of his farming operation were carefully considered. If the results continue to be positive, Dunphy's Poultry may consider further expansion.

## Advice to others

Justin emphasizes the importance of careful planning and learning from the experience of others when considering new sustainability initiatives. He encourages egg farmers to:

- Talk to other farmers and learn from their experiences
- Explore all options—research and feasibility studies are key
- Draw on programs and incentives that make renewable energy more affordable

## References


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

[2] The Smart Energy Company. (2025). *Noreaster® solar energy system.* https://thesmartenergycompany.ca/solar-energy

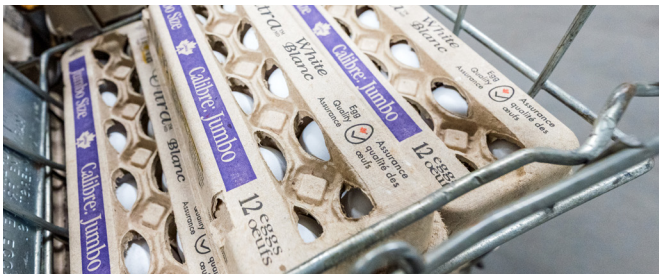
[3] Canadian Renewable Energy Association. (N.D.). *Operations and Maintenance.* https://renewablesassociation.ca/operations-and-maintenance

[4] Natural Resources Canada. (2025). *Photovoltaic potential and solar resource maps of Canada.* https://natural-resources.canada.ca/energy-sources/renewable-energy/photovoltaic-potential-solar-resource-maps-canada

[5] Save Energy NB. (N.D.). *Commercial buildings retrofit program.* https://www.saveenergynb.ca/en/for-business/commercial-buildings-retrofit-program

[6] Government of Canada. (2025). *Atlantic investment tax credit.* https://www.canada.ca/en/revenue-agency/services/tax/individuals/topics/about-your-tax-return/tax-return/completing-a-tax-return/deductions-credits-expenses/line-41200-investment-tax-credit/atlantic-investment-tax-credit.html

[7] Government of Canada. (2024). *Clean technology (CT) investment tax credit (ITC).* https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/corporations/business-tax-credits/clean-economy-itc/clean-technology-itc.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.

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