

ANNEX A

**Case studies demonstrating
how low-carbon energy innovation initiatives
are successfully deployed within local
communities**

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Case study: Garden River First Nation- Net metered solar projects

About the project

The Garden River First Nation project was initially part of a larger plan that included a 10 kW net-metered array on top of one of the buildings at the Ojibway Park (net-metered) and a 45 kW array at the front of the park. However, logistical challenges and limits set by the local distribution company have prevented the 45 kW array from being installed there. Permission has been obtained to move the 45 kW array to the Tiny Homes site. It will be used as a case study to explore how subdivision-level net metering could operate in the community, thereby reducing grid capacity. The Tiny Homes site, with about 10 individually metered units, will allow testing a single connection point serving all homes, instead of attempting to connect a large array to multiple meters.

Planning phase

The project is being initiated to explore economic, employment, environmental, and social opportunities for the community. Garden River began by participating in the IESO Indigenous Community Energy Planning program, which includes a baseline assessment, a future needs assessment with engineers, and community engagement events.

“ The IESO program provided the opportunity for Garden River to plan a solar energy project. ”

Planning aligns with the community's 10–15 year Comprehensive Community Energy Plan (ICEP) under the Economic Development Department, guided by the broader Comprehensive Community Plan.

Community engagement

Community engagement in Garden River has shifted from top-down approvals through the Chief's office to a broader, more inclusive approach. Engagement includes community meetings, direct feedback sessions, webinars, and early involvement of Elders in project discussions, ensuring that leadership approval follows naturally when community members support a project.

“ You can't rush relationship building. If you want to do a project on our territory, it takes trust and it takes time. ”

The Independent Electricity System Operator's (IESO) Indigenous Community Energy Planning (ICEP) program provided a framework for this engagement, enabling the community to express its priorities and its vision for a net-zero energy future.

Building trust and relationships takes time. Some external proponents fail to gain trust because they rely solely on administrative approvals or pre-prepared presentations without staying to engage directly with the community. Being actively present, answering questions, and sharing information through newsletters, social media, and accessible events is essential.

Community buy-in is strengthened when community members see tangible results, such as visible construction, equipment installation, direct employment opportunities through training programs, and financial or environmental benefits.

Feedback from Elders and community members shaped project priorities, showing a preference for solar energy over wind, since wind is seen as taking up a lot of land, which led to the decision to proceed with the solar project.

Future engagement efforts could focus on involving high school and college students in energy initiatives and encouraging them to share their knowledge with their families. Education is key to gaining support, particularly when projects, such as wind turbines, may be seen as visually prominent or controversial. Overall, successful engagement relies on time, trust, visibility, and responsiveness to community priorities.

Regulatory and policy framework

Permitting is generally not required for community-owned projects, but it becomes more complex when external proponents lease First Nation land, as this triggers federal processes through Indigenous Services Canada.

Additional challenges came from the local distribution company, which limited net metering capacity and prevented the connection of a 45 kW solar array. Projects also require impact assessment testing to evaluate the feasibility of connecting to the grid.

Financing and costs

Funding for Garden River First Nation's energy initiatives generally comes through the IESO, through the Indigenous Energy Project (IEP) stream; the ICEP program, which supports planning, implementation, and evaluation of local energy priorities; and the Community Energy Champion (CEC) program, which hires a community member to help plan, implement, and evaluate energy-related projects.

Additional support is provided through energy savings programs such as the Ontario Electricity Support Program, the Low-Income Energy Assistance Program, the Small Business Program, the Energy Affordability Program, Home Winterproofing, and the Canada Greener Homes Grant.

Implementation

Implementation faced logistical and supply chain delays, possibly due to issues external to the community such as international trade or tariffs. Despite these challenges, a 10 kW solar array was installed at Ojibway Park (net-metered), while a larger 45 kW solar array was moved to the Tiny Homes site. This adjustment allowed the community to pilot subdivision-level net metering for ten individually metered homes, accommodating limitations in the local grid.

“If you see development, you see contractors in here doing work, that means someone’s doing their job.”

After community engagement and approval, implementation proceeded smoothly because the community was generally supportive. Once community members were informed and consulted, most feedback was positive. Regular updates and visible on-site progress helped maintain trust, as community members valued seeing tangible results and contractors actively working on the project.

Benefits and impacts

The project promotes economic development and capacity building by creating training and employment opportunities for residents. Two rounds of solar employment training were delivered, training up to 30 community members for solar-related jobs and long-term careers in fields such as electrical work, engineering, and line maintenance, not just temporary labour.

“ Sign a community benefit agreement to ensure community benefits.”

“ Training opportunities and visible outcomes also help build enthusiasm: Even if they do training, that’s also a benefit. It means jobs.”

A community benefit agreement will be signed, providing additional benefits from the relationship between proponents and the community, and will ensure outcomes such as training and financial gains.

Capacity development also includes engaging high school and college students to explore economic opportunities, understand immediate community needs, and see how projects contribute to environmental goals. Efforts aim to present initiatives as a whole package that balances economic, social, and environmental benefits.

To maintain community support, projects must demonstrate clear, tangible benefits such as training, reduced costs, and increased budget availability.

Innovation and lessons learned

The Tiny Homes solar project demonstrates a new local model for subdivision net metering and highlights the value of a strong, community-focused approach. Meaningful engagement at every step of the process helped ensure community approval and build a foundation of trust.

Key lessons:

- Be proactive, not reactive. Low community capacity often leads to reactive responses, so taking initiative helps identify and capture opportunities.
- Hop on that Indigenous Community Energy Plan.
- Take the time to understand community priorities, what people want, what's reasonable, and what's feasible.
- Early and meaningful consultation is essential for building trust and setting a strong foundation for success.
- Build trust through time and dialogue.
- Ensure community buy-in before seeking leadership approval.
- Include education and training in every energy project.
- Small communities often face capacity limits, so planning early matters.
- Use clear communication, and avoid confusion from misinformation spread through informal channels.
- Exposure to successful Indigenous projects helps demonstrate what is possible in other communities.

“ Seeing projects in person builds confidence and motivation for local action.”

“ One of the most eye-opening things for me was my experience with Indigenous Clean Energy. We had three different on-site visits. I got to see run-of-the-river hydro facilities in B.C., wind and solar farms, and the beginning stages of the battery system at Six Nations.”

Case study: The SPEEDIER project to create a net-zero community in Parry Sound

About the project

The SPEEDIER Project (Smart, Proactive, Enabled, Energy Distribution - Intelligently, Efficiently and Responsive) was a partnership with the Town of Parry Sound and Lakeland Generation Ltd. to develop an innovative smart grid project to start to move toward a net-zero smart community.

“ We were demonstrating equipment and technology on a live feeder with real customers.”

The SPEEDIER project was initially proposed to help address a capacity shortage on the grid, and the need to increase capacity to allow for economic development. Relying in part on NRCan funding, 165 customers were enrolled, and the following Distributed Energy Resources (DERs) were installed in the community:

- Tesla Megapack: A 1250kW/2500kWh grid-scale battery energy storage system (BESS)
- A 500 (AC) kW solar PV system located on a former landfill site.
- 10 residential BESS, 50 kW/130 kWh total.
- 3 level-2 (7.7 kW) EV chargers and 1 x level-3 (50 kW) EV charger
- 50 hot water tank controllers, providing 180 kW in demand response.

The residential BESS can provide backup power in case of a grid outage. A DER management software manages the system. It is expected to reduce emissions by 261 tCO₂/yr.¹

Planning phase

The project was developed by a small energy company, Lakeland, which initiated the process by applying for two different federal programs. After receiving federal funding, Lakeland started working with the Town of Parry Sound and the Electrical Safety Authority (ESA). The project being undertaken by a small company was seen as an advantage as it could be more nimble than large utilities.

¹ Information from [PROJECT SPEEDIER FINAL PUBLIC REPORT](#) and interviews

Community engagement

The engagement process began with these steps:

- Presenting the project at Town Council meetings.
- Working closely with senior operations staff and the mayor when starting the project.
- Public engagements with the community.

“Get involved in the community early to build trust and credibility.”

A few factors helped ensure the success of the community engagement process:

- Lakeland operates as a company owned by municipal shareholders, including Parry Sound, enabling an environment of trust.
- Lakeland partnered with the Parry Sound Non-profit Housing Cooperative, a trusted local organization.
- The Housing Cooperative's manager acted as a local champion, which eased engagement with tenants.
- A passionate community member supported the project and was able to build trust in the community.
- Listening to and answering customer and community concerns, particularly during the device installations, ensured members felt heard.

These actions led to clear communication and strong local support, making it easy for people to sign up for the project.

“Be persistent and transparent about what's going on, even if the project is uncertain.”

Benefits and impacts

The project benefits the community mainly through improved service quality. Customers generally experienced better service and reliability due to microgrid technology, leading to fewer outages. Also, customers participating in the Residential BESS reduced their utility bills by approximately \$200 to \$300 per year through peak load shifting.

Regulatory and policy framework

The project was undertaken without the need for a formal Ontario Energy Board (OEB) or Independent Electricity System Operator (IESO) approval, but regulators were kept informed through updates and reports. The ESA approved plans throughout the project progression.

Implementation

The project successfully achieved its operational goal by ensuring there was no noticeable interruption to the customer when power switched to the battery/solar microgrid. However, one implementation setback occurred when the vendor of the hot water tank controllers was acquired by another company, which stopped supporting the proprietary software. Because the devices were connected to the customer's home Wi-Fi and the vendor had stopped providing software and security updates, Lakeland decided to remove the devices due to potential future cybersecurity risks.

Initially, homeowners were not given control or access to the battery app for the powerwalls because Lakeland wanted to maintain utility control. However, after receiving feedback and questions from customers, the system was updated. Now, homeowners have some control over their BESS.

Recommendations learned

The following points indicate the essential measures for improving future innovative energy initiatives, based on the project's experiences:

- Ongoing updates and early engagement are essential for maintaining community credibility and interest, especially when projects involve long planning timelines or face regulatory delays.
- In order for the success of projects like SPEEDIER, the following regulatory and policy recommendations need to be considered:
 - Reforms need to be accelerated to shorten deployment timelines. There are many good opportunities, but regulatory and policy changes are needed to improve deployment.
 - Regulators need to accelerate the adoption of the Non-Wires Solutions (NWS) concept to create new commercial opportunities.
 - Policy makers and regulators should ensure programs are accessible to smaller, rural utilities that have different requirements than larger utilities. In many cases many current programs are designed for larger projects and special options for smaller utilities should be introduced.²
 - The need is to accelerate full-scale deployment since the technology is already available.

² Non-Wires Solutions (NWS) are a broad range of solutions, infrastructure, and operational strategies used to address specific electric utility system needs at the distribution or regional level.