

Oakhill Community Solar Project

Project Updates _ January 2025



Site Visit in May 2024



Dinner & Learn Session in May 2024



Slide content from the presentation screen:

- Due to the complexity of the...
...of the facility.
...to the north completed in April 2024.
- Construction Feasibility
...for the community water system.
...to the town and
...in April 2024.
- Environmental Study
...to the town and
...in April 2024.

AREA logo is visible in the bottom left corner of the slide.

Municipal Benefits of a Community Solar Garden



Clean Energy

- The 7 MWac project will power approximately **1200 homes** in Lunenburg, Shelburne & Argyle.
- **6000 tonnes of carbon** removed from the grid annually; preventing **150,000 tonnes of carbon** equivalent emissions over 25 years.
- Solar subscriptions for community members provide citizens with an accessible and inclusive alternative to rooftop solar.
- **\$220,00 of annual aggregate savings** under energy credit for subscribers.



New Revenue Source

- The PPA will generate a total of approximately **\$250K annual profit** for project owners.
- Revenue can be disseminated amongst the project owner's strategic priorities.



Job Creation & Local Economy

- An estimated total of **75 job-years** created with this solar project.
- Workers moving in the area in need of accommodations, meals, etc. and local contractors hired for construction activities stimulates local economy.
- Strengthen regional municipal collaboration.
- Support Nova Scotia's Climate Goals



The Community Solar Program is designed to promote renewable energy inclusivity and stabilize electricity rates for low-income families.

Project Partnership

- A collaborative partnership among Municipality of the District of Lunenburg (MODL), Municipality of the District of Shelburne (MODS) and Municipality of the District of Argyle (MODA)
- Town of Shelburne and Town of Lockeport confirmed their withdrawal from the project in October 2024

Name of Project Owner	Percentage Ownership	Percentage Voting Power *	Percentage Profit sharing Agreement
MODL	56.14	56.14	56.14
MODS	21.93	21.93	21.93
MODA	21.93	21.93	21.93

*major decisions to require super majority (MODL plus one another)



OVERALL PROJECT STATUS – PRE-PROGRAM APPLICATION PHASE

Confidential

Schedule ● Budget ● Scope ● Overall ●

Project Description

- The Oakhill Community Solar Project is a collaborative effort led by MODL, MODS and MODA. The partnership hired the AREA to provide holistic project development services and submit a proposal to the Community Solar Program.
- The project is located at 283 Oakhill Rd, Nova Scotia. The 7MWac project is expected to have 20,000 ground-mounted solar panels, on 60 acres of the previous Bowater Sawmill

Key activities completed

- Geotechnical fieldwork was conducted in April 2024 with report completed in June 2024.
- NSPI Preliminary Assessment for Distribution interconnection completed in April 2024.
- Community Engagement activities: 2 Door-to-Door campaigns, Open House in May 2024.
- Environmental Site Assessment Phase I completed in May 2025. Records indicate clean up was completed.
- Subscription model was completed and approved by Councils in July 2024.
- Goldbeck completed the preliminary electrical, civil and structural design and Pvsyst. These packages are under Zon’s second review and DNV’s review.
- Goldbeck delivered the construction cost and schedule.
- The financial model and PPA bid price has been completed and reviewed by DNV.
- 95% of the application draft has been completed and now under review by municipal staffs.

Key upcoming activities – next 30 days

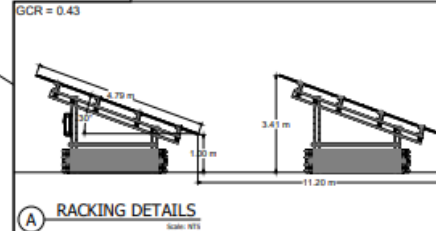
- Goldbeck to finalize preliminary electrical engineering package after ZON’s review
- Goldbeck to finalize preliminary civil and structural engineering package after DNV’s review
- Goldbeck to finalize the construction cost and schedule
- NSPI to finish the Feasibility Study by the end of January
- AREA to finalize financial model of the project and the PPA bid price
- AREA to finalize the Application, get approved by the Municipalities and submit to the Program

Milestones	Target Completion Date	Completion Date	Status
Council Resolutions passed for the subscription and guarantee of IMSA’s debts		July 2024	Completed
Application submitted to the Program	February 2025		Ongoing

- Risks**
- NSPI delays to deliver the Feasibility Study

Budget		
<ul style="list-style-type: none"> • Project budget for the Pre-Application Phase is \$590,000 (included Municipal HST) • Estimated project expenses are within budget 		
	Contribution amount	Contribution ratio
MODL	220,000.00	50%
MODS	96,500.00	21.93%
MODA	96,500.00	21.93%
TOS	22,000.00	5%
TOL	5,000.00	1.14%
LCC funding	150,000.00	
Total budget	590,000.00	100%

Project Designs – Site Layout





Racking and Foundation

Concrete Ballast

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Risk assessment

Key Risks	Mitigation
Construction cost overrun	<ul style="list-style-type: none"> • Upon PPA awarded, IMSA, with AREA’s guidance, will go through an RFP process to award and sign a fixed-price EPC contract with a competent solar EPC vendor. • The significant geotechnical and design work completed in Phase 1, enabling cost stability through the Community Solar Program evaluation timeline. • Smaller cost categories, such as soft costs, grid interconnection, and community engagement, are included in the financial plan with healthy contingencies
Interest rate during construction	Conservative interest rate assumptions and payment timings, along with further contingency in the financial model
Long-term debt interest rate	The same as above
Operational risks including equipment failure, weather events, or maintenance issues	<ul style="list-style-type: none"> • Use high-quality, proven equipment from reputable manufacturers. • Implement a comprehensive operations and maintenance plan, including regular inspections, preventive maintenance, and prompt repairs. • Establish service agreements with reliable suppliers and contractors for efficient support. • Secure comprehensive insurance for the 25-year operation period. • Include all operational costs and contingencies in the financial model to ensure cost recovery and profitability.
Energy output risk	<ul style="list-style-type: none"> • Conduct thorough energy yield simulations during Phase 1. • Apply conservative assumptions in the financial model and maintain healthy contingencies. • Deploy robust monitoring and data analysis systems to track performance and address deviations promptly.

Questions & Concerns

Why is it worth investing in the solar garden project for the Municipality, knowing that private firms like SolarBank are investing in similar projects in the region? The Municipality would receive property tax benefits, and local residents could subscribe to their system, without Municipality having to borrow money and do a project on its own. How does this still present a strong business case and a profitable project for the Municipality?

- There are no property tax benefits to any municipality in NS for solar systems. Solar power plants comprise equipment that is not taxed.
- Private projects allocate subscriptions as they wish, maybe not to municipal owners' residents.
- The project is a collaborative partnership of the three municipalities, in which risks are shared along with the distribution of profits.
- The project offers the municipalities with a long term, sustainable alternate revenue option besides property tax.
- The project provides clean, alternate energy sources, contributing to Nova Scotia's Climate Change Plan.
- Municipal owners do face risks as with any investment. Council must assess the municipal benefits relative to the proposed risk management plan.



What other funding streams will we apply for that could help reduce our capital costs?

The IMSA can apply for the Green Municipal Fund: Capital Project: Community Energy Systems

- Combined grant and loan for up to 80% of eligible costs.
- Combined grant and loan up to a maximum of \$10 million.
- Grant up to 15% of project costs. (The grant contribution is determined as a function of the loan and cannot be separate).
- Additional 5% grant available if the project involves the remediation of a brownfield site.



Given that solar irradiance is low in Nova Scotia, why is it still a good investment compared to investing in a wind farm, which is more energy-efficient than a solar farm?

- Solar and wind yield similar financial returns because the PPA prices are different.
- Solar and wind are complementary rather than competing solutions – solar produces peak power during summer days, while wind tends to be stronger during winter and at night. Having both helps create a more reliable renewable energy grid.
- Recent improvements in solar panel efficiency and decreasing costs have made solar viable even in less sunny regions. Modern panels can still generate significant power from diffuse light on cloudy days.
- According to the Nova Scotia's 2030 Clean Energy Plan, the Province commits to develop 350MW solar and 1,200MW wind, emphasized the need for a balanced renewable energy portfolio. The launching of the Community Solar Program is a part of this ambitious plan.
- Solar farms have some advantages over wind farms such as lower maintenance costs, no moving parts, less noise, smaller footprint for equivalent power.



How will we ensure there is adequate community engagement? Will there be any local community involvement in the governance of the project, such as a local community appointment?

- In Phase 1, active and on-going community engagement activities were conducted, including Open Houses, door-to-door campaigns and digital channels such as website, Facebook, emails.
- Once the project is awarded the PPA, a detailed, comprehensive, and multi-channel community engagement plan will be developed to promote the project and the subscription program.
- The Municipal staff do not favour the establishment of a community liaison committee because the identified community concerns were not related to governance of a straightforward solar power plant.
- Municipal Council is the most suitable avenue to ensure community concerns are incorporated and addressed.



How do we plan to engage First Nations and involve them in the project?

- In June 2024, AREA, representing the project owners, sent notification letters to Chief Deborah Robinson and the Council of Acadia First Nation, the Office of L'nu Affairs, and the K'wilmu'kw Maw-klusuaqn Negotiation Office (KMKNO).
- In August and October 2024, AREA had meetings with Patrick Butler, Senior Mi'kmaq Energy and Mines Advisor and Tracy Menge, Benefits Officer from KMKNO, explored collaboration opportunities for Mi'kmaq communities in subscription services, opportunities for employment during construction, operation, and maintenance, and participation in knowledge transfer and training programs.
- Patrick agreed to assist with follow-ups on opportunities for First Nation firms.
- Planned actions include continuing follow-ups with Acadia First Nation leadership and KMKNO to foster meaningful dialogue and identifying specific opportunities for access to subscription services, employment and contractor participation.



What is the workmanship warranty for the racking system? If there was installation problem what recourse is there after the workmanship warranty expires? When does the workmanship warranty commence? At delivery, or at commissioning?

- Workmanship warranty on the project, including racking, is typically 2 years, to be defined in EPC contract. This would be standard with any racking installation.
- After 2 years, equipment failure would be covered under the respective manufacturer's warranty provisions. There is no further installation warranty.
- Workmanship warranty typically starts at Substantial Completion, which typically occurs at the end of commissioning, to be defined in EPC contract.



How do we ensure the racking deflection doesn't compromise the warranty from the panel solar manufacturer?

- The racking is designed to avoid exceeding the module deflection allowed by module manufacturer. The module mounting is designed in accordance with the site-specific wind and snow loads and module manufacturer's limits.
- Solar power plants of size much greater than Oakhill are frequently designed, financed and built around the world. The owner's engineers ensure that the EPC designs do not result in deflection that compromises the panel warranty.



Is the racking system a propriety system? If so, what will be replacement component costs? Can we buy parts that we can manufacture by ourselves? If there's failure with the racking system, will the EPC contractor will provide us with the design, or do we have to buy from EPC contractor?

- Spare parts are purchased and stored locally, with such costs incorporated into the financial model. Racking manufacturers will be responsible to provide replacement parts for warranty issues. Simple or very large parts may be manufactured or sourced locally, typically managed by the manufacturer, not the user.
- If racking vendor goes out of business after starting commercial operations but before we reach the design life, an escrow agent will have the manufacturing drawings available for release to enable customers to manufacture parts independently.



Is there a corrosion warranty? How long is it?

- Generally, racking material warranty is 10 years, with option to extend further 10 years. The corrosion protection of most systems is designed for a life of 30 years and may include galvanization, sacrificial steel or a combination.
- For Oakhill project, typical design life is 25 years, with 30 years available upon review of certain aspect including corrosion calculations. Final structural and corrosion calculations are not available yet to confirm corrosion approach, however we expect corrosion to be addressed primarily by galvanization, with a small amount of sacrificial steel for the last years, if needed.



As per the 8.2 in the PPA, the project owner will bear all the risk of curtailment if the system operator orders our facility to dispatch. How does the project mitigate this risk?

- The Department of Energy asserts that only system emergencies create curtailment for solar energy facilities, but the NSUARB notes that NSPI may curtail systems using “Good Utility Practises.” Therefore, AREA has discounted the estimated annual energy production by 3.5%.
- Projects are not curtailed based on their PPA rates. All facilities experience equal curtailments.
- If a partner municipality remains concerned, the project can bid a higher PPA rate.



Key Takeaways

- The project will generate economic, environmental and social benefits for the owner municipalities and their communities.
- As with any investment, the project is not risk free.
- These risks are identified and managed by a robust risk management plan.
- There is no risk to submitting the application to the Community Solar Program.

