

New Brunswick's Untapped *Solar Opportunity*

Report



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Executive Summary

Solar energy has rapidly shifted from a niche technology to a central pillar of modern electricity systems. Across the world, falling technology costs, improved system performance, and supportive policy frameworks have allowed solar generation to scale quickly. While global renewable generation has expanded significantly over the past two decades, New Brunswick has not yet captured the same momentum.

New Brunswick is well-positioned to benefit from solar energy. The province receives approximately 1,900 hours of direct sunlight annually and has one of the strongest solar resources in Atlantic Canada. Public interest in renewable energy is growing, and early projects across the province demonstrate that solar technology performs reliably in New Brunswick's climate. The province's primary constraint is not sunlight, but the policy, regulatory, and market structures needed to translate technical potential into widespread deployment.

Solar deployment in New Brunswick remains limited, largely confined to small behind-the-meter residential systems. As a result, solar currently contributes only a small share of the province's electricity supply and provides limited system-wide benefits such as peak demand reduction, improved grid resilience, and deferred infrastructure investment.

Existing program structures are primarily designed for self-supply rather than strategic expansion. Net metering rules, system size limits, annual credit resets, and limited financing options reduce participation and increase perceived financial risk for households and businesses. The absence of community solar and virtual net metering also restricts access for renters, apartment dwellers, and many businesses. At the same time, limited integration of battery storage reduces the reliability and flexibility value of existing solar installations.

Experience from comparable jurisdictions demonstrates that climate is not the determining factor in solar success. Regions with similar or even lower solar resources have achieved far greater deployment through clear policy direction, predictable program design, inclusive participation models, and alignment between distributed energy resources and grid planning.

New Brunswick has a significant opportunity to unlock the economic, environmental, and resilience benefits of solar energy. With targeted reforms, solar can meaningfully contribute to affordability, emissions reductions, energy security, and local economic development while advancing progress toward a resilient, net-zero electricity system.

Introduction

Despite strong solar resource potential and proven technical feasibility, solar energy remains significantly underdeveloped in New Brunswick. Deployment is limited in scale and largely concentrated in small behind-the-meter residential systems. This is not due to insufficient sunlight or poor system performance, but rather to policy design, regulatory constraints, utility structures, and limited program options that restrict broader participation. High upfront costs, limited financing pathways, restrictive net metering rules, fixed utility charges, and the absence of community or virtual net metering limit access for renters, low-income households, and many businesses. At the same time, the lack of clear long-term targets, transparent data reporting, and consistent policy signals reduces investor confidence and slows deployment.

Globally, solar energy has evolved from a niche technology into a central component of modern electricity systems. Rapid cost declines, technological improvements, and supportive policy frameworks have enabled solar generation to expand quickly in many jurisdictions. In 2024 alone, renewable electricity generation grew by nearly 49% worldwide¹, with solar accounting for one of the fastest-growing sources of new power generation. Figure 1 illustrates the significant growth in global solar electricity generation between 2012 and 2024.

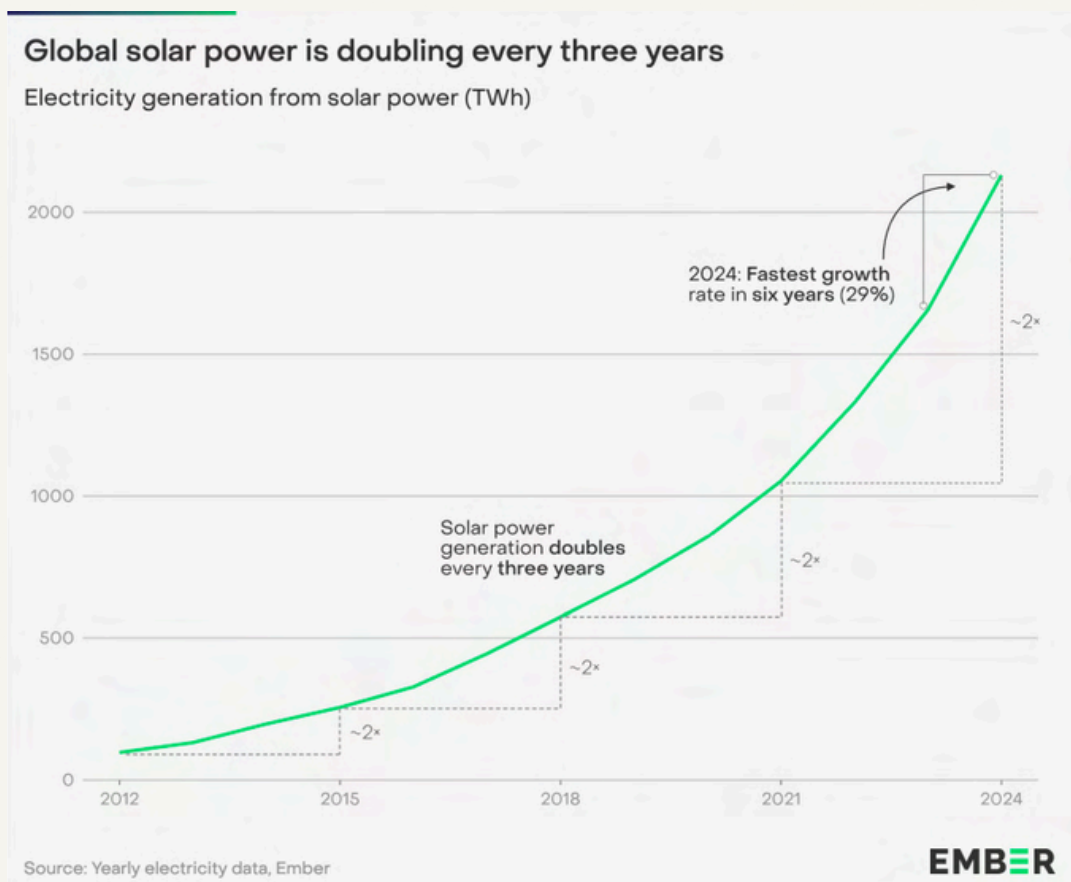


Figure 1¹: Electricity Generation from Solar Power (Terawatt-hour) by Ember.

New Brunswick is well positioned to participate in this global transition. The province receives approximately 1,900 hours of direct sunlight annually², giving it the strongest solar resource in Atlantic Canada. Provincial solar resource mapping and sunshine-hour data indicate that solar generation is viable across much of the province. Figure 2 highlights the national average solar energy production potential across Canada and shows that New Brunswick's solar resource is comparable to, and in some cases stronger than, many jurisdictions where solar deployment is already widespread. Among major Canadian cities, Fredericton and Saint John rank among the top locations for solar potential. Despite this, solar remains a small share of the provincial electricity supply. Development has largely focused on individual rooftop installations rather than larger projects or integrated systems that can provide broader system benefits such as peak demand reduction, improved resilience, and local economic development.

A common misconception is that New Brunswick's seasonal climate limits solar production. In practice, modern photovoltaic systems perform well in cold climates and can generate electricity year-round. Cooler temperatures often improve system efficiency, and solar panels continue to produce electricity even during winter conditions when sunlight is available. The province's primary challenge is therefore not resource availability, but creating the policy frameworks, market signals, and financing mechanisms necessary to translate solar potential into meaningful deployment.

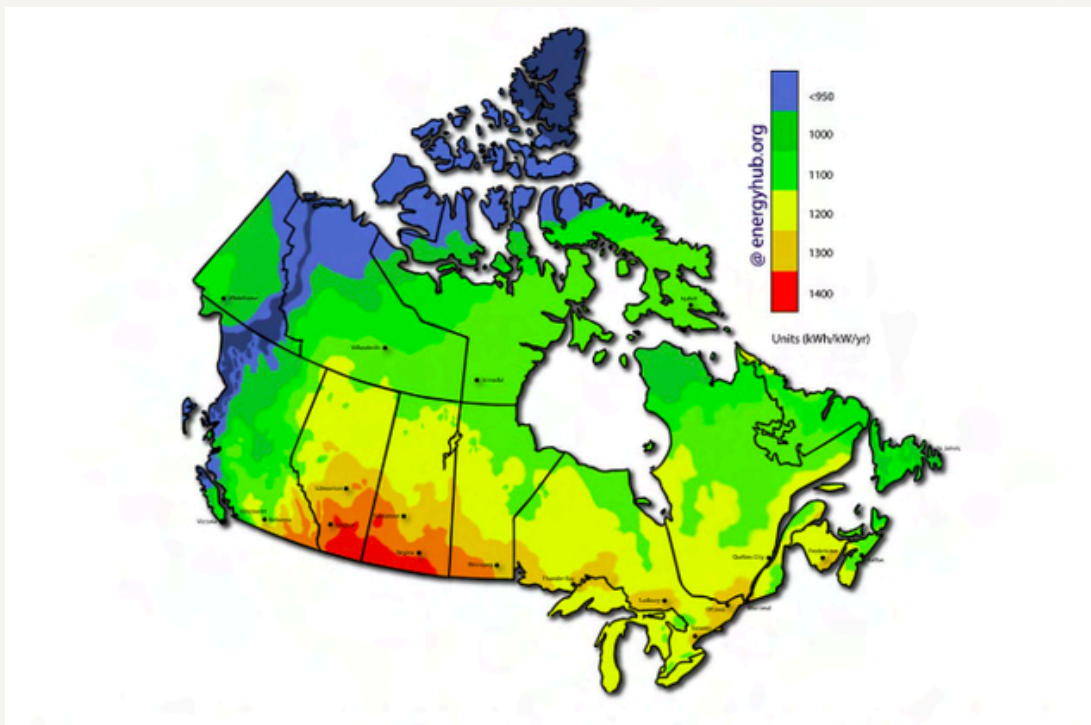


Figure 2³: National Average Solar Energy Production Potential by Energy Hub.

Examples in New Brunswick already demonstrate that solar technology can be successful in the province. Projects such as the Shediac Smart Energy Community initiative, institutional installations such as the Gagetown Base solar project, and emerging partnerships between

utilities and Indigenous communities illustrate the viability of solar across diverse applications. Experiences from other jurisdictions also offer important lessons.

Nova Scotia has demonstrated how community solar programs, property-tied financing models such as PACE, and clear renewable energy targets can broaden participation and accelerate adoption. Alberta illustrates the role of municipal leadership and the use of innovative financing structures. Maine shows how robust community solar and virtual net metering programs can expand access even in northern climates. Germany demonstrates that large-scale solar deployment can occur in regions with similar sunlight levels when supported by stable policy frameworks and accessible participation models.

Together, these examples show that climate is not the determining factor in solar success. Policy design, program accessibility, and long-term planning play a far greater role in shaping the pace and scale of solar deployment. By addressing structural barriers and strengthening enabling policies, New Brunswick can expand solar energy to improve affordability, strengthen energy resilience, and support the province's transition to a cleaner electricity system.

Benefits of Solar

Solar energy offers a range of economic, environmental, and system-level benefits that are particularly relevant to New Brunswick's evolving electricity system. [Photovoltaic \(PV\) solar](#)⁴ panels convert sunlight directly into electricity and can be installed on rooftops, open land, or community-scale projects.

Solar systems generally operate in two ways. Behind-the-meter systems generate electricity primarily for on-site use, typically in homes or businesses. When these systems produce more electricity than the property is using, the excess power can be sent to the grid through net metering, a program that provides customers with bill credits for electricity exported to the grid, which can later be used to offset their electricity consumption. Grid-connected systems, including community or [utility-scale](#)⁵ solar projects, generate electricity that is delivered directly to the electricity grid and distributed to customers.

When paired with [battery storage](#)⁶, solar systems can store excess electricity produced during sunny periods and use it later when solar generation is low. Currently, most residential battery systems are primarily used to provide backup power during outages and improve household energy resilience. However, as battery technology, utility programs, and electricity rate structures evolve, battery storage could increasingly help reduce peak electricity demand, support grid stability, and improve system flexibility by allowing locally generated electricity to be used when it is most needed. Battery storage can also increase the overall value and reliability of solar installations by enabling electricity generated during the day to be used during evenings or periods of lower solar production.

Some benefits of solar include:



1. Emissions Reduction and Climate Resilience

Although New Brunswick's electricity grid produces fewer emissions than many jurisdictions, fossil fuels still play an important role in meeting demand, particularly during peak periods. Solar generation can reduce reliance on fossil fuel-based electricity, lowering greenhouse gas emissions and other pollutants. According to the [National Renewable Energy Laboratory](#)⁷, electricity generated from solar photovoltaic systems produces roughly 20–220 grams of CO₂-equivalent per kilowatt-hour over its lifecycle, compared with approximately 320–990 grams for fossil fuel-based generation.

Distributed solar also enhances climate resilience by diversifying energy sources and reducing dependence on centralized infrastructure that may be vulnerable to extreme weather events.



2. Cost Stability and Long-Term Affordability

Solar power has no fuel costs and relatively low operating expenses, making it one of the most price-stable forms of electricity generation. Once installed, solar systems can provide predictable electricity costs for decades, helping protect households, businesses, and institutions from fluctuations in fuel prices.

The upfront cost of residential solar systems remains a barrier for many households. Typical rooftop systems of 5–7.5 kW can cost approximately [\\$17,000](#)⁸ or more to install. However, depending on system size, electricity usage, and available incentives, many installations reach a return on investment within [seven to eleven years](#)⁹.

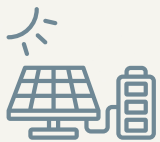
At the system level, increasing solar deployment can reduce the need for expensive peak power generation and delay investments in new transmission and distribution infrastructure. According to [Lazard's Levelized Cost of Energy+](#)¹⁰ 2025 report, utility-scale solar is now among the lowest-cost sources of new electricity generation. The average levelized cost of energy for utility-scale solar stands at around \$58/MWh (USD) with the next cheapest energy being onshore wind. On the other end, nuclear has the highest average cost at \$200/MWh (USD), followed by gas peaking at \$180/MWh (USD) and coal at \$122/MWh (USD). These figures demonstrate the cost-effectiveness of utility-scale solar over almost all other energy sources.



3. Economic Development and Local Job Creation

Solar expansion can also support local economic development. Solar projects require skilled labour in installation, electrical work, engineering, and maintenance, and many of these jobs are created locally during project development and operation. According to the [International Renewable Energy Agency \(IRENA\)](#)¹¹, the renewable energy sector supported more than 13 million jobs globally in 2022, with solar photovoltaic employment representing the largest share of these positions.

Distributed and community-scale projects can also help retain economic benefits within local communities. Community ownership models and locally developed renewable energy projects allow municipalities, First Nations, cooperatives, and landowners to participate directly in energy generation, creating new revenue streams and supporting regional economic development. By keeping investment, employment, and project revenues within the region, these initiatives can strengthen local economies and increase community participation in the energy transition.



4. Energy Independence and System Reliability

Solar energy can improve energy independence by reducing reliance on imported fuels and external electricity supply, which is particularly relevant for New Brunswick given its exposure to fuel price volatility and electricity imports during peak demand periods. When paired with battery storage or integrated into microgrids, solar systems can also enhance reliability by providing backup power during outages and supporting essential services during emergencies.



5. Scalability and Efficient Use of Existing Infrastructure

One of solar energy's key advantages is its scalability. Systems can range from small rooftop installations on homes and businesses to large community or utility-scale facilities, allowing capacity to be added incrementally as electricity demand grows. Unlike large centralized power plants, which require significant upfront investment and must be built at full capacity before generating power, solar installations can expand panel by panel over time. This flexibility reduces financial risk and allows utilities, communities, and private investors to scale projects in response to changing energy needs.

The smaller and modular nature of solar projects also creates opportunities for a wider range of participants, including municipalities, cooperatives, local businesses, and individual investors. Distributed solar can generate electricity close to where it is used, reducing transmission losses and making efficient use of existing grid infrastructure, particularly in rural and remote areas.



6. Alignment with Public Policy and Public Support

Solar energy aligns closely with New Brunswick's climate commitments, long-term energy transition goals, and reconciliation. Public support for renewable energy continues to grow, and solar projects often face fewer environmental and social barriers than large centralized energy developments. Community-led or locally owned solar initiatives can further strengthen public engagement while supporting a more inclusive clean energy transition.



7. Retaining Energy Dollars Within the Provincial Economy

New Brunswick continues to spend substantial sums importing fossil fuels and purchasing external electricity supplies, with NB Power's annual fuel and purchased power costs reaching into the hundreds of millions of dollars¹². Expanding solar energy and other locally generated renewable electricity sources can help reduce reliance on imported fuels by producing more electricity within New Brunswick. Unlike fossil fuel imports, investments in solar energy support local jobs, local businesses, landowners, and communities while keeping more energy spending circulating within the provincial economy.

Current Landscape

Solar adoption in New Brunswick remains extremely limited relative to the size of the province's electricity system. According to data from the [Canada Energy Regulator](#)¹³, solar generation historically represented only a negligible share of the province's electricity supply, estimated at approximately 0.1 percent of total generation. Although installations have increased in recent years, overall deployment remains small.

Early utility data illustrates how limited solar adoption has been. As of April 2022, NB Power reported approximately [300 net-metered customers](#)¹⁴, while Saint John Energy and Edmundston Energy reported six and four customers respectively. Even with more recent growth bringing the number of net-metered customers in NB Power's service territory to roughly [1,300](#)¹⁵, solar adoption remains extremely low compared with the more than [335,000 dwellings](#)¹⁶ in the province.

Total installed distributed solar capacity also remains small relative to provincial electricity demand. Current estimates suggest that New Brunswick has approximately [8.4 megawatts \(MW\)](#)¹⁷ of distributed solar capacity installed across residential and small commercial systems. In comparison, the province's peak electricity demand regularly exceeds 3,000 MW. Battery storage deployment is similarly limited, with roughly [5.8 MW](#)¹⁷ currently installed across the province. Publicly available data does not clearly indicate how much of this storage capacity is directly paired with solar installations.

Most solar installations in New Brunswick consist of small rooftop systems designed primarily to offset on-site electricity use. Large-scale solar development remains limited, reflecting both regulatory constraints and the absence of dedicated procurement programs for utility-scale or community-scale solar projects. As a result, solar currently plays a minimal role in reducing peak demand, strengthening grid resilience, or contributing to overall electricity supply.

New Brunswick's net metering framework has enabled some participation in distributed solar generation but is primarily structured to support self-supply rather than large-scale deployment. Under the program, customers receive a one-to-one credit for electricity exported to the grid when their system produces more electricity than they are consuming. These credits can then be used to offset electricity consumption at other times of the year.

However, several program design elements limit the economic attractiveness of solar systems. Any unused credits are reset annually on March 31, which discourages customers from installing systems sized to maximize annual generation. In addition, eligible systems are capped at 100 kilowatts (kW), limiting opportunities for larger commercial, agricultural, or community-scale installations. These rules reinforce a development pattern focused on small individual systems rather than broader market growth.

Solar deployment in the province is therefore largely driven by individual customer interest rather than by coordinated energy planning. While utilities allow interconnection and participation in net metering programs, there are limited policy mechanisms actively encouraging significant growth in solar capacity.

New Brunswick's [Electricity Act](#)¹⁸ has limited the development of community and locally owned solar generation. The current framework does not provide clear mechanisms for municipalities, First Nations, cooperatives, or other local entities to develop renewable energy projects and sell electricity to the grid or to local purchasers. As a result, solar development is largely confined to individual net-metered systems rather than larger community-scale initiatives. This structure restricts broader participation in renewable energy development and reduces opportunities for locally owned projects that could contribute to energy resilience and expanded solar capacity across the province.

The [Government of New Brunswick](#)¹⁹ has identified solar energy as part of the province's broader clean electricity transition. Provincial policy documents outline a goal of installing approximately 200 MW of grid-scale solar and 300 MW of behind-the-meter solar by 2035. Initial projects are expected to begin around 2028, with additional capacity added incrementally in subsequent years.

While these targets represent an important step toward expanding renewable electricity generation, they remain modest relative to the size of the provincial electricity system. Even if fully achieved, solar generation would represent only a small share of total electricity supply. The policy pathway for achieving these targets also remains unclear, with limited detail on procurement processes, financing mechanisms, or program structures that would enable solar development at scale.

New Brunswick's electricity system continues to rely heavily on centralized generation sources, including nuclear and fossil fuels. Within this context, solar energy remains underdeveloped despite strong technical potential and growing public interest. The current landscape therefore reflects both the early stage of solar deployment in the province and the opportunity for policy reform to support broader participation and greater system benefits.

New Brunswick

Although solar deployment in New Brunswick remains limited overall, several projects across the province demonstrate that solar technology can operate effectively in the local climate and contribute to energy generation, emissions reduction, and community development.

New Brunswick receives a strong solar resource relative to other Canadian jurisdictions. [Energy Hub](#)³ rankings place the province sixth in Canada for average annual sunlight hours. Despite this, many provinces and territories with [lower solar resources](#)²⁰ have deployed significantly more solar capacity. This suggests that the primary barriers to solar expansion in

New Brunswick are related to policy frameworks and program design rather than technical potential.

Agriculture and Solar

Solar energy is beginning to appear in New Brunswick's agricultural sector, where rising energy costs have created interest in alternative power sources. One early example is Auenland Farm in Sussex, where farmer Frank Jopp installed approximately 400 photovoltaic panels with a total capacity of about 160 kW²¹. The system generates enough electricity annually to power roughly 20 households.

Despite these early initiatives, solar adoption across New Brunswick farms remains limited. Statistics Canada²² data indicates that by 2021, approximately one in ten farms in Newfoundland and Labrador produced renewable energy, primarily solar, while about six percent of farms in Nova Scotia had installed solar by 2022. New Brunswick currently lags behind these neighbouring provinces.

Private-sector companies such as The Smart Energy Company²³ have begun working with agricultural producers to expand solar adoption. The company has partnered with more than fifteen farms across the province to install solar systems that help offset electricity costs and improve farm energy resilience. Although these projects are typically smaller installations rather than large solar farms, they demonstrate the potential for solar energy to support agricultural operations while reducing operating costs.

Shediac Smart Energy Community Project

The Shediac Smart Energy Community Project²⁴ represents one of the most comprehensive demonstrations of solar and smart grid technologies in New Brunswick. Completed in 2022 through a partnership between NB Power, Siemens, the National Research Council of Canada, and the Town of Shediac, the project explored how renewable energy, energy storage, and smart technologies could work together to improve energy efficiency and reduce emissions.

The project included the province's first grid-connected community solar farm, with a capacity of approximately 1.63 MW. Solar generation from the facility helps supply electricity to municipal buildings and supports local energy needs. The project also integrated battery storage and a range of smart energy technologies, including smart meters, cold-climate heat pumps, smart thermostats, and time-of-use pricing.

Seventy-five participating homes received solar panels and battery storage systems as part of the pilot program. These systems generated an average of approximately 5,000 kWh of renewable electricity annually per household. Overall, the project reduced greenhouse gas emissions by roughly 110 metric tonnes of CO₂, equivalent to removing about 25 gasoline-powered vehicles from the road for one year.

The Shediac project demonstrates how solar energy can be integrated with storage, efficiency technologies, and smart grid systems to support a more flexible and resilient electricity system.

Saint John Energy and Tobique First Nation

In June 2025, [Saint John Energy](#)²⁵ announced plans for the largest solar project in New Brunswick to date through a partnership with Universal Kraft and Neqotkuk (Tobique First Nation). The project forms part of Saint John Energy's Pathway to Net-Zero Climate Action Plan, which outlines the utility's strategy to achieve net-zero emissions by 2050.

The planned solar facility will have a capacity of approximately [10 MW](#)²⁵ and is expected to generate enough electricity to power roughly 1,200 homes. Once operational, the project is projected to reduce greenhouse gas emissions by more than 10,000 tonnes per year.

The partnership structure is also significant. Collaboration between the municipal utility, a private developer, and a First Nation community provides opportunities for shared economic benefits, long-term revenue generation, and community participation in renewable energy development. [Indigenous-led and Indigenous-partnered energy projects](#)²⁶ are increasingly recognized as an important component of Canada's clean energy transition.

Gagetown Solar Project

Another notable example of solar development in New Brunswick is the solar installation at the 5th Canadian Division Support Base in Gagetown. Developed in partnership with Ameresco, the project includes [14,496 solar panels](#)²⁷ installed across roughly 40 acres.

The system has a capacity of approximately 8.9 MW and is expected to generate about 20 percent of the base's electricity demand. Once fully operational, the project is projected to reduce greenhouse gas emissions by roughly 7,700 metric tonnes annually.

Originally scheduled for completion in 2025, the project timeline has been extended slightly to align with additional energy efficiency upgrades taking place at the base. The Gagetown installation demonstrates how large institutions can integrate solar generation into existing infrastructure while contributing to national emissions reduction targets.

Nova Scotia

Nova Scotia provides a useful regional comparison for New Brunswick because the two provinces share similar geography, climate, and electricity system challenges. Despite these similarities, Nova Scotia has made significantly faster progress in expanding renewable energy, including solar generation.

The province has established clear renewable energy targets and policy frameworks to guide its transition. Nova Scotia currently generates more than 40 percent of its electricity from renewable sources and has committed to reaching [80 percent renewable electricity](#)²⁸ by 2030

and net-zero electricity by 2035. These targets have helped create stronger market signals for renewable energy development.

Solar deployment in Nova Scotia has expanded rapidly in recent years. The province now has thousands of solar installations, including more than 8,000 residential and commercial systems, and has set a goal of achieving more than [300 MW](#)²⁹ of solar capacity by 2030. Although wind power represents the largest share of renewable generation in the province, solar is playing an increasingly important role in diversifying the electricity mix.

Net metering policies in Nova Scotia operate similarly to those in New Brunswick, providing a one-to-one credit for electricity exported to the grid. However, Nova Scotia previously allowed customers to receive an annual payment for unused credits, which provided additional financial certainty for solar owners. Although the program was later revised to include an [annual reset](#)³⁰ similar to New Brunswick's approach, earlier policy incentives helped accelerate adoption during the early stages of solar market development.

This is the same method used by the program in New Brunswick. However, in New Brunswick, net metering customers pay HST on the total grid power supplied. This can be an unexpected cost for homeowners. NS Power has a standard monthly grid power supply charge, which is a fixed charge of [\\$20.08 per month](#)³¹, whereas with NB Power, the monthly charge varies based on usage, as there is HST for the usage on top of the fixed monthly charge.

A defining feature of Nova Scotia's solar strategy is the emphasis on expanding access through community-scale and shared solar programs. The [Nova Scotia Community Solar Program](#)³² allows municipalities, non-profits, First Nations, co-operatives, and private developers to build solar "gardens" that feed electricity into the provincial grid. Residents and businesses can subscribe to a portion of a project and receive credits on their electricity bills without installing solar panels on their own property. The program supports projects ranging from 0.5 MW to 10 MW and aims to develop approximately 100 MW of new solar capacity.

Financing programs have also played an important role in reducing barriers to solar adoption. The [Solar City Halifax](#)³³ program provides property owners with long-term, low-interest financing for solar installations through a Local Improvement Charge attached to the property. This structure allows the cost of solar installations to be repaid gradually over time and can transfer with the property if ownership changes.

Nova Scotia has also implemented property-assessed clean energy financing through multiple municipal PACE programs. [Property Assessed Clean Energy \(PACE\)](#)³⁴ financing is a model in which municipalities provide upfront funding for renewable energy installations or energy efficiency upgrades, and property owners repay the investment through their property tax bill over several years. Because the financing is tied to the property rather than the individual homeowner, the program reduces risk and improves accessibility for participants.

In addition to financing tools, Nova Scotia previously offered direct incentives for residential solar through the [SolarHomes rebate program](#)³⁵. Under the program, eligible homeowners could receive a rebate of approximately \$0.30 per installed watt, up to a maximum of about \$3,000, to help reduce the upfront cost of installing a grid-connected solar system.

Battery storage has also been explored through pilot programs. [Nova Scotia Power's Home Battery Pilot Project](#)³⁶ installed battery systems in participating households to evaluate how residential storage could support grid reliability and provide backup power during outages. The program demonstrated the potential for distributed battery systems to help manage peak electricity demand while improving household resilience.

Workforce development has further supported solar expansion in the province. Training programs offered through [Nova Scotia Community College](#)³⁷ provide specialized instruction in solar photovoltaic system design and installation, helping build the skilled workforce required to support a growing renewable energy sector. The [Nova Scotia Clean Economy Scholarship Program](#)³⁸ provides 16 scholarships per year to help students pay for university or community college education while gaining skills for careers or research in the renewable energy and natural resources sector.

Nova Scotia also uses a [tiered regulatory structure](#)³⁹ that allows different project sizes depending on the type of customer or project. Residential and small business installations can reach up to 27 kW, commercial systems up to 200 kW, and agricultural or industrial systems up to 1 MW. Community solar projects can range from 0.5 MW to 10 MW. This tiered approach allows solar development to better match the needs of different users and creates more opportunities for participation across residential, commercial, and community sectors.

Overall, Nova Scotia's experience demonstrates how a combination of clear policy targets, accessible financing programs, community solar initiatives, and workforce development can accelerate solar adoption. While the province continues to rely heavily on wind energy for large-scale renewable generation, its policies have created a more supportive environment for distributed and community-scale solar than currently exists in New Brunswick.

Prince Edward Island

Prince Edward Island provides an example of how solar generation can be integrated with energy storage to support local electricity systems. One of the most notable projects in Atlantic Canada is the [Summerside Sunbank Solar Farm](#)⁴⁰ in Summerside, which was commissioned in 2024.

The facility includes approximately 21.6 MW of solar photovoltaic capacity installed across roughly 80 acres, making it one of the largest solar installations in the region. The project generates enough electricity annually to supply more than 2,500 homes and plays an important role in the city's broader renewable energy strategy.

A key feature of the project is its integrated battery energy storage system, which has a capacity of 10 MW and 20 MWh. The battery stores excess solar electricity produced during peak generation periods and releases it when demand increases or solar production declines. This improves grid reliability, reduces reliance on imported electricity, and allows renewable energy to be used more effectively throughout the day.

The project demonstrates how pairing solar generation with battery storage can strengthen grid stability while supporting the transition to cleaner electricity systems.

Alberta

Alberta has developed one of the most active solar markets in Canada, supported by strong solar resources, competitive electricity markets, and a range of municipal and regional policy initiatives. The province now has the [second-highest installed solar capacity](#)⁴¹ in the country.

Alberta is home to the [Solar Club](#)⁴², a unique retail electricity program that allows solar owners to switch between high summer export rates and lower winter consumption rates, improving the economics of residential solar installations.

The province has seen [significant utility-scale solar development](#)⁴³, including major projects such as the Travers Solar Farm, the Enterprise Solar Project, and the Lethbridge 1 Solar Farm, positioning Alberta as a national leader in large-scale solar generation. Travers Solar Farm is a remarkably large solar farm with over 1.3 million solar panels across 3,300 acres. This solar farm has an [energy capacity of 465 MW](#)⁴⁴, which is the equivalent of taking 100,000 cars off the road each year. Municipal governments also play an active role; for example, the [City of Calgary Solar Map](#)⁴⁵ provides residents with virtual rooftop solar potential estimates based on their location and positioning in the city to support informed decision-making.

In Alberta, several financing and incentive programs operate at the municipal and regional levels. The [Clean Energy Improvement Program](#)⁴⁶ allows homeowners to finance solar and other clean energy upgrades through their property taxes at an interest rate of approximately 3.75%. This financing is tied to the property rather than the homeowner, can be transferred upon sale, can be repaid early without penalty, and offers up to 10% off total project costs. In Medicine Hat, the [HAT Smart Program](#)⁴⁷ provides a rebate of \$0.20 per watt for residential solar installations, up to a maximum of \$1,000. Although this program closed in 2025, a 2026 rebate is soon to be announced to offer the same rebate.

Edmonton offers the [Change Homes for Climate Solar Program](#)⁴⁸, which is limited to multi-unit residential buildings with four or more units. This program provides a rebate of \$0.50 per watt, up to \$4,000 per unit and a maximum of \$100,000 per year. For non-residential projects, the [Strategic Energy Management for Industry](#)⁴⁹ supports non-profits, municipalities, and Indigenous organizations by covering 100% of eligible project costs, while for-profit organizations may receive up to 50% coverage. This program is possible through a partnership with the

Government of Alberta and Natural Resources Canada. With a goal of reducing emissions in Alberta, these programs offer opportunities for people and organizations in the province.

Additional local incentives are available in communities such as Banff through the [Solar Incentive Program](#)⁵⁰, which offers residential rebates of \$450/kW (up to 20 kW or \$9,000) and commercial rebates of \$750/kW (up to 20 kW or \$15,000) of solar capacity installed.

Collectively, these programs demonstrate Alberta's decentralized but robust approach to solar deployment, driven largely by municipal leadership and innovative financing rather than province-wide residential incentives. These diverse incentives allow for a variety of stakeholders, building types, and solar scales to have better access to solar capacity.

Maine

Maine provides an example of how strong community solar policies can rapidly expand solar adoption in northern climates. In recent years the state has developed [one of the largest community solar markets](#)⁵¹ in the United States.

As of 2026, Maine has more than [800 MW](#)⁵² of utility-scale solar capacity across over 140 solar farms. Community solar projects operating under Maine's [Net Energy Billing \(NEB\)](#)⁵² framework have added nearly 935 MW of additional capacity. The NEB program combines elements of traditional net metering and virtual net metering and is available to projects generating up to 5 MW. A key feature of the program is its support for community solar, which allows residents and businesses that cannot install solar panels on their own properties to subscribe to a share of a larger off-site solar project and receive bill credits for the electricity generated.

Despite experiencing cold winters and seasonal weather conditions similar to those in Atlantic Canada, Maine's rapid solar growth demonstrates that climate is not a fundamental barrier to solar deployment. Stable policy frameworks and inclusive participation models have been the primary drivers of expansion.

Germany

Germany is widely recognized as one of the global leaders in solar energy deployment. As of 2025, the country has installed more than [100 gigawatts of solar capacity](#)⁵³ across millions of individual systems.

Germany's solar success is particularly notable because the country receives less annual sunlight than many regions of Canada. Average annual sunshine levels are approximately [1,700 hours](#)⁵⁴, compared with roughly 1,900 hours in New Brunswick. This demonstrates that solar adoption is shaped more by policy frameworks and market design than by climate alone.

Solar installations in Germany are distributed across [multiple scales](#)⁵⁵. Approximately 38 percent of systems are installed on residential rooftops, 29 percent on commercial buildings, and about

one-third on ground-mounted installations. Even small-scale systems, including balcony-mounted solar panels, contribute to overall generation capacity.

Several policy mechanisms have supported this growth. Feed-in tariffs guaranteed stable payments for solar electricity exported to the grid, while low-interest loans and financial incentives reduced installation costs for households and businesses. Clear national renewable energy targets also created long-term investment certainty.

Germany's experience illustrates how consistent policy direction, accessible financing, and strong public participation can enable large-scale solar deployment even in regions without exceptional solar resources.

Opportunities for Solar in New Brunswick

New Brunswick has significant potential to expand solar energy generation. Although current deployment remains limited, other jurisdictions show that supportive policies, accessible financing, and flexible program design can enable solar development across multiple sectors.

One key opportunity lies in expanding distributed solar generation. Rooftop installations on homes, businesses, and institutions could contribute meaningfully to electricity supply while helping reduce peak demand and electricity costs for participants. Generating electricity closer to where it is used can also reduce transmission losses, improve overall system efficiency, and potentially defer or reduce the need for costly transmission and distribution infrastructure upgrades.

Community solar projects, such as Shediac, represent another important opportunity. These projects allow residents, renters, and businesses that cannot install rooftop solar to participate in renewable energy generation by subscribing to a share of a larger solar facility and receiving bill credits for the electricity produced. Expanding community solar programs could significantly broaden access to renewable energy across the province.

Community Economic Development Corporations⁵⁶ (CEDCs) could also play an important role in supporting solar expansion. These organizations are designed to support locally driven economic development initiatives and can help develop and manage renewable energy projects that benefit communities. Solar projects led by CEDCs could create local revenue streams, support regional economic development, and allow communities to participate directly in the clean energy transition.

Financing mechanisms will also be important for accelerating solar adoption. Programs such as property-assessed clean energy (PACE) financing, municipal loan programs, or utility-supported financing can allow households and businesses to repay installation costs over time through

property tax payments or utility bills. These approaches reduce upfront financial barriers and make solar systems accessible to a wider range of participants.

Solar expansion could also support workforce development and local job creation. Increased deployment would create demand for skilled labour in installation, electrical work, engineering, and system maintenance. Training programs and partnerships with educational institutions could help build a local workforce capable of supporting a growing solar industry.

In addition to distributed installations, larger community-scale and utility-scale projects could contribute to New Brunswick's long-term energy transition. Solar generation complements other renewable sources such as wind and hydroelectricity by producing electricity during daytime hours when demand is often higher. When paired with battery storage, solar can also help manage peak demand and improve system reliability.

Finally, expanding solar energy can strengthen community participation in the energy transition. Municipalities, First Nations, cooperatives, Community Economic Development Corporations, and local organizations can play important roles in developing renewable energy projects that generate local economic benefits while increasing public engagement in clean energy development.

Taken together, these opportunities illustrate how solar energy could become a more significant component of New Brunswick's electricity system. With supportive policies, accessible financing, and community participation, solar deployment could expand substantially while contributing to emissions reduction, economic development, and long-term energy resilience.

Limitations for Solar Expansion in New Brunswick

While solar energy presents significant opportunities for New Brunswick, several limitations and challenges should be considered when evaluating its role in the province's electricity system.

One commonly cited limitation is New Brunswick's seasonal climate. Solar generation is highest during spring and summer months and lower during the winter when daylight hours are shorter and snow cover can reduce production. However, solar panels continue to generate electricity in cold temperatures and cloudy conditions, and colder climates can actually improve panel efficiency. Seasonal variation can also be managed through a combination of energy storage, grid integration, and complementary renewable energy sources such as wind and hydroelectricity.

Another challenge relates to the intermittency of solar generation. Since solar panels produce electricity only when sunlight is available, solar output varies throughout the day and across seasons. Electricity systems must therefore balance solar generation with other power sources to ensure reliability. Advances in battery storage, smart grid technologies, and demand

management are helping electricity systems integrate variable renewable energy more effectively.

Upfront installation costs also remain a barrier for some households and businesses. Although the long-term operating costs of solar systems are relatively low, the initial investment required to install solar panels can discourage adoption without supportive financing mechanisms or incentive programs. Financing tools, rebates, and loan programs can help reduce these barriers and improve accessibility.

Grid infrastructure and regulatory frameworks can also influence the pace of solar adoption. Existing electricity systems in many jurisdictions were designed around centralized generation rather than distributed energy resources. Integrating larger numbers of distributed solar installations may require updated interconnection rules, improved grid management practices, and investments in local distribution infrastructure.

Finally, solar energy alone cannot meet all of New Brunswick's electricity needs. While solar can contribute meaningfully to electricity supply and emissions reductions, it is most effective as part of a diversified energy system that includes other renewable resources, energy efficiency measures, and energy storage technologies.

Despite these limitations, experiences from other jurisdictions demonstrate that many of these challenges can be effectively managed through thoughtful policy design, technological innovation, and coordinated energy planning.

Recommendations

To unlock the full potential of solar energy in New Brunswick, the following actions are recommended:

- 1 Enable Community and Local Renewable Generation:** Amend the [Electricity Act](#)¹⁸ to enable community-owned renewable energy development and local electricity purchasing. Establish a provincial community solar program that allows municipalities, First Nations, and regional entities to develop solar projects and sell excess electricity to NB Power through standardized power purchase agreements. Expand opportunities for small-scale generation by permitting local entities, including cooperatives, non-profits, and educational institutions, to generate renewable electricity and sell it to municipal utilities or local purchasers. These changes would support locally owned clean energy, strengthen energy resilience, and accelerate the deployment of renewable electricity across the province.



2

Introduce a Tiered System Capacity Structure: Replace the single 100 kW cap with a tiered structure that reflects the needs of different customer classes, including residential, agricultural, commercial, and community-scale projects. Higher capacity thresholds would allow systems to better match electricity demand and enable greater system benefits. A tiered approach, similar to Nova Scotia's, could include: Residential and small-business systems up to 27 kW; Commercial, institutional, agricultural, and industrial systems up to 1 MW; and Community solar projects ranging from 0.5 MW to 10 MW. A tiered framework would allow solar installations to better match electricity demand, improve project economics, support agricultural and institutional participation, and enable broader community-scale renewable energy development.



3

Modernize the Net Metering Framework: Maintain fair compensation for exported grid electricity by ensuring solar customers receive full, transparent credit for excess generation. Replace the current annual reset of unused net metering credits with a rolling 12-month carryover or a fair end-of-year settlement mechanism. Allow credits to remain with the property or transfer with customers who move within the service territory to reduce financial risk and improve long-term investment certainty. Any future changes to compensation structures should recognize the broader system benefits of distributed solar generation, including reduced peak demand, deferred infrastructure investment, improved grid resilience, and lower emissions.



4

Establish a Community Solar and Virtual Net Metering Program: Develop a provincial framework that allows customers to subscribe to shared solar projects and receive electricity bill credits. This would expand access to renters, apartment residents, businesses, and households with unsuitable roofs while supporting municipalities, First Nations, cooperatives, and community-led developers.



5

Expand Financing and Cost-Reduction Mechanisms: Introduce financing tools such as on-bill repayment through utilities and property-tied repayment programs such as PACE administered through municipalities. Targeted rebates, grants, or zero-interest loans should also be considered to support low- and moderate-income households.



6

Incentivize Solar Paired with Battery Storage: Create incentives and utility programs that support solar-plus-storage installations. Integrating battery storage improves grid flexibility, enhances resilience during outages, and helps manage peak electricity demand.



7

Improve Interconnection Transparency and Efficiency: Establish clear interconnection timelines based on project size and publish hosting capacity maps to identify areas of the grid where additional solar can be accommodated. Public reporting on interconnection queues and approvals would reduce uncertainty for project developers and customers.

8

Align Rate Design with Distributed Energy Resources: Introduce optional time-varying electricity rates that reward solar generation or battery discharge during peak demand periods while protecting customers from financial risk during the transition.

9

Establish a Clear Solar Procurement Pathway: Translate provincial solar targets into a transparent and predictable procurement schedule for utility-scale projects. Regular competitive procurement rounds would provide market certainty and attract private investment.

10

Improve Data Transparency and Reporting: Require consistent annual reporting on installed solar capacity, battery storage deployment, and participation rates by customer class and region. Transparent data will support evidence-based policy design and enable tracking of progress toward provincial clean energy goals.

11

Invest in Education and Workforce Development: Expand public education initiatives and workforce training programs related to solar installation, energy storage, and distributed energy systems. Improved awareness and technical capacity will support broader adoption and strengthen the provincial clean energy workforce.

By addressing structural barriers and strengthening policy frameworks, New Brunswick can unlock the full system value of solar energy and position the province to participate more fully in the rapidly expanding clean electricity economy.

Conclusion

Solar energy has the potential to play a much larger role in New Brunswick's electricity system than it does today. Although deployment remains limited, the examples highlighted throughout this report demonstrate that solar technology performs effectively in the province's climate and can support a wide range of applications, from residential rooftop systems to community-scale and utility-scale installations.

Experience from other jurisdictions shows that the pace of solar adoption is shaped primarily by policy design, financing options, and program accessibility rather than by climate conditions alone. Provinces and regions with similar or even lower solar resources have successfully expanded solar generation by implementing supportive regulatory frameworks, enabling community participation, and reducing financial barriers to installation.

New Brunswick is already beginning to explore the role solar energy could play in the province's long-term energy transition. Existing projects across the province demonstrate the viability of solar generation and highlight opportunities for further development. At the same time, current levels of adoption remain small compared with the province's electricity demand and the solar deployment achieved in many comparable jurisdictions.

Addressing the structural barriers that currently limit solar expansion could unlock new opportunities for households, businesses, municipalities, and communities to participate in renewable energy generation. Expanding solar deployment could contribute to emissions reductions, support local economic development, and strengthen the resilience and flexibility of the electricity system.

As electricity demand grows and the energy system continues to evolve, solar energy offers a scalable and increasingly affordable resource that can complement other renewable energy sources such as wind. With thoughtful planning and supportive policies, solar generation can become an important component of New Brunswick's future energy mix while supporting the province's climate and economic goals.

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