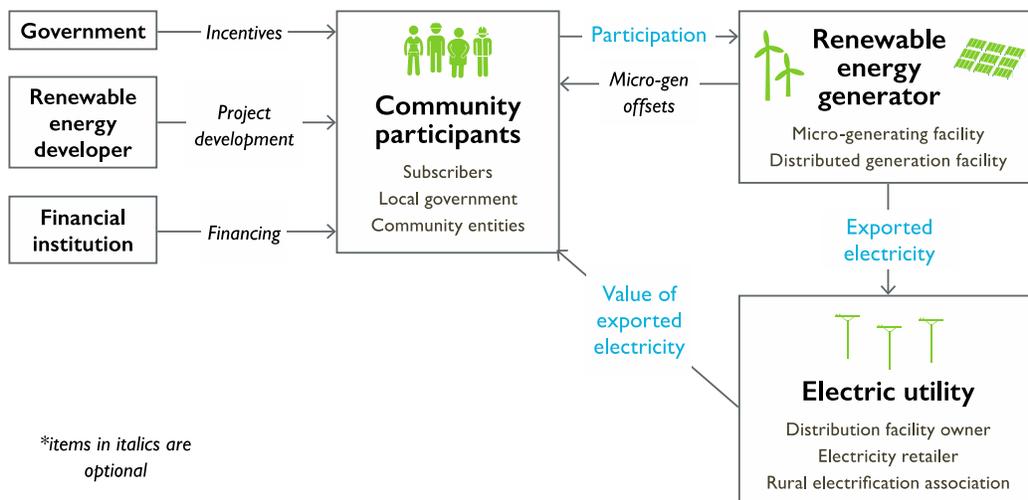


Community Energy Opportunities and Support for Albertans

Community Energy

Community energy refers to renewable energy that is generated locally and provides benefits to communities. It allows communities and citizens to directly participate in energy projects through full or partial ownership of the projects or by subscribing to the electricity generated by the projects. Through access to small- and medium-scale shared renewable projects, community energy projects give Albertans an alternative to purchasing electricity from their limited choice utility retailers, access renewables even if they can't access rooftop solar programs, and generate revenues from community investment.

Community energy projects usually have a project proponent who is responsible for mobilizing and aggregating community demand for renewable energy. The proponent can be a renewable energy developer, a local government, a co-operative or a group representing community members. Community members can participate by sharing the costs and benefits of the community energy project as determined by some form of shared agreement with the project proponent. The developer does the scoping and construction of the project, with financing from a financial institution and government incentives where applicable. The renewable energy generator facility could be a micro-generation facility¹ (under 5 MW and designed to serve a direct load) or a distributed energy facility² (connected directly to the distribution system). Finally, projects need to enter into agreements with their local wires owner (called Distribution Facility Owner) to export electricity from the generator into the local grid. Participants earn value through the sale of electricity and the renewable attributes of the generator that can be sold as micro-generation carbon offsets to purchasers who want to offset their carbon footprint. Purchasers could be a utility company, a commercial entity or the government.



¹ Micro-Generation Regulation, Alberta Regulation 27/2008.

² Distributed Generation Application Guideline, Alberta Utilities Commission, 2013.

Community energy participants:

Any community member can participate in a community energy project. This includes renters, condominium households, non-profit organizations, housing co-operatives, real estate developers, schools, community leagues, universities, colleges, hospitals, businesses, rural associations, municipal governments or agencies, union groups, business centers, malls, farmers, or Indigenous community organizations. Community members may also partner with larger private sector developers to develop the project.

Benefits to Albertans:

Community energy projects allow more Albertans to access the benefits of renewable energy technologies that were previously only available at the utility-scale or to individual home and property owners. For example, condominium owners, rental homes, or home owners with inadequate solar exposure or access to upfront capital can now invest in community energy projects. It reduces costs compared to rooftop solar PV through economies of scale, and compared to utility-scale renewables through low connection and transmission costs. Between these two extremes, community energy may also access unique cost reduction features such as accelerated municipal-supported permitting and zoning, equity financing and crowdfunding, and community volunteer labour.

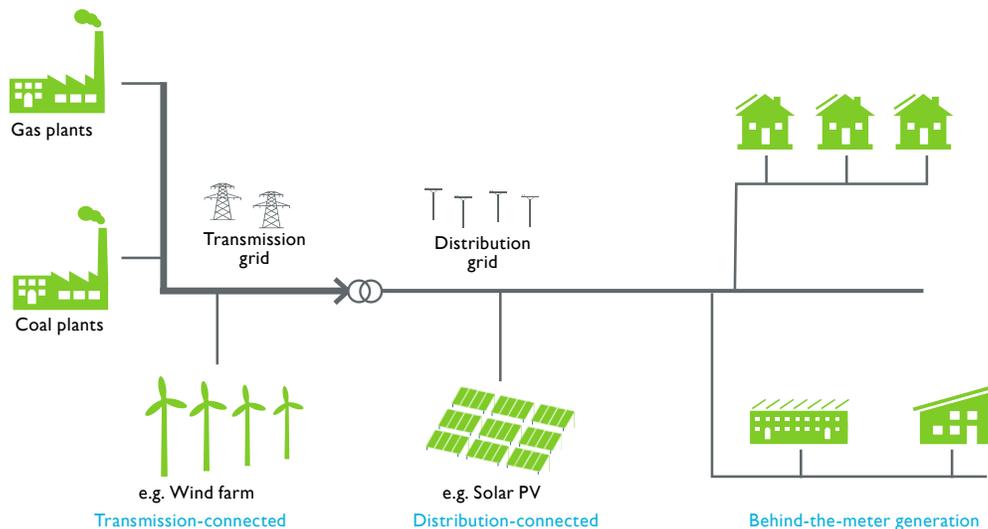
Community energy projects also represent economic opportunities for Albertans. Through ownership of renewable energy projects, communities can hedge themselves against variable future prices of fuel, and create new local economic opportunities. Community energy projects often take the form of social enterprises or co-operatives, and provide local jobs.

Solar at St. Paul's:

Aligning community values with energy infrastructure

St. Paul's United Church in Edmonton is working on installing a 27 kW solar array consisting of 95 panels on its community church's south-facing roof. For the community members, solar energy has recently come to the forefront of their church's initiative for "Greening Sacred Spaces". The initiative arises from the group's recognition that climate change is a global problem and community solar is a solution that can be implemented locally at their church. While the financial assessment of solar PV was not the main impetus for this community, it helps that the group was able to secure funding of \$30,000 to install the system. Furthermore, the group expects to save electricity costs after the system has paid itself back, which right now cost between \$1,500 and \$2,000 per year.

Different types of community energy projects:



Today's electric grid in Alberta consists mainly of centralized, **transmission-connected** generating stations like such as coal plants, gas plants, or utility-scale renewables. Community energy projects are smaller and are connected to the distribution network, either as **behind-the-meter** system or as a direct **distribution-connected** system.

Behind-the-meter systems are attached to an individual facility/building such that energy produced from the system can be used by the facility/building to reduce the need for purchasing electricity from the grid. Excess energy is exported to the grid. The systems are typically in the range of a few kW for homes, going up to hundreds of kW or even a few MW for large buildings. The Alberta Microgeneration Regulation limits the size of such systems to 5 MW.

Distribution-connected systems are not tied to a single load facility. The electricity produced is sold directly into the grid. The size of the system is limited by the capacity of the local distribution network.

Community energy is often renewable energy – as that is one of the main motivations for community participation. This includes wind, solar, geothermal, sustainable biomass, and small-scale hydropower.

Developing a community energy project

Community energy projects require a lot of planning and coordination. The following list of sequential steps that should be considered by applicants seeking grants under the Community Energy Capacity Building Grant program to determine what stage of development they are in and how the grant can best support them. The grant can be used to support capacity building activities in any of the following steps:

Step 1: Renewable Energy Project Model Decisions

When determining how to set up the project business model and partnerships, the following are some key decisions that must be made:

- How will community members/groups participate? Will they own a portion or all of the project? What will be the membership fees and return payments?
- How is the value generated from the project returned to participants? Utility bill? Cheques?
- What is the long-term projected financial gain to community participants?
- What types of benefits and incentives can the project take advantage of?

Renewable energy consultants and developers can often help with this process.

Step 2: Stakeholder Consultation

Consultations with key stakeholders will help validate the above decisions and help identify potential collaborators:

- Regional wires owner or distribution facility owner
- Nearby potential generators and hosts that will provide the location for the facility (e.g. community or municipal facilities)
- Reliable renewable energy developers (including residents, businesses, or community-based organizations)
- Financial institutions
- A renewable energy developer to partner with or for guidance

Step 3: Site Selection and Project/System Details

Once a few potential hosts are identified, an initial site survey and economic and feasibility study can help to select the final site and determine the design details of the facility. This includes a preliminary check of development, building and electrical permits, and considers factors such as the maximum size of the generating facility (if micro-generation) and other environmental elements that will impact the generation from the facility. With this, the project proponent can have an idea of the upper limit of a total capacity to aspire toward.

Step 4: Partnership Agreements

Proponents should have agreements signed with a renewable developer, and the owner/operator of the generating facility. Proponents may also need an agreement with an electric retailer if the renewable

attributes are being credited through the billing system. The proponent might want to seek quotes from various renewable developers to help decide which ones might be best to partner with.

Step 5: Business and Financial Planning

A business and financial plan can help assess the need for financial assistance. This will include a financial assessment of the community energy project, projected revenues, cost of acquiring capital, and rate of return for the project.

Step 6: Outreach

The proponent can now focus on outreach to community members and committing aggregated community electricity demand through contracts. Total subscription goals can be administered based on the capacity available from the community energy project.

Step 7: Final Project/System Design

Following the outreach, the interim project design can be adjusted to match the subscribed capacity. This way, final technical aspects of the project can be finalized with the help of the renewable developer.

Step 8: Fundraising

With the completed financial plan, the proponent can begin fundraising, where goals can be administered based on the capacity of the project proponent and any partners. Fundraising includes crowdfunding, applying for upfront incentives and grants, and applying for loans. Often times, financial institutions that offer debt financing will have prearranged options associated with the choice of renewable developer or their own special renewable energy low-interest loans.

Step 9: Permitting and Approvals

The project should apply to relevant applications through the micro-generation framework or distributed generation framework's regulatory processes before considering next steps. This may require development permits, building permits and electrical permits for the site, and approvals from the Alberta Utilities Commission.

Step 10: Procurement

Following the confirmed design and details of the system, the materials required for project development can be purchased by the renewable energy developer.

Step 11: Construction and installation

Following permitting and secured fundraising, the contracted developer can install the community-scale renewable energy generation system.

Step 12: Grid connection

Once installation is complete, the developer should apply for a “cut-and-connect” procedure with the distribution facility owner. A master electrician will disconnect the facility from the grid, electrically connect the generator to the facility electrical system, and then re-establish the grid connection. Once the system is connected to the grid it can be energized or brought online.

Step 13: Community Activation

After the system has been brought online and electricity is being exported from the community energy project to the local grid, the project proponent should ensure that the community members involved receive their benefits as per their partnership agreement. This may be from the electricity retailer as credits on their retail utility bill, or coordinated through the proponent as third-party cheques or a similar process. The proponent may also have to coordinate this process with the community generator to track the meter data.

Step 14: Maintenance

The developer, who often enters the process at Step 3, should inform the community energy project proponent about maintenance and safety best practices before exiting the project and handing over the project completely to the project proponent. Some of these topics include isolation troubleshooting, emergency shutdown, and diagnosing low power production. Systems should be operated upon by qualified personnel only. System warranties must also be taken into account. The project also requires ongoing non-technical maintenance including transfer of payments, transfer of stake in case some community members become ineligible, and maintaining ongoing relationships with the community generator and wire owner.

Step 15: Decommissioning

The project proponent should have a decommissioning plan established with the renewable energy developer. For example, in the case of solar PV, this includes ensuring that the modules are recycled properly at the end of their life and all electronic components either recycled or responsibly disposed of.

Where to start:

Recommended Readings

- [Community Solar Guide \(Pembina Institute\)](#): A detailed guide outlining the business models, regulatory frameworks and technology options available to proponents of community solar projects in Alberta. It also includes case studies of several successful community energy projects in other jurisdictions.
- Plan LoCaL (Low Carbon Living): [Community Energy Project Planning Tips](#)
- Community Power Agency: [A How-to Guide](#)
- B.C. Real Estate Foundation: [Illustrated Guide to Community Energy](#)

Community Energy Capacity Building (CECB) Grant

Energy Efficiency Alberta is offering a Community Energy Capacity Building Grant to community organizations for capacity building activities related to the development of small scale renewable energy projects.

Eligible Applicants

All non-commercial organizations that are registered in Alberta may apply for the program. This includes:

- Co-operative organizations
- Registered charities
- Not-for-profit corporations
- Municipalities
- Educational institutions
- Indigenous communities or organizations

Funding Levels

The total program budget is \$400,000 that may be disbursed toward one or more projects at Energy Efficiency Alberta's discretion. It is required that for projects seeking funding equal to or greater than \$80,000, the applicant must contribute a minimum of 20 per cent of the total project expenses toward the project budget.

Eligible Activities

The program will fund two types of projects that build capacity within a community organization, which will eventually result in the development of a specific, small or micro-scale renewable energy system.

The types are as follows;

1. Projects that involve capacity building for a specific type of community-scale renewable energy project. These may include: renewable energy project pre-feasibility and feasibility studies, regulatory studies, or analysis of technical project requirements.
2. Projects that involve capacity building for community energy projects as a whole in the province through the development of knowledge tools or education initiatives such as webinars, training, and workshops.

Other Supporting Grants

There are several grants available for renewable energy projects in Alberta. Some include:

Energy Efficiency Alberta: [Residential and Commercial Solar Program](#)

This upfront incentive offers rebates to homeowners, businesses and non-profits that install solar PV systems that are grid connected in accordance with Alberta's Micro-Generation Regulation.

Municipal Climate Change Action Centre: [Alberta Municipal Solar Program](#)

This program provides financial incentives to Albertan municipalities to install grid-connected solar PV systems on municipal facilities or land, and undergo public engagement for the project.

Alberta Indigenous Relations: [Alberta Indigenous Green Energy Development Program](#)

The program assists Alberta Indigenous communities or organizations involved at all stages of renewable energy project development, starting from pre-feasibility assessments to project implementation.

Alberta Agriculture and Forestry: [On-Farm Solar Photovoltaics Program](#)

This program offers upfront incentives similar to the Residential and Commercial Solar Program, but specifically for on-farm applications as defined by the electricity bill's rate class.

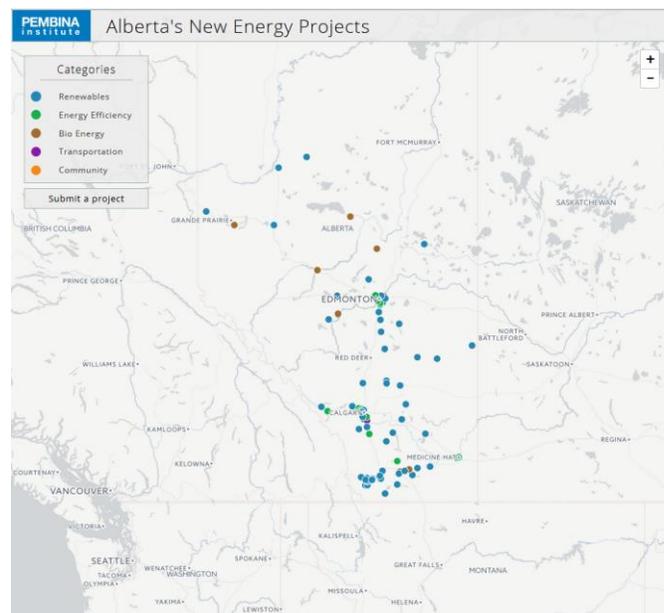
Connecting with a service provider or renewable energy developer

Developers and service providers have the expertise that can help your community progress through the renewable energy project development process. For solar projects, the Solar Energy Society of Alberta has a [Solar Providers Directory](#), and the Canadian Solar Industries Association's (CanSIA) has a [Member Directory](#). You can seek them out through a Request for Qualifications or through your contact. The following are important questions to ask when selecting a developer or service provider:

- How does the developer's quote compare to those from other developers? What are the factors that can explain the price difference?
- What is the developer's track record and project references? Do they have community energy experience? Have they shared land or roof space before?
- What financial services or provisions can the developer provide? Are they able to leverage relationships with financial institutions?
- What other supports is the developer able to provide?

Alberta's New Energy Projects:

Learn from examples of other renewable energy, energy efficiency, and community energy projects on the Pembina Institute's [Alberta clean economy map](#).



Call 1-844-357-5604 or email CECB.Info@efficiencyalberta.ca for more information