

# ENERGY AND ECO COMMUNITIES

Off-grid living does not mean zero electricity. There are a number of ways to create electricity while living off grid. These include solar, micro hydro, wind and wood.

This fact sheet includes information regarding different ways eco communities can create enough energy to self-sustain themselves and their community through methods that have no/minimal impact to the surrounding environment.

It is important to check in with your local municipality or planning board to see what rules apply in your area before you begin to plan and build green energy at your home. In some cases permits and restrictions may apply.

## Energy Conservation

There are many ways you can conserve energy and use your available energy efficiently. Some choices can be made in the home that can reduce the amount of energy needed. For example, integrating higher quality insulation, quality windows, efficient appliances, LED lights and fixtures.

One of the most economical ways to integrate green energy elements is through building design and orientation. Facing windows south will maximize utilization of the sun to heat the home in the winter, and window overhangs can help to keep your home cool in the summer. This can significantly reduce your demand for electricity.

## Solar Energy

Solar energy is a growing commodity in Canada and around the globe as technology rapidly advances, allowing for better panel efficiency. Solar energy can provide plenty of electric power to an off-grid community especially in sun exposed areas free of shadows from tall buildings.

By adding generators to the system, any excess solar energy that is not used can be stored and saved for use when sun exposure is limited, like in the winter months. While solar panels and generators present a large upfront cost, they have no moving parts and can last for decades with little maintenance.

## Micro Hydro

Micro hydro uses a source of running water such as a stream or river to generate energy. The way it works is when water flows from a higher elevation point to a lower elevation, the water turns a turbine to generate electricity. This energy source is the most consistent option compared to solar, wind, and wood as long as the water source has a reliable flow rate.

An added benefit of this energy source is that because it is so consistent, fewer storage generators are needed, reducing installation costs. It is important to check federal, provincial and municipal by-laws and rules associated to the water you wish to utilize for micro hydro energy, in some cases limitations may apply.

## Did you know?

Eco communities can utilize energy as a potential source of income if enough green energy is created by selling it back to the main grid!



## Wood

When living in forested areas, wood is often a great low footprint source of energy. Burning wood in a stove or wood pellet ovens can provide a great source of heat, even in colder Ontario climates. Wood can also be utilized as a backup heating source and is a great place to cook your food.



## Wind Power

Wind electricity is made when wind turns propeller-like blades on a turbine that spins a generator to create energy. By contacting the local weather service, you can find the average wind speed in the area and decide whether wind energy is a possible means for energy generation.

Smaller wind turbines are recommended as they are less disruptive to the surrounding environment. Small scale turbines can provide enough electricity to power small eco community homes. If the area has a strong and consistent breeze, wind energy can provide ample electricity for generations to come.

Regardless of the energy source you select it is always important to be aware of where materials are from and how much maintenance is required. You want to think about all the emissions produced from cradle to grave - all the materials, their installation and maintenance required for your energy system.

It is best to look for materials that are sourced as local as possible to where your project is taking place and those that require minimal replacements.

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