

Renewable Technologies Description

Solar Photovoltaic (PV)

These systems are made up of rigid solar panels, inverters (converts direct current electricity produced by the panels to alternating current that your home electronics and appliances use), and breakers. The solar panels convert sun energy into direct current.

The cost of solar PV systems have dramatically declined over the last ten years. In grid-connected communities, the payback period for solar PV systems are close to 25 years. In off-grid communities, solar PV systems that charge batteries may be a good investment, however, detailed study should be undertaken to ensure the system is appropriate for your community's context.

Solar Thermal Systems

These systems convert sunlight into heat energy through solar thermal collectors. A fluid (this can be water or another fluid) is circulated through the collectors and can be used for space heating or pre-heat water for your hot water needs. These systems can easily integrate with existing hot water systems.

Passive Solar

This system uses the sun's energy to heat living spaces. A building is designed to take advantage of the sun's energy through careful design and selection of building materials. A passive solar design can help reduce energy costs.

Wind Electric

Wind turbines, like propellers on an airplane, convert the energy in moving air into electricity. A wind-electric system consists of the wind turbine, a generator (housed in the wind turbine), and in off-grid systems, batteries for storage. Location is very important for wind turbines as they must be placed in areas where there are favourable weather patterns, like mountain tops or ridges.

Tidal Electric

Tidal electric generation would utilize the potential energy in the tides. As the water rises and falls due to the tides, the tidal current system would capture that energy and convert it to electricity. This type of system is not currently commercially available and is still in development.

Micro Hydro

This system is similar to small hydro with the exception that there is no storage. Micro hydro systems capture the energy in running water and convert it to electricity much in the same way large hydro facilities do. This technology is well developed.

Biomass Heat

In BC, biomass mostly refers to waste wood. In this system, electricity or heat is produced from the combustion (burning) of wood (or other organic matter). The heat can be used to create steam in a boiler which can be used as heat for buildings or to generate electricity in a steam turbine.

Biogas Electric

A biogas system involves the capture of methane gas, which is created from the decomposition of organic waste under anaerobic (no oxygen) conditions. This gas can be captured and burned in internal combustion engines, gas turbines or microturbines to generate electricity.