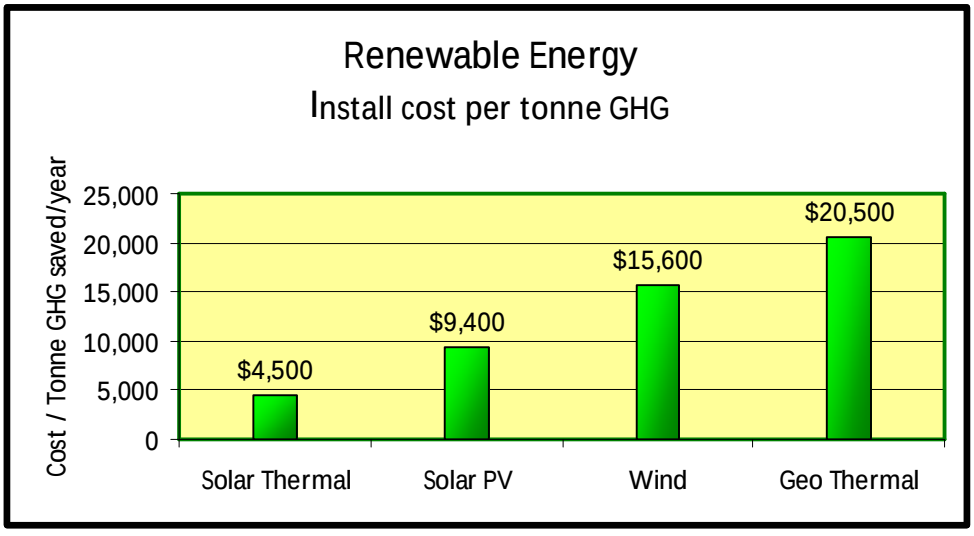
SIMPLE SOLAR HEATING
(403) 938-5803
www.simplesolar.ca

SOLAR THERMAL – ALBERTA'S BEST RENEWABLE ENERGY

Alberta has lots of sunshine that is easily converted into heat – every month of the year.

Simple Solar's Freedom Won solar thermal appliance is ideally suited to Alberta's climate. It absorbs solar energy from the sun even when it is -40C and uses that heat in your home. It works year round and will actually provide more heat in the winter than in the summer when the collector panels are steeply mounted to catch the low winter sun. In the summer months when the heat isn't needed it automatically returns the heat to the atmosphere. Freedom Won requires no electricity from the grid making it completely self sufficient. Every unit of energy absorbed from the sun reduces the natural gas burned for heat in your home. This combustion of natural gas creates Green House Gasses (GHG's) that are damaging our environment and contributing to global warming.

Solar Thermal using evacuated-tube heat-pipe collectors absorb 60% of the solar energy per square meter area. The Simple Solar appliance uses no electricity from the grid saving 100% of the fossil fuel it offsets. Every collector panel is the equivalent of saving 1.2 acres of carbon absorbing forest; every 3 panels is the same as taking one car or light truck off the road. It is the most affordable of all the renewable energy choices as systems start under $10,000 and more panels can be added when you can afford it.



Solar Photovoltaic (PV) creates electricity from the sun using silicone semi conductor panels. This process only converts 10% of the suns energy per square meter area to electricity so you need a large area to get a little bit of electricity. These systems cost over $9,000 per tonne of GHG saved per year.

Wind turbines can be used in a single home installation to generate electricity. You need a tall tower to get away from the surface disturbances so this will be a bigger project costing $75,000 or more but it will provide enough electricity for your home. However, in Alberta we use four times as much natural gas than electricity for energy. So this approach is three times more expensive than solar thermal per tonne of GHG saved per year.

The other renewable energy method is ground source heat pumps or geothermal systems. These geothermal systems use electricity to run pumps that obtain heat from the ground. While these systems are marketed at 400% efficiency because they recover 4 units of heat energy for every unit of electrical energy, many homeowners are disappointed that the savings on their gas bill equal the increase on their electrical bill. As shown in the chart below Alberta's electricity is four times the cost of natural gas for a GJ of energy. Electricity also generates 2.4 times as much GHG as burning natural gas because almost all our electricity comes from coal-fired generating plants.

Calgary Energy GHG and Cost

Energy Source	CO2 Emissions per GJ energy (kgs)	Cost per GJ energy ($)
Natural Gas	56	10.50
Electricity	136	41.70
Multiple	**2.4**	**4.0**

GHG Source: Natural Resources Canada, Retscreen International

In our area, geothermal systems are the least cost effective of the renewable energy methods. Their reliance on electricity reduces most of the GHG savings from burning less fossil fuel for heat. These systems cost over $20,000 per tonne of GHG saved per year, more than five times solar thermal.

The most cost effective way to reduce your home's GHG is to purchase a Solar Thermal appliance such as Simple Solar's Freedom Won. A two-panel system can be installed on your home for $10,000 and you will save 3 tonnes of GHG every year. The Freedom Won appliance heats your water reducing your natural gas usage. Simple Solar can also expand your system to provide space or other heating needs reducing your home's GHG even further.

Simple Solar's Freedom Won heating appliance on a home outside Okotoks.