

# Renewable Energy in Canada

Cartographer: Katie Chute



This image is an example of how solar energy is collected for the use of power.



## Solar Energy

**S**olar energy is all about the sun and the suns raise. The solar raise from the sun hit a solar panel, which takes the electrical current to a charge controller, which then takes it to a battery system and after the power/energy is collected it is then sent off to customers that are going to be using to power their homes and all of their electronics.

The solar energy that is not being used to power homes or electronics, it is being stored to later use or for more important things like backup power when that power goes out to power hospitals or nursing homes or buildings that hold important things or people who need a machine that needs power to run to keep them alive.

The source for the picture you see above is this:  
<http://www.vancouverobserver.com/environment/transcanada-buying-solar-power-increase-renewable-energy-clout>



Centre of Geographic Sciences  
**COGS** | **nscc**

Made with  
**Natural Earth**  
 Free vector and raster map data © [naturalearthdata.com](http://naturalearthdata.com)

Sources:

Canadian Geothermal Energy Association  
<http://www.cangea.ca/canadian-geothermal/>

An Interactive Map of Renewable Energy Projects in Canada.  
<http://www.albertaoilmagazine.com/2013/07/map-of-renewable-energy-projects-canada/>

The map of Canada was downloaded from the Natural Earth website at a 1:10M scale.



## Wind Energy

**W**ind energy is the use of the natural occurring wind to provide energy in the renewable energy. The wind energy is collected by the wind turning the rotor blade into the gear box and then to the nacelle which then goes into the generator, then into power cables which then goes to a transformer and then from that transformer it goes out to the people that need the power.

There are these things that are called wind farms. Wind farms are large fields of wind turbines, and examples of this is to the right and left of this write-up. The reason that wind farms are being made is because there needs to be large numbers of wind turbines in order to create enough energy in order to send out to the people or out to the companies.

The following link is for the picture on the left:  
<http://www.calgaryherald.com/technology/Furniture+giant+IKEA+buys+Alberta+wind+farm+near+Pincher+Creek/91166297/story.html> and this link is for the picture on the right: <http://ontario->



The two pictures you see on their side of the Wind Energy write up are just examples of wind farms found all over Canada. This is another source of renewable energy.

This map is just a sample of the renewable energy that is out there and what is found in Canada. The map you are looking at is just highlighting a few of the renewable energy that Canada is offering Solar, Wind, Hydro, and Geothermal energy. Those listed are the few that I will be highlighting.

Power/energy that is gathered from naturally occurring resources are called renewable energy. Naturally refreshed are these renewable energy's and within a humans life span. Moving water, wind, and sun raise are the renewable energy sources that are not at risk of depletion.

**G**eothermal energy is all about taking naturally heated water and returning it to the earth to be reheated. So, with that being said the picture to the right is an example of a company collecting geothermal energy to sell off to the residents of the north (This link <http://www.canadiangeographic.ca/magazine/oct10/discovery3.asp>).

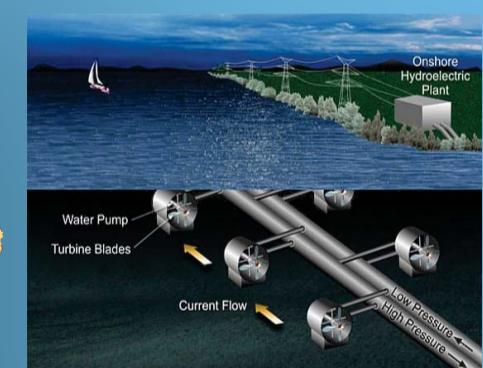


This photo you see above is showing how geothermal energy is collected in Iqaluit.

Geothermal energy is when a company drills a production well down to the hot water or steam in some cases. Then they bring either the water or the steam up to the surface into a holding station, then pump it into a turbine, which then goes into a generator. The energy that is gathered from either the water or steam gets sent off to the power lines and every where's else that the energy is needed. Then what is ever left from the process gets sent to a cooling station and once that it is cooled down enough it gets sent back down to the earth through another drilled well called the injection well that returns the water and/or the steam to the earth from once it came.

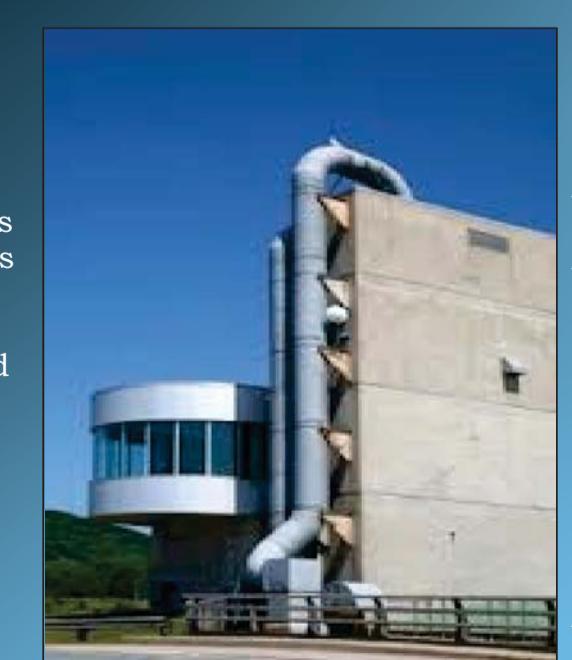
This picture shows how water is used to create energy through turbines that are placed underwater.

The link for the photograph is this:  
<http://www.ecofriend.com/eco-tech-nasa-s-jpl-develops-a-cost-effective-way-to-harness-ocean-energy.html>



## Hydro Energy

**H**ydro energy is all about taking the water that is naturally flowing to gather energy to make power. Hydro energy can be gathered from several different plants, for example energy can be collected through a tidal plant. For example the picture to the left, is a photo of the Annapolis Royal Tidal Plant that makes power for the Annapolis valley. The way that a tidal plant works is there is a dam that would be built in a reservoir, then there would be a penstock that the water would flow down, which then turns the turbines, that sends the energy to a generator and that generator sends the power to the transformer and then out to the transmission lines. Then another source of collecting energy is that turbines in the water connected to two different pipes underwater that contain high pressure and low pressure. Those pipes then take the energy gathered to an Onshore Hydroelectric Plant and from there it gets sent out to the people.



This link is for the picture of the Annapolis Royal Tidal Plant: <http://www.solar-power-made-affordable.com/hydroelectric-energy.html>