

The Impact of Electricity on the Environment

When we turn on a light switch, we are using energy. When we go on our cell phones to play a game, we are using energy. When we use the oven to heat up food, we are using energy. When we use our cars to get us from point A to point B, we are using energy!

There are so many instances within a day in which we use energy. It even takes energy for us to stay alive! The chemical energy that is stored in food supports the energy that our bodies need to perform the basic functions that keep us breathing, thinking and moving.

The electricity that we generate is used to perform a wide variety of actions which make our lives easier and reduce the amount of mechanical effort we need to put forward to complete work.

The use of electricity is something that we must monitor and care about as a society. So many of our day to day responsibilities rely so heavily on it. It is our responsibility to try our best to find ways to conserve energy and use the cleanest methods to produce it.

When we do use electricity, how does it affect our environment? Let's take a closer look at a coal power plant and how it generates electricity to understand exactly how producing electricity using this resource can affect the environment.

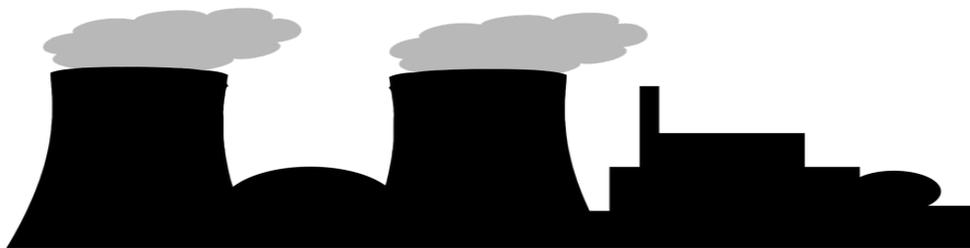


How Does The Use of Energy Impact The Environment?

In a coal power plant, the natural resource, coal, is first mined from the Earth. The coal that is collected is sent to a coal power plant where it is mulched up into the finest possible pieces. The ground up coal is then placed inside big burners and is used as fuel to keep a fire burning. The fire heats water that is pumped through a piping system. The water is converted to steam because of the heat that is being applied from the fire. The steam is then directed through another piping system at very high pressures. The power of the steam's movement, due to pressure, pushes the blades of a turbine. The turbine is hooked up to a generator.

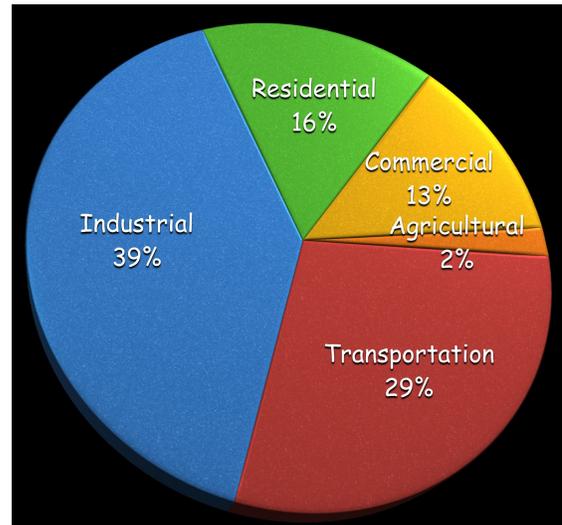
The movement of the turbine makes a large magnet inside the generator spin inside a series of coiled copper wires which generates electricity. There are a lot of parts in this system that are completely harmless to our environment. The water is not harmful because it is natural and it can be reused over and over again to create steam. The movement of the turbine and the magnet inside the generator don't affect the environment either. The fire itself that is created from burning the coal is also not harmful. It is the fumes that come off the fire that ARE harmful to the environment.

The burning of coal is unloading large amounts of smoke into the air. Coal power plant emissions include, carbon dioxide, sulphur dioxide, particulate matter, mercury, lead, cadmium, carbon monoxide, hydrocarbons, and arsenic. All of these emissions have specific effects that they can have on humans and the environment.



Canada's Energy Consumption

There are five main sectors of energy consumers in Canada: energy for residences, energy for stores and commercial buildings, energy for industries and factories, energy for transportation and energy for agriculture. The pie chart on the right shows the division of energy consumption of each of these major consumers.



Let's break each of these sections down a bit further to understand exactly how some of our energy is being used.

Residential energy usage refers to all the energy that is required to power a successful household. Heating, cooling, usage of appliances, and water heating are all examples of processes that require the consumption of energy in a home.

Industrial energy usage refers mostly to all the energy that is required to run a successful factory that produces manufactured goods. There are various industries that make up this sector: plastics, wood products, electronic equipment, transportation equipment, machinery, fabricated metal, aluminum, iron & steel, cement, glass, petroleum refineries, paper products, food products and many others.

Commercial energy consumption refers mainly to offices and retail stores that use energy. These places use energy in much of the same ways that residences do. They need energy for lighting, heating and air conditioning, office equipment and electronics, and water heating.

Transportation energy is energy that is used to move trucks, planes, helicopters, cars, boats and anything else that can transport materials and consumes fuel. The energy used for transportation is most heavily reliant on gasoline which is created from oil - a fossil fuel. This is a nonrenewable resource that will continue to deplete as time goes on.

Agricultural energy refers to all the energy required to grow and produce crops and livestock. Water consumption, fuel to power farm equipment, processing, packaging and transportation of products are all examples of how energy is used in the agricultural sector.

How Can We Reduce Our Impact?

So what can we do to conserve energy and reduce our carbon footprint? Below is a list of suggestions:

1. Turn the lights off when you leave a room.
2. Bundle up to keep warm instead of keeping a high thermostat temperature in your home.
3. Walk or bike to where you need to go instead of driving.
4. Reduce the amount of materials you use. For example, don't use a fresh sheet of paper to jot down one simple note.
5. Reuse packaging and containers that can be used over and over again for different purposes.
6. Recycle any materials that are recyclable rather than throwing them in the garbage.
7. Turn off appliances and electronics that are not in use.
8. Buy items that are recyclable.
9. Use tupperware instead of plastic bags to pack lunches and leftover meals.
10. Purchase or drive cars that are energy efficient.
11. Car pool or take the bus.
12. Insulate your home and make sure that doors and windows are sealed and air is not escaping.
13. Install solar panels on the roof of your home as a source of energy production.
14. Use as little water as possible to clean dishes, take showers, water grass, and clean around the house.
15. Buy locally produced food to cut down on transportation emissions.

Kahoot!

After completing the reading copy and paste this URL link into your internet browser to play Kahoot!

https://kahoot.it/challenge/02960473?challenge-id=805367dc-949d-44d2-93f1-ad48bccbea2f_1586576340053

The Kahoot is called Energy and Environment

If the link is not working for you, you can also try putting in this Kahoot Pin: 02960473