Renewable Energy

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Objective of the project for my home:

The objective of this project is:

To have my home take advantage of the renewable energy that the planet offers and have it help sustain it.

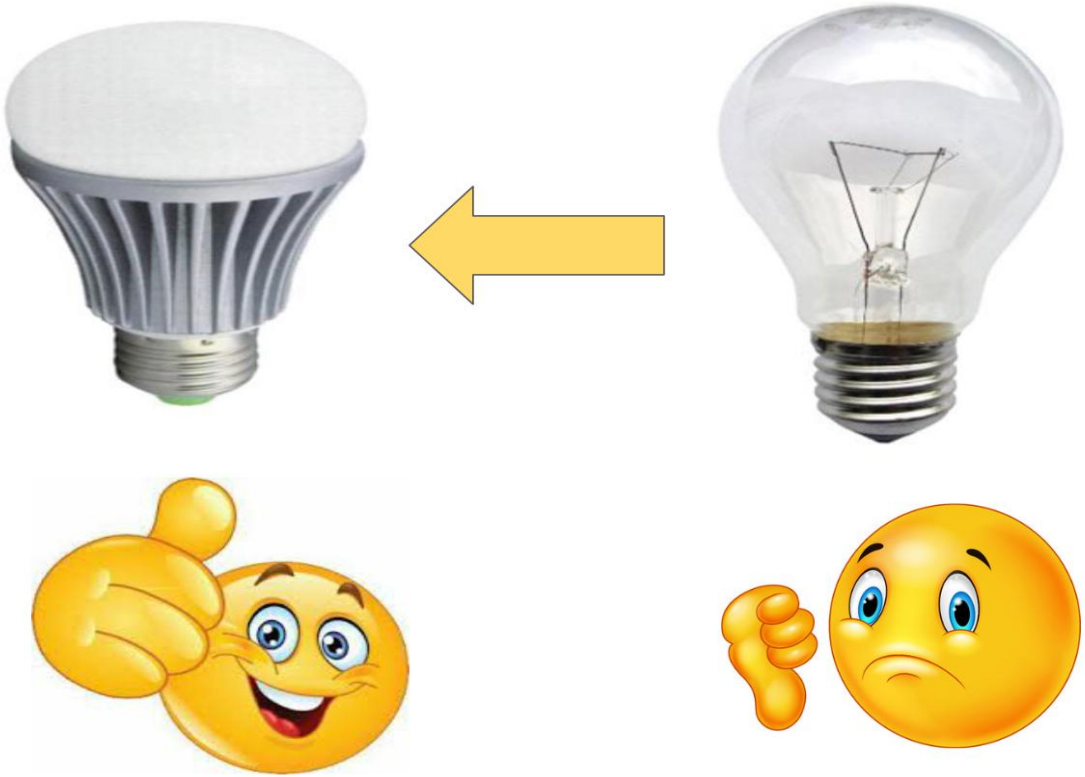
Project objective for my community:

The objective of this project is:

Promote how energy can be taken care of by making good use of them.

Methods

To change 6 incandescent light bulbs to 6 LED light bulbs.



LED	CFL	Incandescent
Avg Life: 25,000 Hrs	Avg Life: 8,000 Hrs	Avg Life: 1,200 Hrs
No Mercury	Mercury	No Mercury
6-8 Watts	13-15 Watts	60 Watts
Uses 84% less energy	Uses 75% less energy	90% energy lost to heat

Daily Incandescent house cost data

Number of Rooms	Hours	Type of Light bulb	Total Cost
Bedroom	8 hours	Incandescent	$0.048
Bedroom	5 hours	Incandescent	$0.03
Bedroom	8 hours	Incandescent	$0.048
Bath	2 hours	Incandescent	$0.012
Dining room	10 hours	Incandescent	$0.06
Kitchen room	3 hours	Incandescent	$0.018

Total cost:
$0.22

Daily LED house cost data

Number of Rooms	Hours	Type of Light bulb	Total Cost
Bedroom	8 hours	LED	$0.008
Bedroom	5 hours	LED	$0.005
Bedroom	8 hours	LED	$0.008
Bath	2 hours	LED	$0.002
Dining room	10 hours	LED	$0.01
Kitchen room	3 hours	LED	$0.003

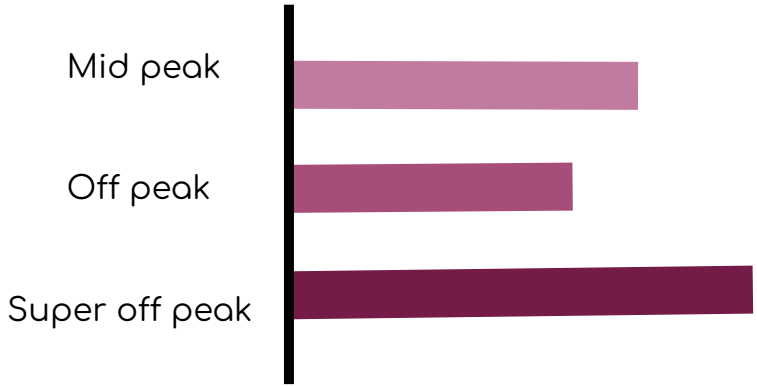
Total cost:
$0.036

LED Lights Savings Evaluation

Incandescent Light Bulb Cost per day	LED Cost per day
$0.22	$0.036

A Day Savings	$0.184
A Week Savings	$1.288
A Month Savings	$5.152
A Year Savings	$67.16

Electricity bill in April from my house



	Avg.cost	Total cost
200 kWh	x $0.23362 =	$46.72
157 kWh	x $0.18012 =	$28.28
281 kWh	x $0.17376 =	$48.83
638 kWh		$123.83
		-$48.67
		$75.16 Total

Energy Charges
Other credits/charges

Billing period	New charges
02/08/21 to 03/10/21	$75.16
02/08/21 to 03/10/21	$43.74
	$118.90

Energy budget used a year in my house

Mid peak 200 x $0.23500 = $47 x 12 = $564

Off peak 160 x $0.19000 = $30.40 x 12 = $364.80

Super off peak 280 x $0.17500 = $49.175 x 12 = $590.10

$564

$364.80

$590.10

$1,518.90

In total, what is spent on electricity per year in my house is:

$1,518.90 dollars

Smart Goal

To reduce energy consumption of my home by 1,800 kWh by changing 6 light bulbs to LED. If we change to LED lights, it will save $0.21 a day.

$0.036

$0.22

We save $ 0.21

But if this is saved for a year, we would save more than $ 67 and we would help take care of the planet.

Methods

Daily Life	Renewable Energy
Use low consumption bulbs.	Use natural light as much as possible.
Turn off the light when leaving the room.	Finding better ways to heat or cool the house.
Turn off electronic devices that are not being used.	Replace the energy we currently consume.
Make good use of appliances.	Reduce the number of bulbs.
Disconnect electronic devices and chargers that are not in use.	Do not use more energy than we need.

Communication Plan

The communication plan was:

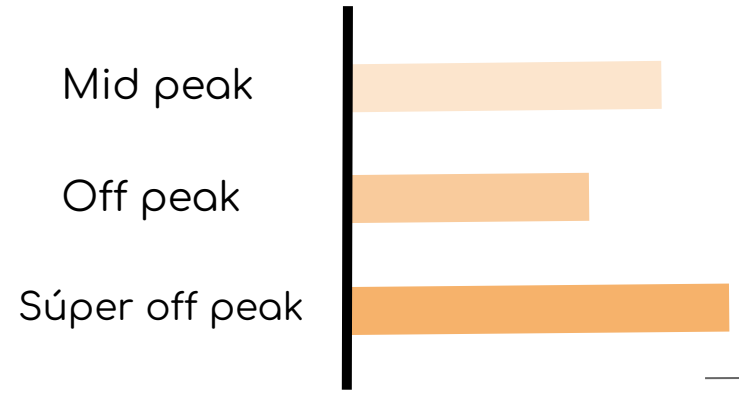
I told my aunt that if I changed the incandescent bulbs to LED I could save more money and at the same time take care of the planet.

Research

The following slides, show the research I conducted before starting my EECCOA challenge.

I better understand how energy works and the different types of energy.

Electricity bill in April from my neighbors' house



	218 kWh	x	$0.22463	=$48.97
	178 kWh	x	$0.17455	=$31.07
	253 kWh	x	$0.16.858	=$42.65
	649 kWh			$122.69 Energy Charges
				-$54.31 Other credits/charges
				$68.38 Total

Billing period	New charges
01/08/21 to 02/08/21	$68.38
01/08/21 to 02/08/21	$45.68
	$114.06

Details of my neighbors' house

Number of Rooms	Hours	Type of Light bulb	Total Cost
Dining room	3 hours	LED	$0.003
Bedroom	5 hours	LED	$0.005
Bedroom	5 hours	LED	$0.005
Kitchen room	3 hours	LED	$0.003
Bath	2 hours	LED	$0.002
Bath	1 hour	LED	$0.001

Total cost:
$0.019

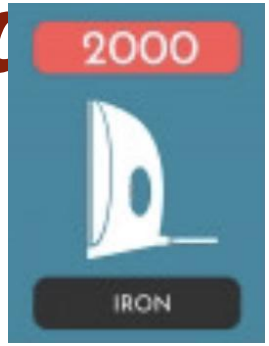
Energy budget used per year at my neighbors' house

Mid peak 220 x $0.22500 = $49.50 x 12 = $594	$594
Off peak 180 x $0.17500 = $31.50 x 12 = $378	$378
Súper off peak 255 x $0.17000 = $43.35 x 12 = $520.20	$520.20
	$1,492.20

In total, what is spent on electricity per year at my neighbors' house is:

$1,492.20 dollars

Energy consumption of home appliances

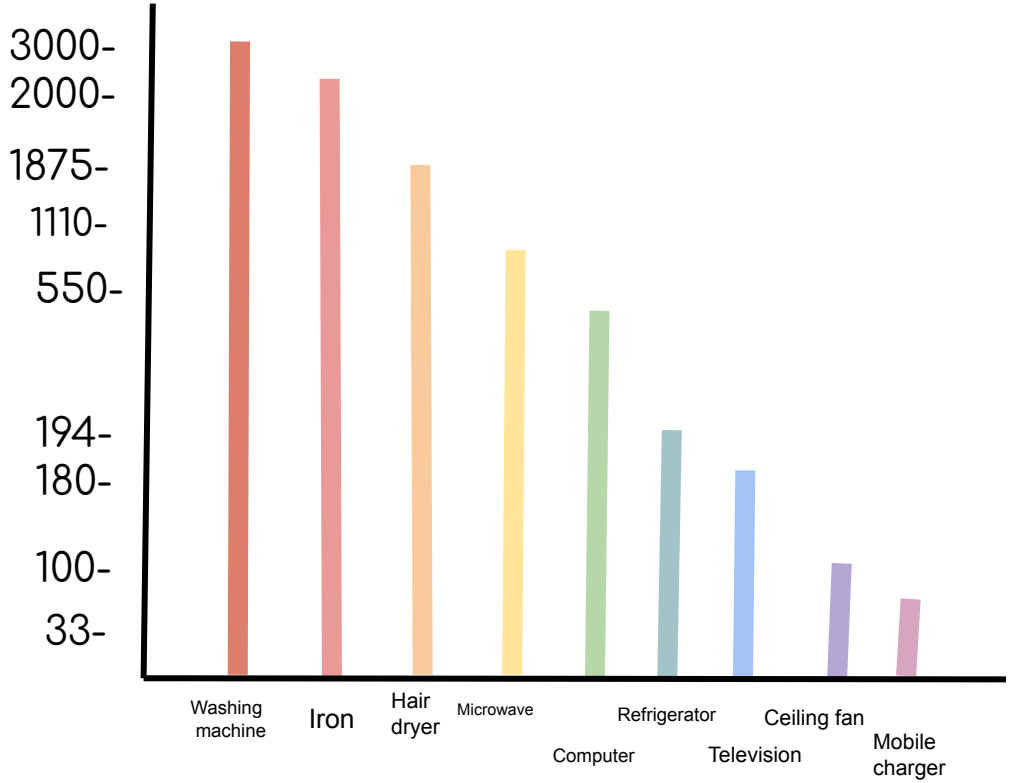


Whatts

Energy consumption of household appliances

electronic gadget	Average power	Consumption in an hour	Average consumption per day	Average consumption in a month
Washing machine	3000	180,000	2,160,000	64,800,000
Iron	2000	120,000	1,440,000	43,200,000
Hair dryer	1875	112,500	1,350,000	40,500,000
Microwave	1100	66,000	792,000	23,760,000
Computer	550	33,000	396,000	11,880,000

electronic gadget	Average power	Consumption in an hour	Average consumption per day	Average consumption in a month
Refrigerator	194	11,640	139,680	4,190,400
Television	180	10,800	129,600	3,888,000
Ceiling fan	100	6,000	72,000	2,160,000
Mobile charger	33	1,980	23,760	712,800



	Washing machine
	Iron
	Hair dryer
	Microwave
	Computer
	Refrigerator
	Televisión
	Ceiling fan
	Mobile charge

The energy

Energy is the ability of bodies to do work and produce changes in themselves or in other bodies. That is, the concept of energy is defined as the ability to make things work.

Energy manifests itself in different ways, thus receiving different names depending on the actions and changes it can cause.

Types of energy:

Energy can manifest itself in different ways: in the form of movement, position, heat, electricity, electromagnetic radiation, etc.

Depending on the process, the energy is called:

Renewable energy

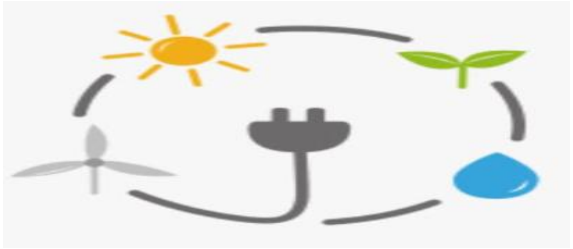
Non-Renewable Energy

Energy is obtained through two types of sources:

-Renewable energy sources:

We speak of renewable energies to refer to those obtained through inexhaustible natural sources, such as:

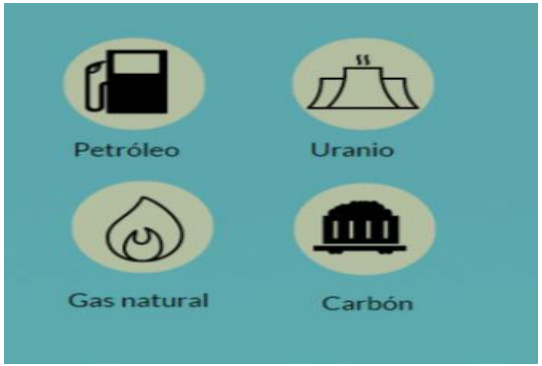
-Sun; the wind, the water and the heat



-Non-renewable energy sources:

We speak of non-renewable energies to refer to those that are found in a limited way on the planet and do not regenerate naturally, such as:

-Coal, oil, natural gas and nuclear energy



Solar energy

Solar energy is the main one of our climate systems and of the Earth's energy sources.

One of the characteristics that define what solar energy is is that it can be harnessed and reconverted for use by photovoltaic or solar thermal collectors.

What is it for?

The Sun provides all living beings with light, energy and heat, but the human being can take more advantage of the solar rays to cover some needs that, until now, depended on other more polluting forms of energy, and thus make use of this renewable energy.

Electricity

Through photovoltaic panels, it can be converted into electrical energy. These panels are made of materials that, combined with others such as phosphorus, can generate negative and positive charges and create electricity. When photons in the sun's rays excite electrons, they move toward positive charges and electric current is produced.

Heating and heat

Solar panels are made up of parabolic mirrors that absorb the sun's rays and direct them towards a particular point, which is usually a water tank. This is heated and flows to homes so that it can be used in different ways: shower, kitchen, heating ...

Solar energy to power means of transport

Means of transport:

Air pollution is one of the great problems facing the planet. Finding transportation alternatives is essential to achieve a more sustainable world. It can also be used in electric cars through photovoltaic solar panels. With them, the vehicles obtain electrical energy necessary to move in a cleaner way.

Natural contributions

When defining what solar energy is, it must be taken into account that it not only works through the technology that humans use to reconvert and reuse it. It also acts directly in nature.

Photosynthesis

Solar energy allows plants and algae to photosynthesize. It is the process by which these living beings obtain the organic matter and energy they need to live. To do this, they capture the sun's rays through chlorophyll, a very light-sensitive pigment found in plant cells. It is important because it provides us with the oxygen we need to live and lowers CO2 levels.

Wind energy

Wind power is a renewable energy source that uses the force of the wind to generate electricity. The main means of obtaining it are wind turbines, "windmills" of variable size that transform the kinetic energy of the wind into mechanical energy with their blades. Wind energy can be obtained by installing the wind turbines both on firm ground and on the sea floor.

Wind energy is what uses the force of the wind to generate electrical energy. For this, wind turbines are used, which move a turbine and manage to transform the kinetic energy of the wind into mechanical energy. The amount of energy that can be obtained is a function of the size of the "mill". The longer the blades, the more power is obtained and therefore more energy. The size of these modern windmills usually varies, since there are units that go from 400 W and a diameter of 3 meters. Used for domestic use in homes, up to commercial wind turbines installed by electricity companies that have a power of 2.5 MW and 80 m. diameter of blades.

How does wind energy work?

Wind energy is obtained by converting the movement of the blades of a wind turbine into electrical energy. A wind turbine is an electric generator driven by a turbine powered by the wind, its predecessors are windmills.

A wind turbine is made up of the tower; an orientation system located at the end of the tower, at its upper end; a cabinet for connection to the electrical network attached to the base of the tower; a gondola that is the framework that houses the mechanical components of the mill and that serves as the base for the blades; a shaft and rotor drive ahead of the blades; and inside the nacelle, a brake, a multiplier, the generator and the electrical regulation system.


The End