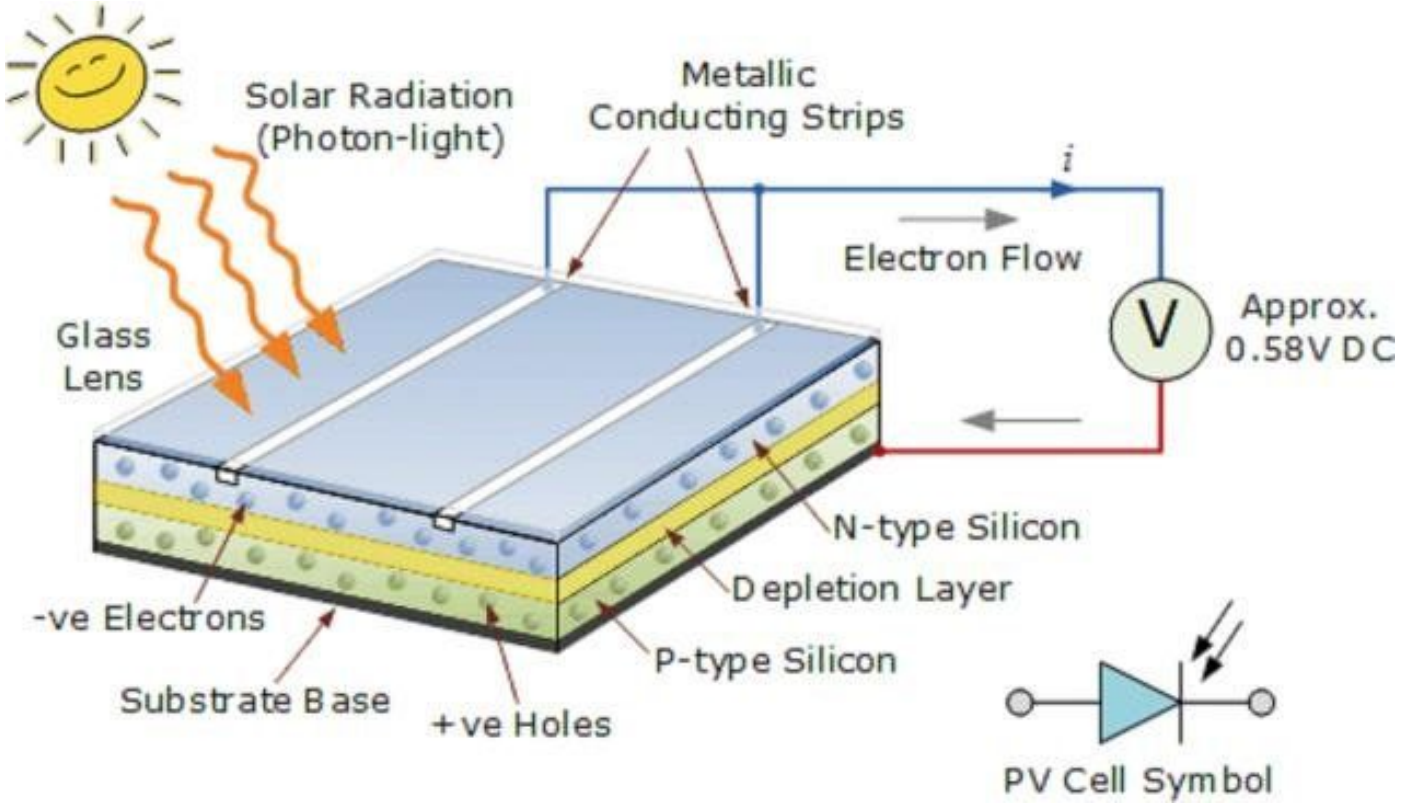
# Solar Cells

By: Allysa Calilung
Renee Marquez
Angelica Villacrusis
4th Period

# Key Terms

1. **Solar cell**: a photovoltaic cell or module that converts the energy of light directly into electricity
2. **Photovoltaic energy**: a clean, renewable source of energy that uses solar radiation to produce electricity.
3. **Semiconductor**: special materials, such as silicon, that is currently and most commonly used in making solar cells

# Diagram


Solar Radiation
(Photon-light)
Metallic
Conducting Strips
i
Electron Flow
V
Approx.
0.58V DC
Glass
Lens
N-type Silicon
Depletion Layer
P-type Silicon
-ve Electrons
Substrate Base
+ve Holes
PV Cell Symbol

# Pros and cons

## Pros

1. Innovative energy - Photovoltaics is a mainstream theme in environmentally friendly power energy and is viewed as an answer for forestall environmental change. Thusly, this is an inventive market under constant innovative work.
2. Renewable energy - The energy can be utilized both to produce power and warmth in the house through sunlight based PV. Sustainable power source is recouped from the sun. Sun powered cells tackle the vitality from the sun and change this into usable power.
3. Environmentally friendly energy - With sun powered cells happens basically no pollution. The release of waste and pollution is unavoidable in relation to the creation of sunlight based cells, the transport of these, and when you install them.

## Cons

1. Interior needs - Not all family units that can fulfill their necessities and get the ideal out of their sun powered cells. Sunlight based cells are very sensitive as far as their location, which implies that if there is shade, it is hard to make use of sun based establishment ideally.
2. Seasonal energy - Places that are outside of the tropics have periods of limited sun; hence, solar cell may not effectively produce energy.
3. High investment - The installation cost of solar panels are relatively high.

# Best Location to build

## What makes a location good for solar power ?

The best place to put solar panels is a place closer to the equator with higher altitude. It is also best facing south west to gain more exposure to sunlight, and generate an even flow of energy; with a tilt that is best for your latitude. They will penetrate more energy in  an area that avoids shading from trees, buildings and other obstacles.

## Where is the best location in the world to build solar panels with solar cells ?

Several factors render Atacama, Chile as the best location for solar power. At 28 degrees south, Atacama is relatively close to the equator, having a higher energy density. Since cloud cover accounts for about 20% of the atmospheric absorption, the absence of clouds in this area gives a great boost to solar radiation levels. Another contributing factor is that the Atacama plateau are above sea level, most sites in this area have the elevation of 2400 meters (8000 feet). The higher elevation means less atmospheric absorption and results in higher levels of solar radiation. There is also  absence of significant human presence in the area which also means less industrial and urban pollution, limiting the level of aerosols in the air to absorb and scatter the solar energy.

# Quiz

1. What is a solar cell?
2. How many terminals are in a solar cell?
3. Name one advantage of solar cells.
4. Name on disadvantage of solar cells.
5. In which ordinal direction is it best to place solar cells in order to get more sunlight exposure?

# Answer Key

1. a photovoltaic cell or module that converts the energy of light directly into electricity
2. 2 terminals (positive terminal and negative terminal as seen in the diagram)
3. See pros list
4. See cons list
5. Southwest

# Work Cited


“Advantages and Disadvantages of Solar Photovoltaic – Quick Pros and Cons of Solar PV.” Renewable Energy World, 9 Sept. 2019, www.renewableenergyworld.com/2012/12/19/advantages-and-disadvantages-of-solar-photovoltaic-quick-pros-and-cons-of-solar-pv/#gre.

Ashok, S., et al. “Solar Cell.” Encyclopædia Britannica, Encyclopædia Britannica, Inc., 11 Sept. 2018, www.britannica.com/technology/solar-cell.

Simons, Barbara Brooks, et al. “Renewable Sources of Energy.” Prentice Hall Earth Science, Pearson Education, Inc., 2002, pp. 334–334. Science Explorer.

“Figure 2f from: Irimia R, Gottschling M (2016) Taxonomic Revision of Rochefortia Sw. (Ehretiaceae, Boraginales). Biodiversity Data Journal 4: e7720. Https://Doi.org/10.3897/BDJ.4.e7720.” doi:10.3897/bdj.4.e7720.figure2f.

Ozgur. “Where Is the Best Location on Earth for Solar Energy?” Sunmetrix, 28 Jan. 2019, sunmetrix.com/where-is-the-best-location-on-earth-for-solar-energy/.

“Solar Photovoltaic Cell Basics.” Energy.gov, www.energy.gov/eere/solar/articles/solar-photovoltaic-cell-basics

“What Makes a Location Good for Solar Power?” Solar Nation, www.solar-nation.org/what-makes-a-location-good-for-solar-power.