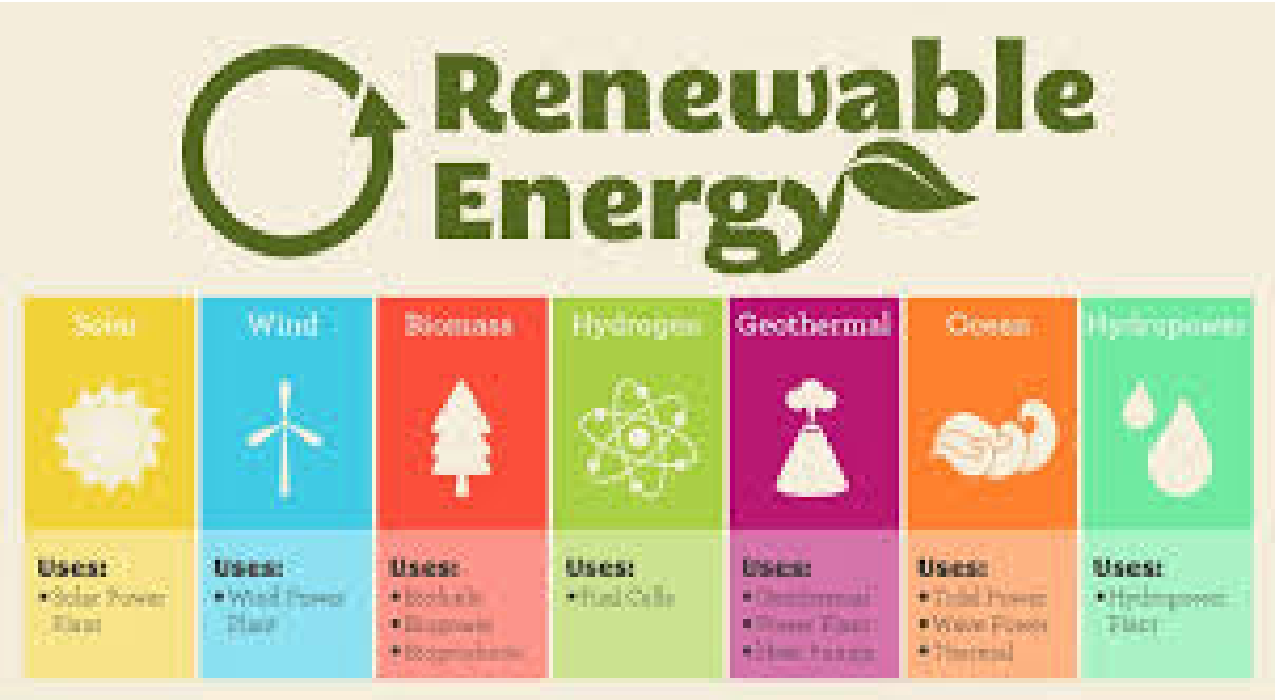
preface:

The simplest definition of energy is "the ability to do work". Energy is how things change and move We need energy in every detail of our lives Energy is the capacity of a physical system to perform work. Energy exists in several forms such as heat , kinetic or mechanical energy, light, potential energy , electrical, or other forms. Energy is the ability to do work. Energy sources could be classified as Renewable and Non- renewable. Renewable Energy Renewable energy is derived from natural processes that are replenished constantly such as solar, wind, ocean, hydropower, biomass, geothermal resources, and biofuels and hydrogen.



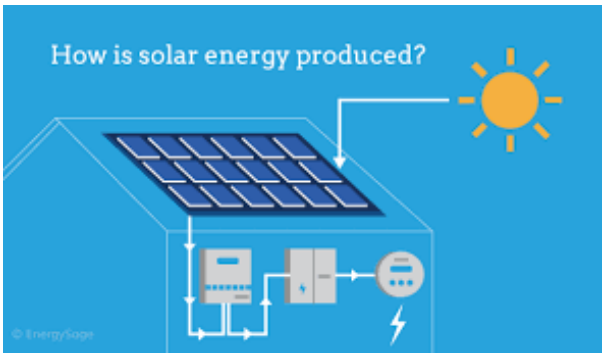
How to get solar energy from the sun ? and How to coll ect energy from humans activites :

==========

solar energy :

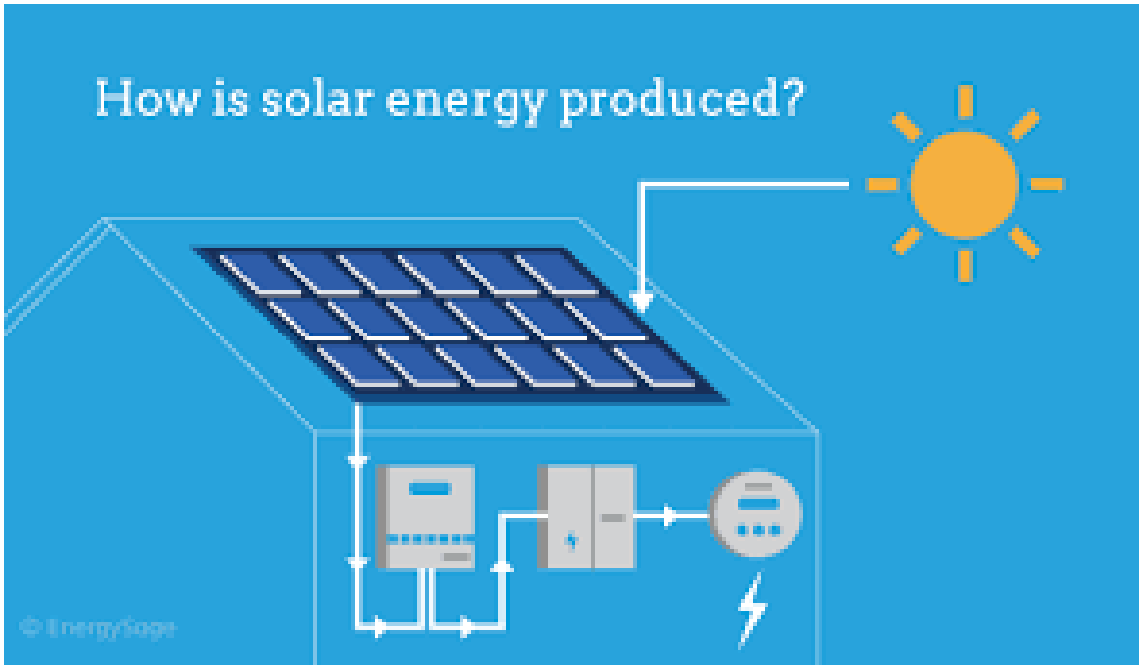
Solar power is usable energy generated from the sun in the form of electric or thermal energy.

Solar energy is captured in a variety of ways, the most common of which is with photovoltaic solar panels that convert the sun’s rays into usable electricity. Aside from using photovoltaics to generate electricity, solar energy is commonly used in thermal applications to heat indoor spaces or fluids. Residential and commercial property owners can install solar hot water systems and design their buildings with passive solar heating in mind to fully take advantage of the sun's energy with solar technology.



Sun is the primary source of energy. Sunlight is a clean, renewable source of energy. It is a sustainable resource, meaning it doesn't run out, but can be maintained because the sun shinesalmost every day. Coal or gas are not sustainable or renewable: once they are gone, there is none left. More and more people are wanting to use clean, renewable energy such as solar, wind, geothermal steam and others. It is called 'Green Power' . It lights our houses by day, dries our clothes and agricultural produce, keeps us warm and lots more. Its potential is however much larger

how can we use the solar energy :



Solar technologies can harness this energy for a variety of uses, including generating electricity, providing light or a comfortable interior environment, and heating water for domestic, commercial, or industrial use

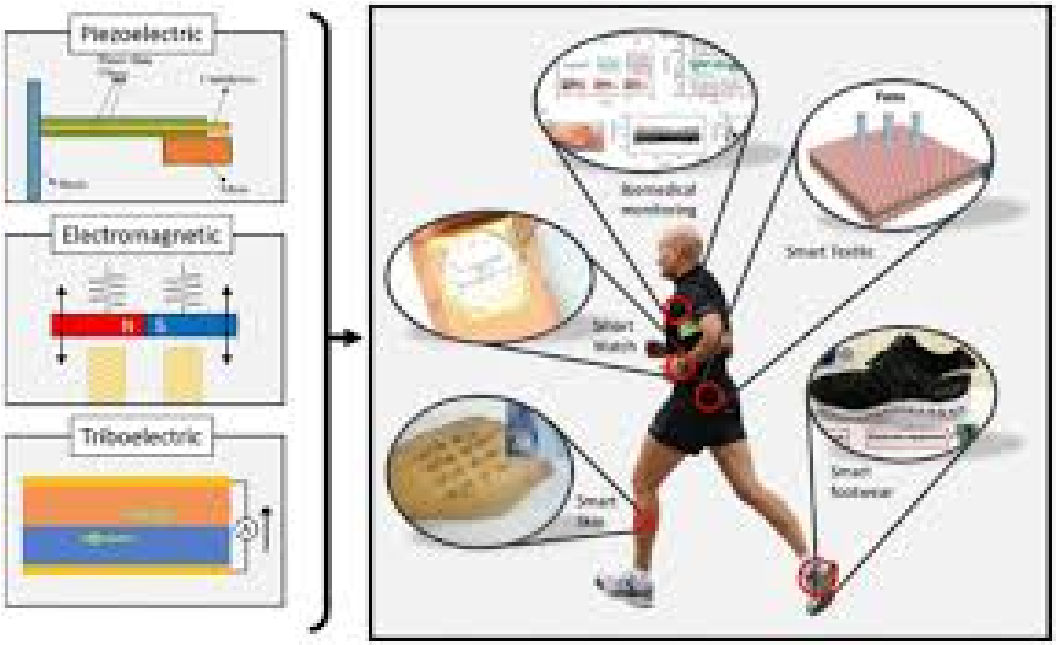
Advantages
It is a perennial, natural source and free
It is available in plenty
It is non-polluting
It does not emit any green house gases.
Solar energy offers decentralization in most (sunny) locations, meaning self-reliant societies.
One of the biggest advantages of solar energy is the ability to avoid the politics and price volatility that is increasingly characterizing fossil fuel markets.
It doesn’t result in the destruction of forests and eco-systems that occurs with most fossil fuel operations.

Disadvantages
Dependent on change in seasons / weather – hence they may not be used always
Requires high initial investments for productive use
Solar systems doesn’t work at night directly but the battery bank, which stores energy during day-time can be used during night.
Solar electricity storage technology has not reached its potential yet.
Solar panels are bulky. This is particularly true of the higher-efficiency, traditional silicon crystalline wafer solar modules.

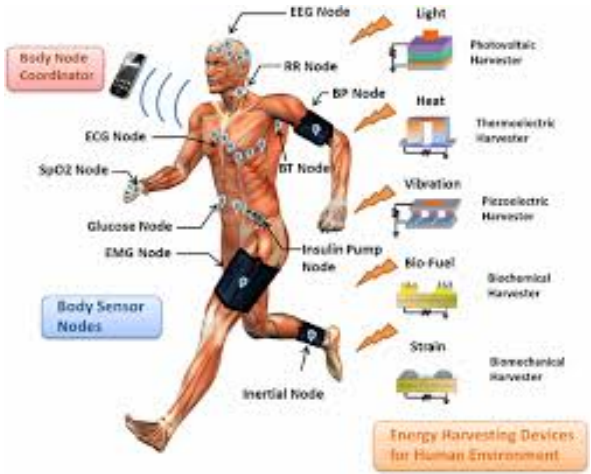
how to get energy from humans activities :

Human power used to be all the rage. 150 years ago, products that relied on human energy such as the bicycle, pedal-powered The bicycle is a great way of using human power
in a way that allows us to exercise, transport ourselves and save on the consumption of conventional energy at same time. If, for example, we can design bicycles to become more entertaining for people to use, they could encourage more people to adopt human power in this way. For example, London-based company Electric Pedals is using the pedal-powered technology to generate electricity for events such as outdoor cinemas, educational workshops and music stages.

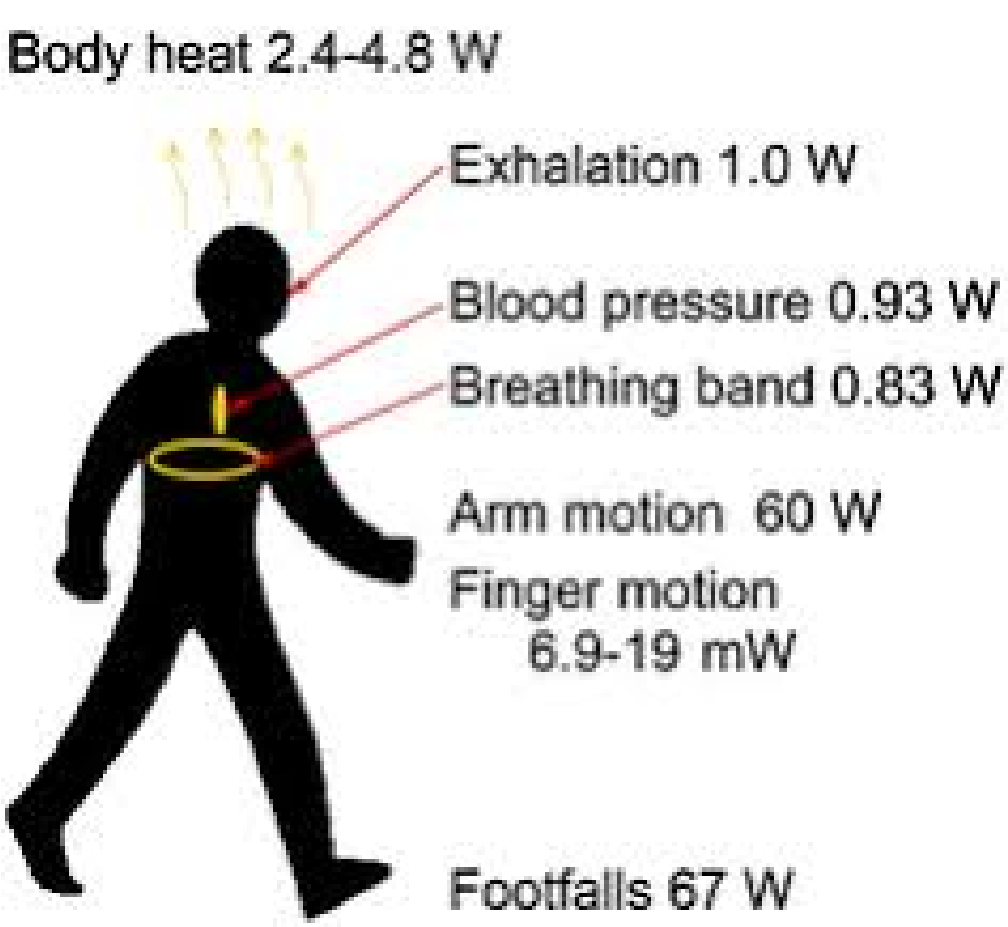
humans harvesting :



Human harvesting
Generating power from people's normal activities such as walking is known as parasitic harvesting. One example of this in action is the nPowerPEG, a handheld tube-shaped device that clips to your belt and backpack and generates electricity as you move around, using a magnet weight, spring, and inductive coil. This doesn't produce enough power for high wattage electronics such as laptops and tablet computers, but better energy efficiency and battery technologies mean the concept has great potential.



Human body harvest energy in two ways i,e, mechanical energy and thermal energy. Mechanical energy is of two kinds one is static energy and the other one is kinetic energy. Due to motion or displacement or enforcement excitation the kinetic energy is extracted. The electric charges which remains imbalance on the surface or within a material is static energy. Thermal energy is extracted from the dissipation of heat from human body. Human body parts and organs generate energy through two types of activities are voluntary and involuntary. The energy which are produced by voluntary activities are high as people intentionally does work by body motion, walk, run. The generated energy by involuntary organs like heart, breathing, artery are smaller compare to voluntary energy harvesting. One process of energy harvesting is by use of micro electromagnetic generator, flexible and stretchable piezoelectric, triboelectric, electromagnetic induction, PVDF cantilever mounting on human body. The harvester prototype is cylindrical magnet L40xD10 mm size which is mounted on human hand for energy harvesting. While in movement of hand the produced wave forms by magnetic generator are measured and recorded for calculation. Analyzing the received data it has been found that the generated power by micro electromagnetic vibration generator from movement of human hand are 319 RMS μW and 2.48 RMS mV with a frequency of 0.25 Hz and power density of about 2.48μW/cm.



advantage :

Pure and eco-friendly.

disadvantages :

The energy produced is insignificant and the means of extracting it are generally not available.

---

source :

weforum.org

seia.org

energy. gov