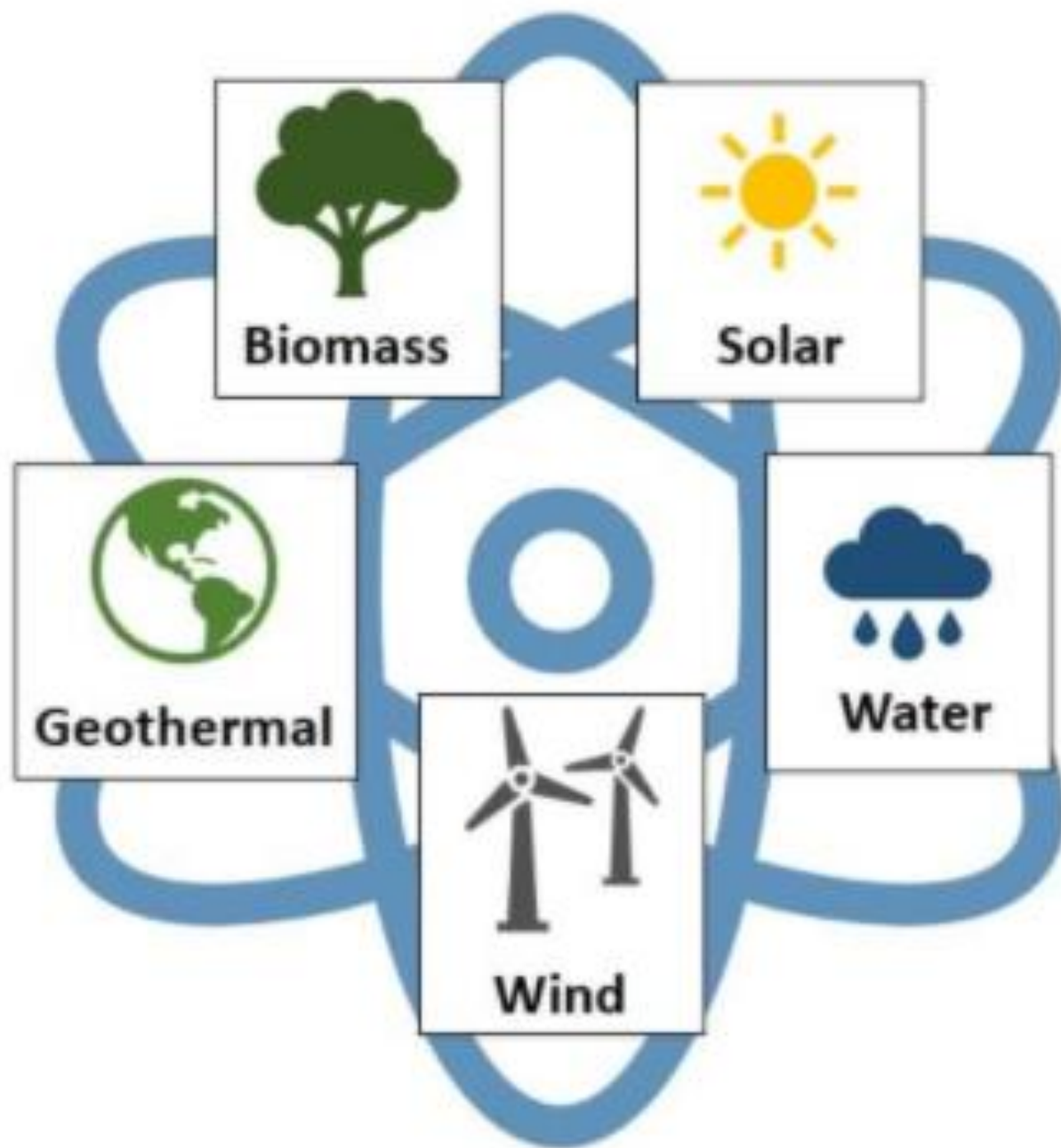


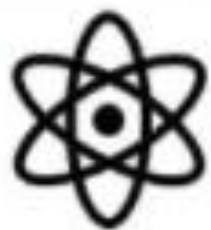
RENEWABLE ENERGY

https://www.teachengineering.org/lessons/view/cub_environ_lesson09

ΑΝΑΝΕΩΣΙΜΕΣ ΠΗΓΕΣ ΕΝΕΡΓΕΙΑΣ

<https://www.youtube.com/watch?v=nHGRcXD5SMM>





Nuclear



Oil



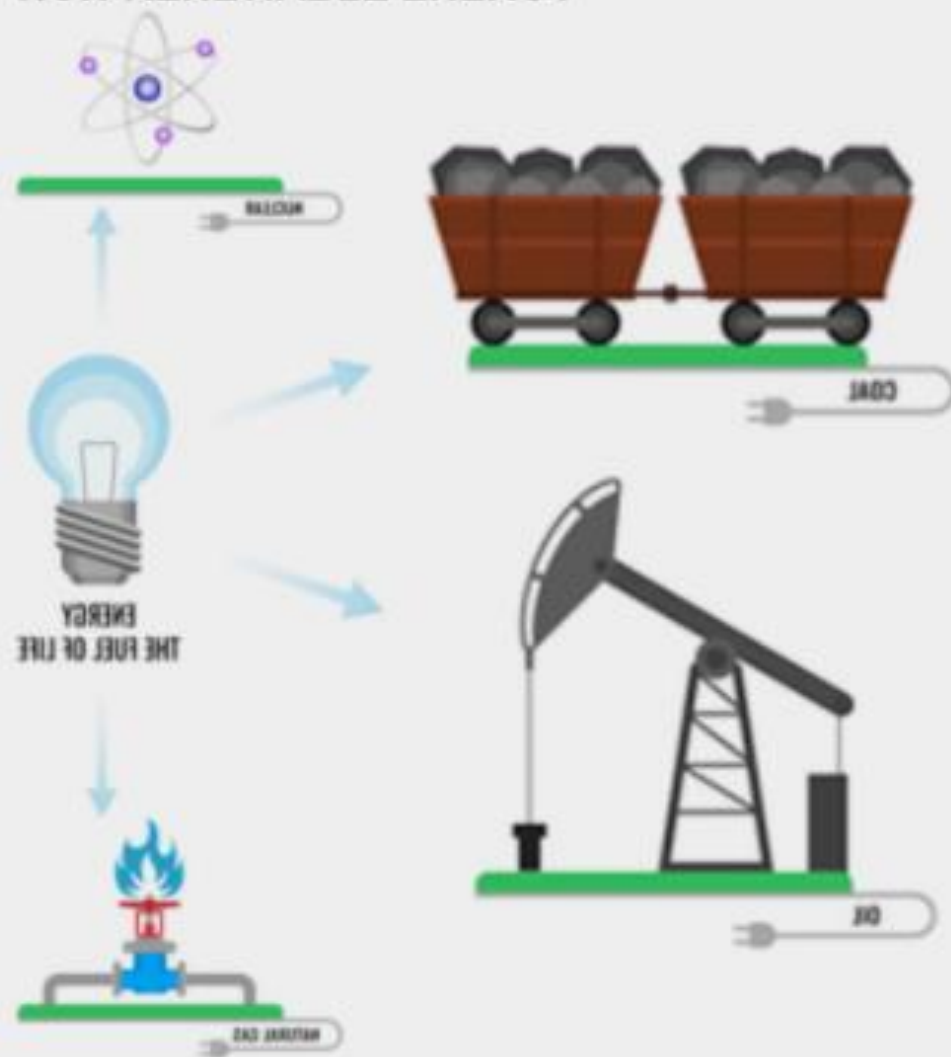
Natural Gas



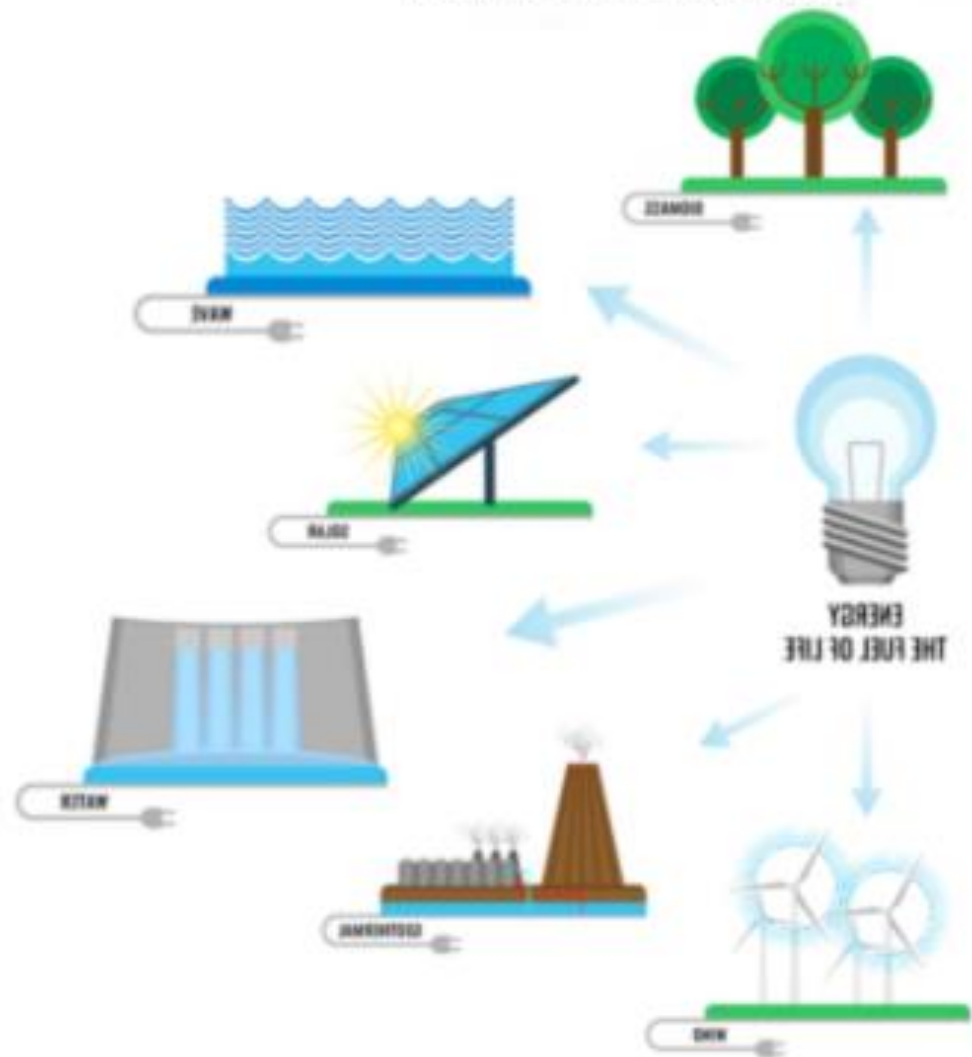
Coal

ENERGY SOURCES

NON-RENEWABLE ENERGY



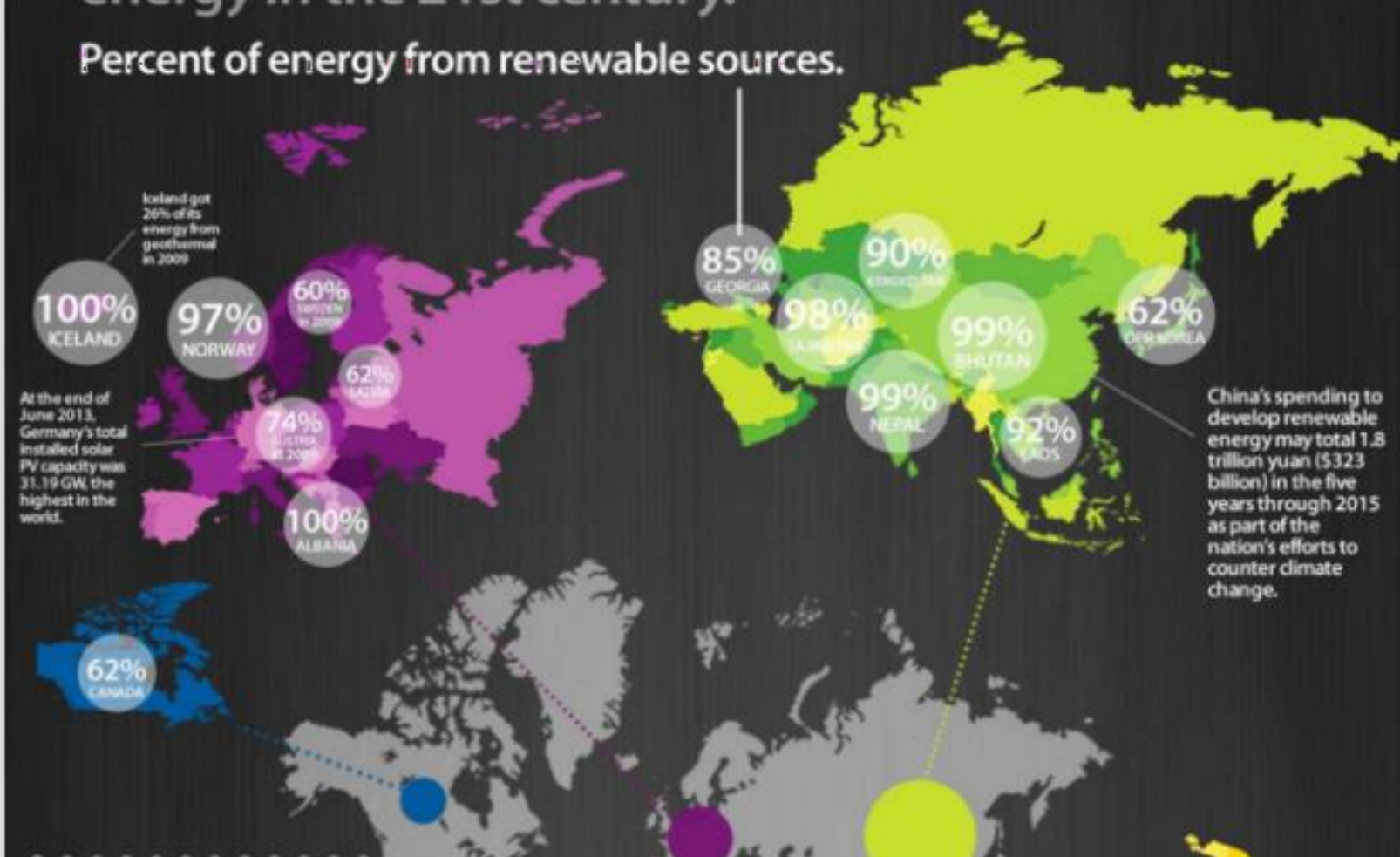
RENEWABLE ENERGY



The End of Fossil Fuels

A look at how the world is shifting to renewable energy in the 21st century.

Percent of energy from renewable sources.



Generation Energy Types INFOGRAPHICS



BIOFUELS



Bio-Alcohol

Most commonly ethanol, can also commonly produced and consumed, are produced by the action of microorganisms and enzymes through the fermentation of sugars or starches or cellulose.



Biodiesel

Biodiesel is a vegetable oil or animal fat based diesel fuel consisting of long chain alkyl carboxylates, which are alcohol esters. Biodiesel is typically made by chemically reacting fatty acids with an alcohol producing fatty acid esters.



Vegetable Oil

Though unsaturated fatty molecules, it is generally not used as fuel, but, increasingly it is used and has been used for the purpose. Used vegetable oil is a promising being processed into biodiesel, or green diesel, chemical of ester and particularly used as a fuel.



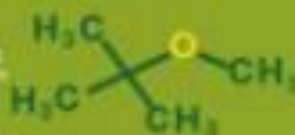
Green Diesel

It is produced by hydrogenating vegetable oil and animal fats. Hydrocracking is a refinery method that uses high temperatures and pressures with a catalyst to break down large molecules into smaller hydrocarbon chains used to drive engines.



Bioethers

Also referred to as fuel ethers or hydrogenated fuels, are non-oxidative compounds that act as active fueling substances. They also drive an engine performance while significantly reducing engine wear and toxic exhaust emissions. Finally, reducing the amount of ground level ozone they contribute to air quality.



Biogas

It is a gas produced by the anaerobic or anaerobic digestion of organic material. In anaerobiosis it can be produced either from hydrocarbons or from methane, or by the use of organic waste for anaerobic digestion to supplement gas yields. The solid byproducts, digester, can be used as a soil and a fertilizer.



Syngas

It is a mixture of carbon monoxide, hydrogen and other hydrocarbons, produced by partial combustion of biomass, that is, biomass with an amount of oxygen that is not sufficient to convert the biomass completely to carbon dioxide and water. The resulting gas mixture, syngas, is more efficient than direct combustion of the original biomass. Much of the energy contained in the fuel is extracted.

The main reaction that produces syngas, often referred to as water-gas, with 2300 kJ/mol methane needed for conversion. The first reaction, between steam and biomass and water, is strongly endothermic, producing carbon monoxide and hydrogen. When the coke bed has cooled to a temperature at which the endothermic reaction can no longer proceed, the steam is then removed by a stream of air.





Medicine

Most over the counter

Cosmetics

Makeup and shampoo

Plastics

Almost all plastics are

**Synthetic
Rubber**

**Cleaning
Products**

Asphalt

There are over 11

10 Ways YOU Can Help the EARTH

1.  Turn off the lights

6.  Plant a tree

2.  RECYCLE!

7.  Use both sides of the paper

3.  Save leftovers

8.  Save water

4.  Be nice to the worms

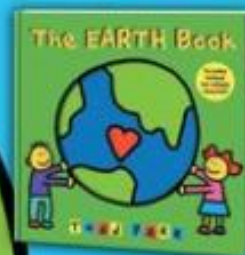
9.  Clean up trash

5.  Share a book

10.  Put underwear in the freezer when it's hot



Share your love of the EARTH with New York Times bestselling author Todd Parr's

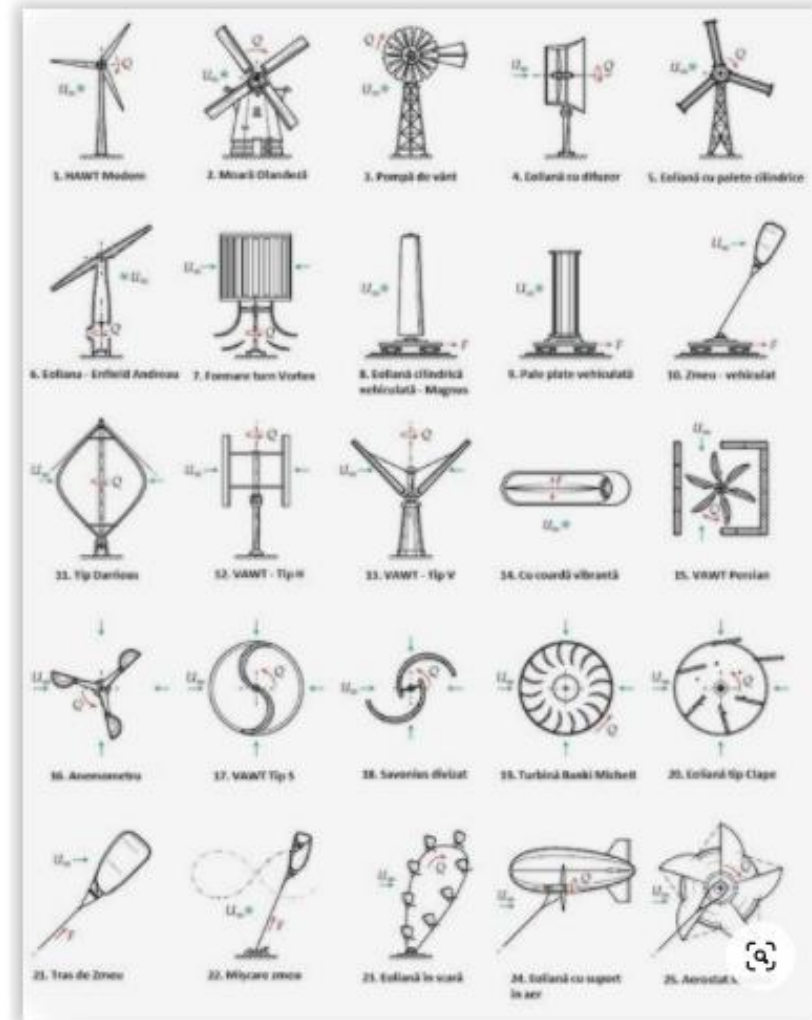








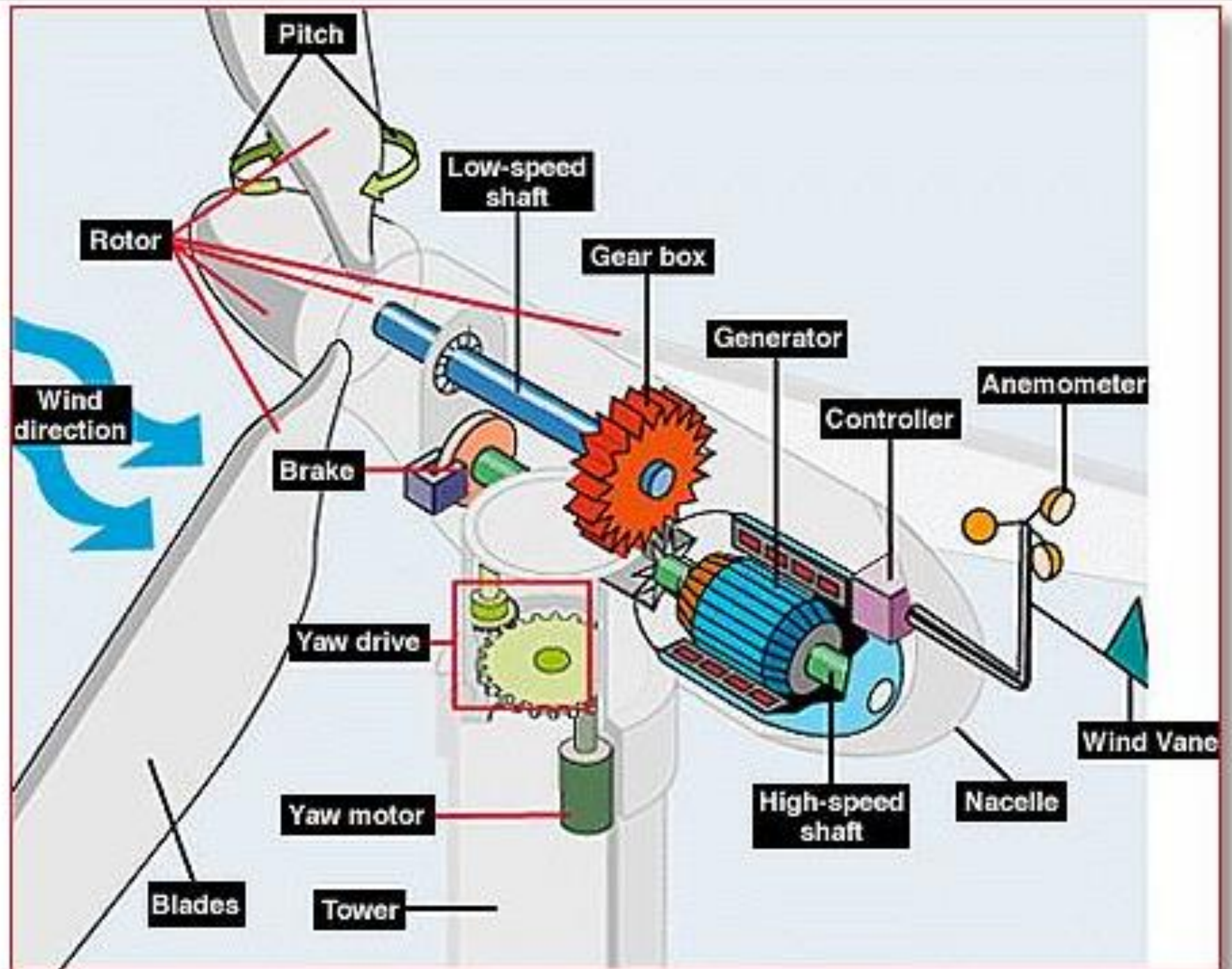
If you can turn a wrench and operate an electric drill, you can build this simple generator in two days.
Photo by Robert D. Copeland



https://www.ducksters.com/science/environment/wind_power.php

LET'S HAVE A QUIZ

https://www.ducksters.com/science/quiz/wind_power_questions.php





NAI – ΑΛΛΑ ΜΕ ΜΕΤΡΟ

Environmental Issues

[Land Pollution](#)

[Air Pollution](#)

[Water Pollution](#)

[Ozone Layer](#)

[Recycling](#)

[Global Warming](#)

Renewable Energy Sources

[Renewable Energy](#)

[Biomass Energy](#)

[Geothermal Energy](#)

[Hydropower](#)

[Solar Power](#)

[Wave and Tidal Energy](#)

[Wind Power](#)

https://www.ducksters.com/science/environment/wind_power.php





RESOURCE LIBRARY | ENCYCLOPEDIA ENTRY

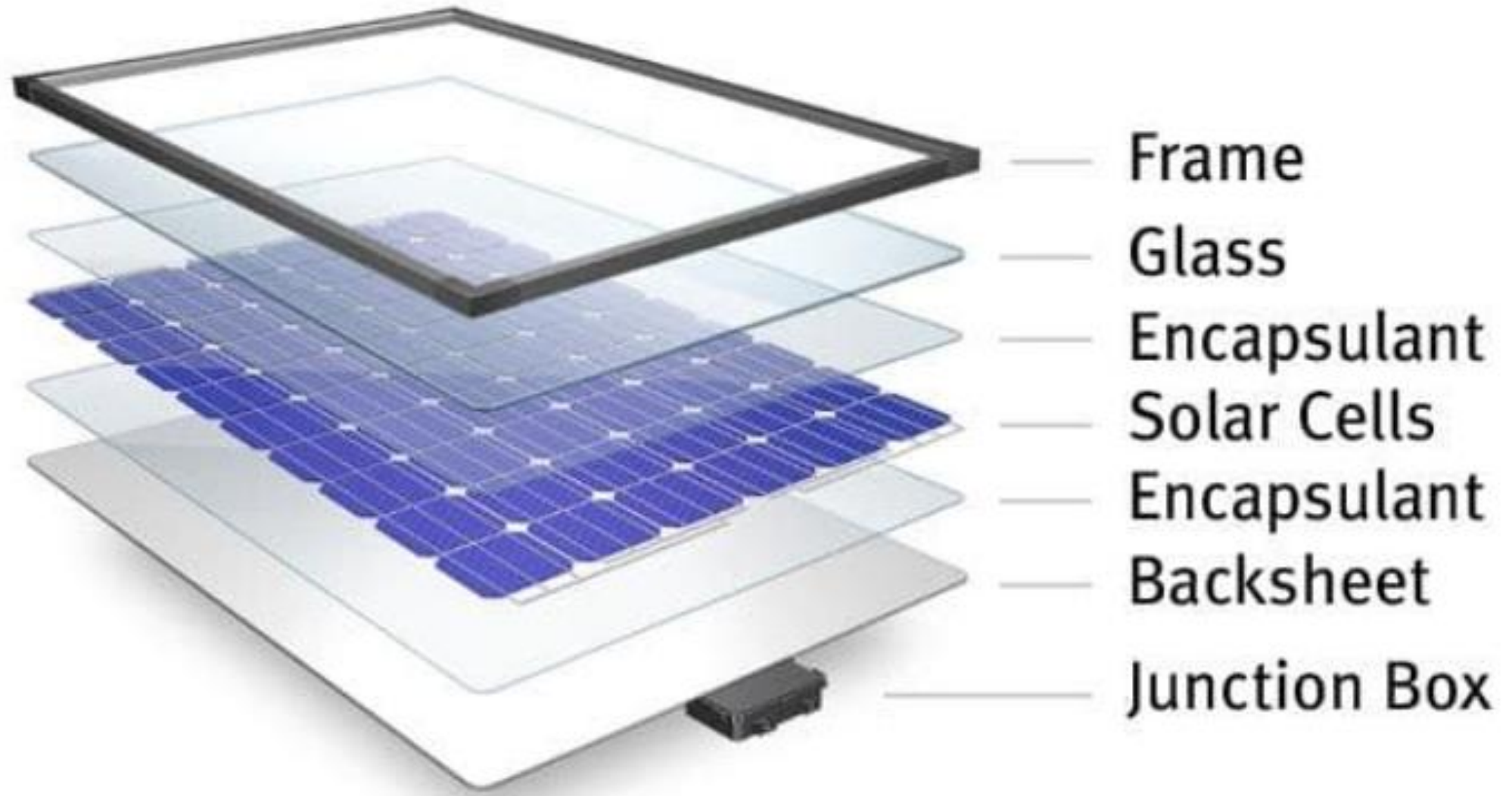
Solar energy



Solar energy is created by nuclear fusion that takes place in the sun. It is necessary for life on Earth, and can be harvested for human uses such as electricity.

<https://www.nationalgeographic.org/encyclopedia/solar-energy/>

Ένα συμβατικό ηλιακό πάνελ αποτελείται από ένα στρώμα κυψελών πυριτίου, ένα μεταλλικό πλαίσιο, ένα γυάλινο περίβλημα και διάφορες καλωδιώσεις που επιτρέπουν τη ροή ρεύματος από τα κύτταρα πυριτίου.



Frame

Glass

Encapsulant

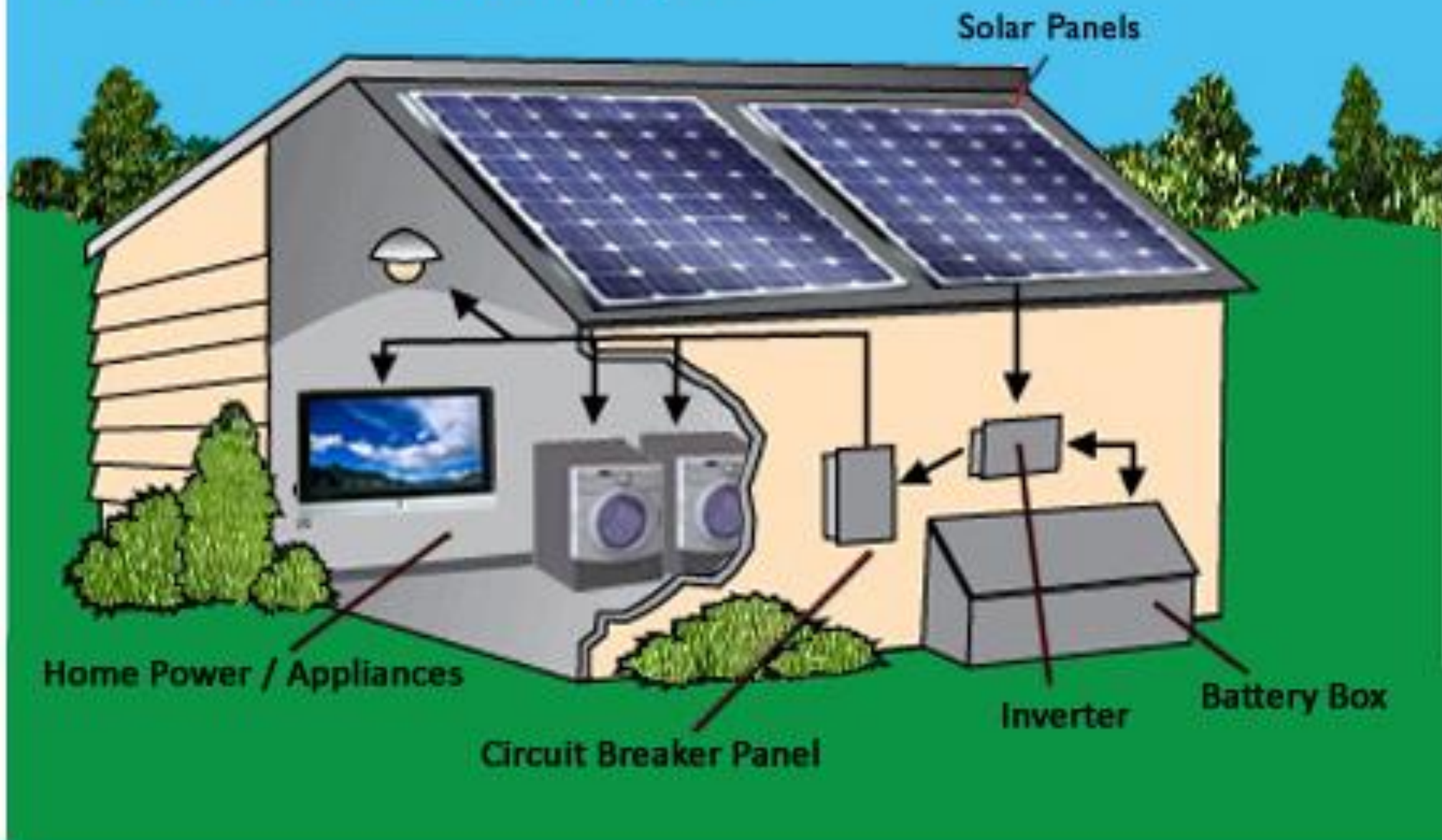
Solar Cells

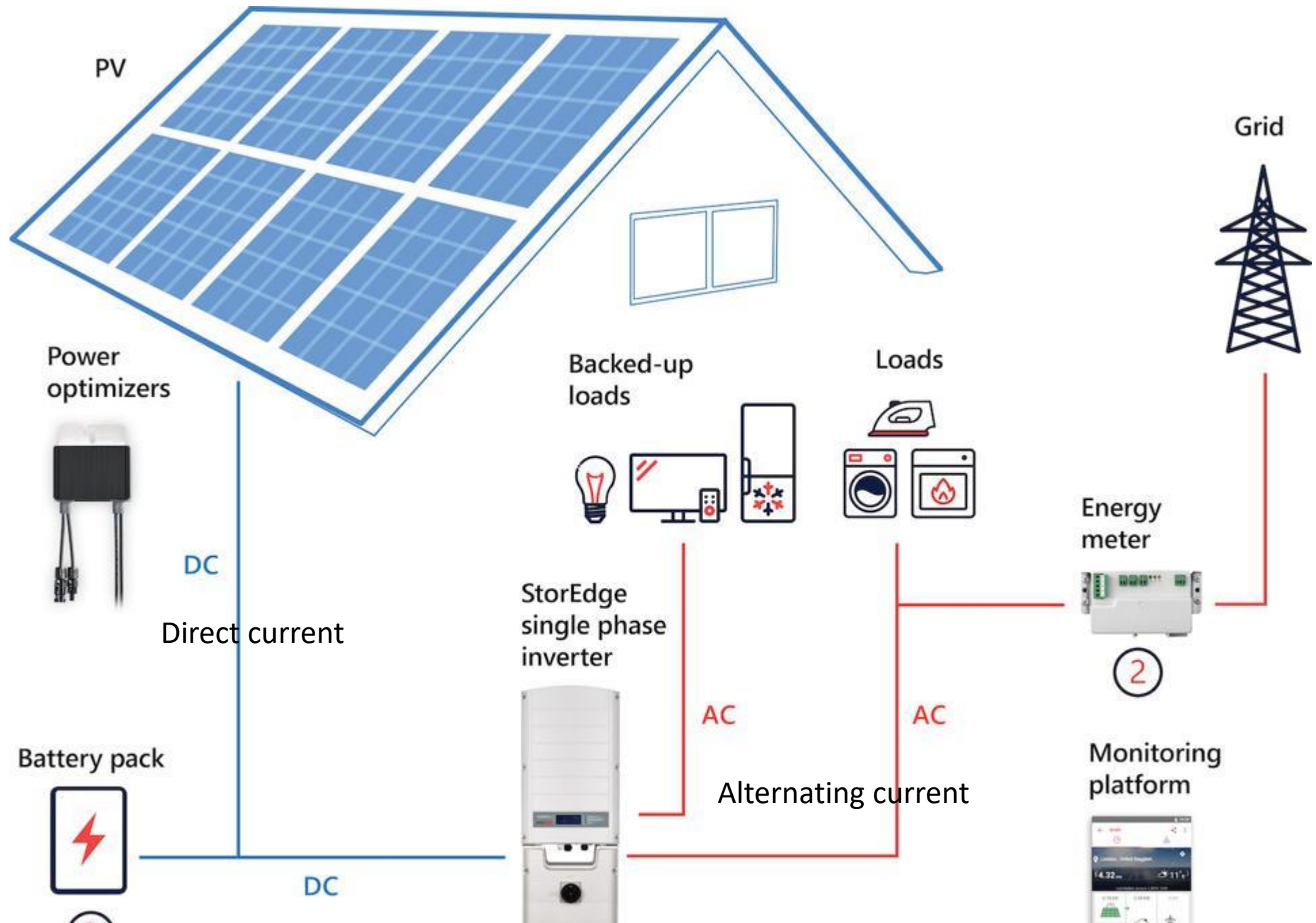
Encapsulant

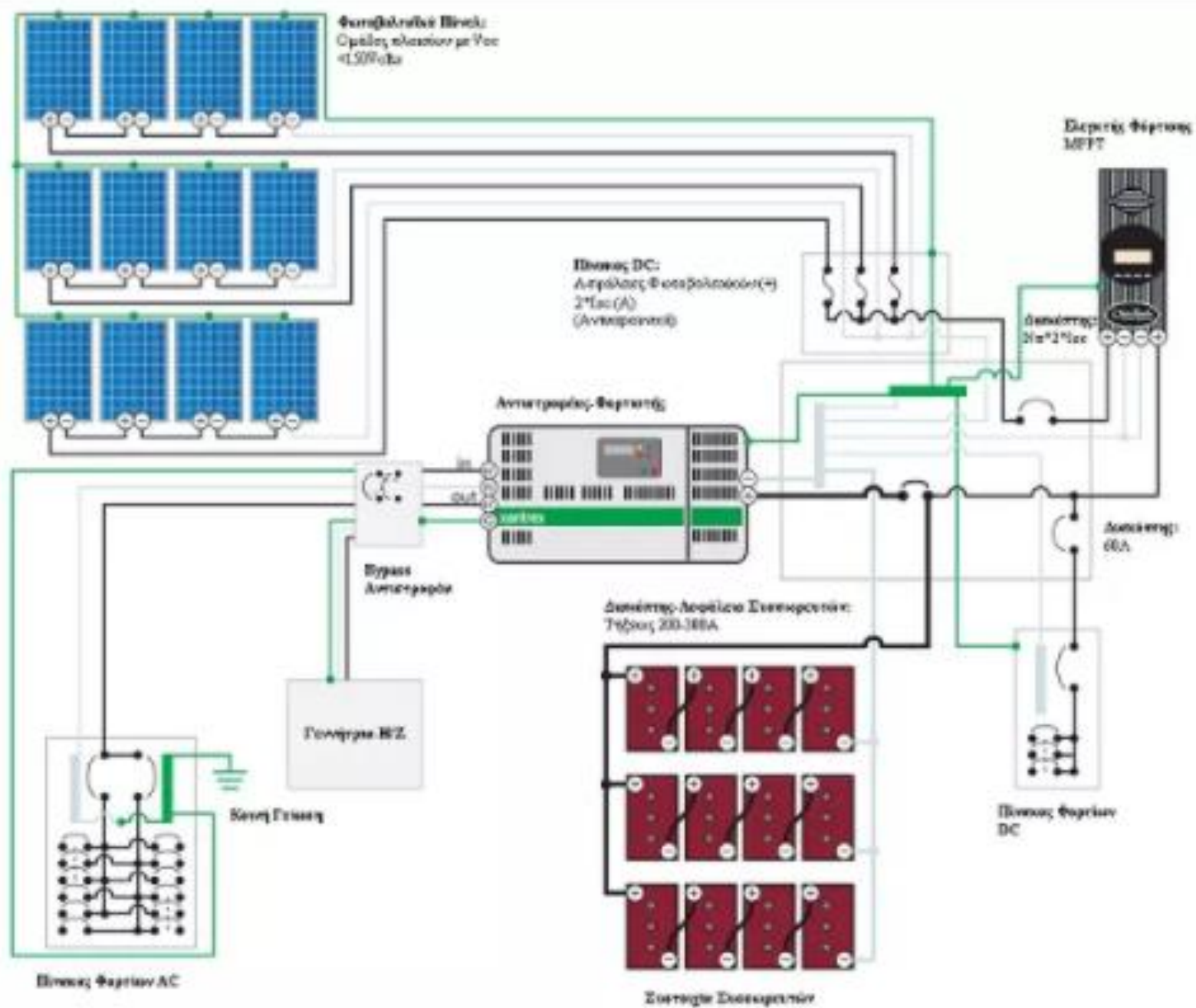
Backsheet

Junction Box

Off-Grid Residential Solar PV System



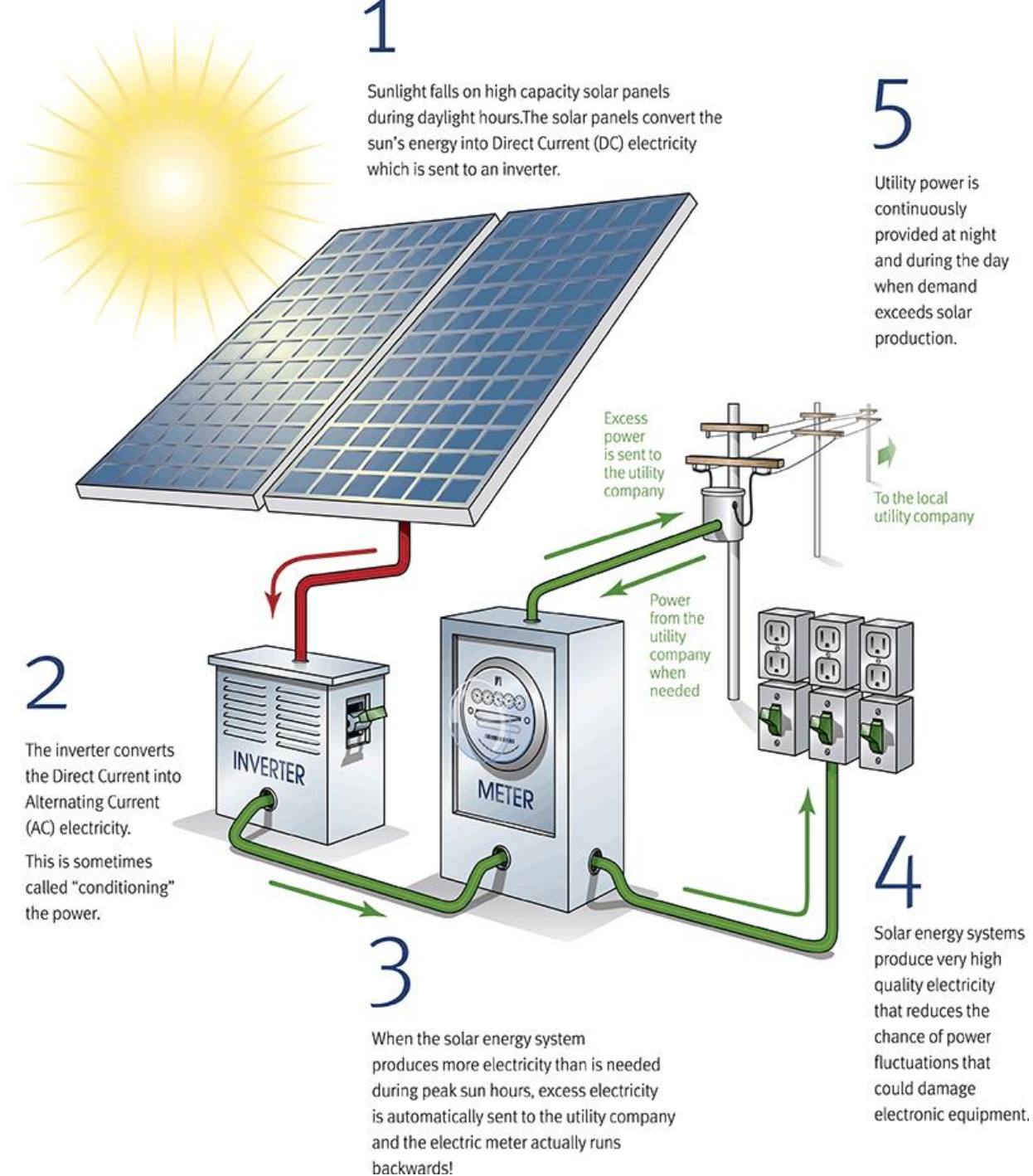






<https://supergreensolutions.com.au/faq/solar-power/how-does-solar-power-work/>







	Ισχύς (Watt)	Ταυτόχρονα φορτία	Χρόνος (hr/day)	Ενέργεια (Wh/day)
Φωτισμός (5 λάμπες οικονομίας)	50	ΝΑΙ	4	200
Φούρνος Μικροκυμάτων	400	ΟΧΙ	0,2	80
Τηλεόραση (μικρή)	100	ΝΑΙ	2	200
Ψυγείο (μεσαίο A+)	200	ΝΑΙ	24 (διακοπτόμενα)	800
Πλυντήριο ρούχων (40°C)	2000	ΟΧΙ	0,5	1000
Κλιματιστικό 9000btu/h (inverter)	1000	ΝΑΙ	1	1000
Διάφορα (PC, <u>μικερ</u> κλπ.)	200	ΝΑΙ	2	400
Σύνολα	3950Watt	1550Watt		3680Wh

Ισχύς <u>Φωτοβολταϊκού</u> (kWp)	Τάση Συσσωρευτών (Volt)
0-0,5	12
0,5-3	24
3-10	48
>10	>48

Ημέρες Αυτονομίας	Βάθος <u>Εκφόρτισης</u>
1-3	0,4
4-6	0,6
7-10	0,8