

Projects 3ºCD ESO
les Lancia



It's time for
**SOURCES OF
ENERGY**

ENERGY SOURCES



WHAT IS ENERGY?

ENERGY IS THE POWER WE USE TO MAKE THINGS WORK. IT COMES FROM DIFFERENT SOURCES.

PRIMARY SOURCES

Primary energy sources are directly harvested from nature. Primary sources include fossil fuels, uranium, and renewable options that can be harnessed directly from nature.

- Oil
- Coal
- Natural Gas
- Solar Energy
- Wind Energy
- Hydropower
- Biomass
- Geothermal
- Uranium (Nuclear)

SECONDARY SOURCES

Secondary energy sources are processed forms of primary energy, like electricity, facilitating energy consumption in various sectors.

- Electricity (produced from oil, wind, etc.)
- Gasoline (made from oil)
- Hydrogen
- Heat

RENEWABLE ENERGY

Renewable sources, including solar and wind, can naturally replenish, offering a sustainable alternative for the future.

- Solar energy
- Wind energy
- Hydropower
- Biomass
- Wave & Tidal Energy

NON-RENEWABLE ENERGY

Sources like oil and natural gas are finite, taking millions of years to form, leading to unsustainable consumption.

- Oil
- Coal
- Natural Gas
- Nuclear Energy

WHY USE RENEWABLE ENERGY?

- Helps fight climate change 🌍
- Keeps the air and water clean 💧 Will never run out ♻️
- ✓ Good for the environment
- ✓ Clean and unlimited

Non-Renewable Energy

- ✗ Can pollute the planet
- ✗ Limited resources



RENEWABLE

Are from sources that cannot be used up:

- Can be replenished.
- Have a low environmental impact .
- Are expensive.

Wind and solar energy are great examples.



NON-RENEWABLE

Natural resources exist only in limited quantities:

- Can't be replenished.
- Oil and natural gas are the most common.

ENERGY SOURCES

ARE NATURAL RESOURCES PEOPLE USE TO
OBTAIN THE ENERGY THEY NEED TO DO
NORMAL ACTIVITIES.

PRIMARY

Is obtained directly from nature.
Like uranium or renewable
energy.

SECONDARY

Is obtained from primary energy.
Like electricity and fuels derived
from oil (gasoline)



By: Marina Solís, 3°C



Energy Sources

RENEWABLE ENERGY

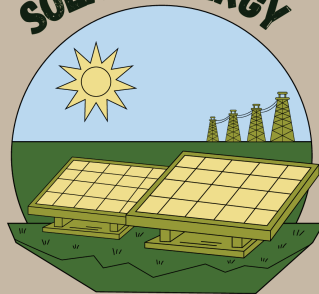
It can be replenished naturally.
it is sustainable and helps protect the environment.

WIND ENERGY

It's like a big fan
that creates
electricity when it
spins.



SOLAR ENERGY

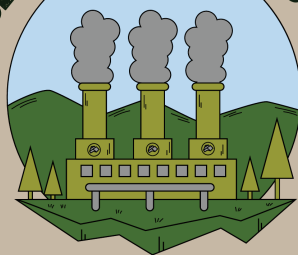


It's using the sun's
power!

HYDROPOWER

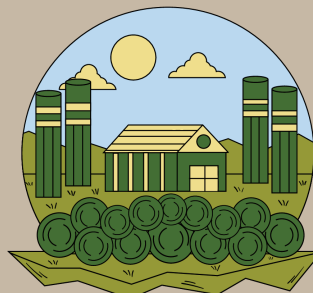


GEOTHERMAL ENERGY



It's using Earth's own
heat!

BIOMASS



It's using the power of
nature's leftovers!

NON-RENEWABLE ENERGY

Sources that cannot be easily replenished. It is limited and causes pollution.

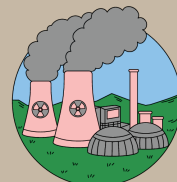


Coal: A black rock burned for energy.

Oil: Liquid fossil fuel used for energy.

Natural Gas: Gas used for heating and electricity.

Nuclear Energy: Energy from splitting atoms.



HYDROELECTRIC POWER



BIOMASS ENERGY



GEO THERMAL ENERGY



TIDAL ENERGY



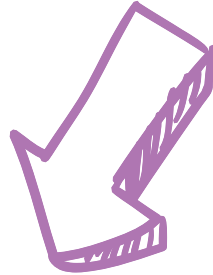
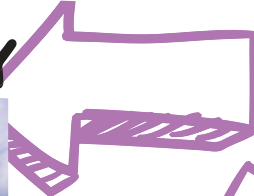
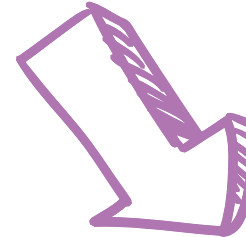
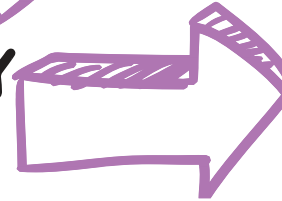
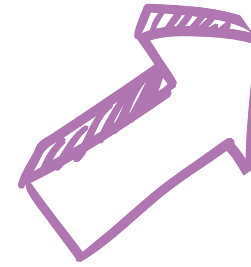
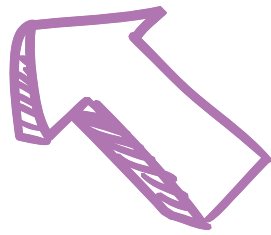
WIND ENERGY



SOLAR ENERGY



RENEWABLE ENERGY SOURCES



SOLAR ENERGY



ORIGIN

It is obtained by capturing the Sun's heat (solar thermal energy) or the Sun's light (solar photovoltaic energy) through solar panels and concentrators.

ADVANTAGES

- It is an inexhaustible source of energy
- It is a clean energy
- it is totally silent
- It is an accesible energy
- It doesn't harm the environment



DISADVANTAGES

- High initial cost
- Weather dependent
- Energy storage is expensive
- Space requirements
- Efficiency limitations
- Manufacturing and disposal impact
- Grid dependence for some users
- Installation challenges

SOLAR ENERGY

TYPE

The solar energy is a renewable energy source. It means that it cannot be used up.

ORIGIN

Solar energy is obtained by **capturing the Sun's heat** (solar thermal energy) or the **Sun's light** (solar photovoltaic energy) through **solar panels and concentrators**

FEATURES

Solar panels are installed in places where they can receive the **maximum amount of sunlight**: rooftops, open fields...

ADVANTAGES

Renewable: It never runs out as long as there is sun

Economical: You save money in the long run

Eco-friendly: It doesn't pollute or produce harmful gases

DISADVANTAGES

Weather-dependent: It doesn't work well on cloudy days or at night

High initial cost: Installing it is expensive

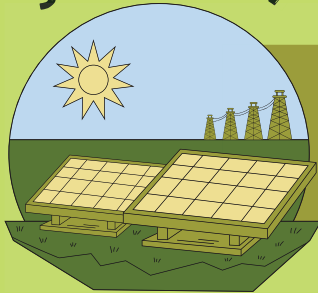
Space requirement: Large areas are needed for the panels

LARGEST PRODUCERS

The largest producers of electricity from solar energy are **China, the USA and Japan**

RENEWABLE ENERGY

SOLAR ENERGY



It is the energy obtained from the sun's light (photovoltaic energy) or the sun's heat (thermal energy).

WIND ENERGY



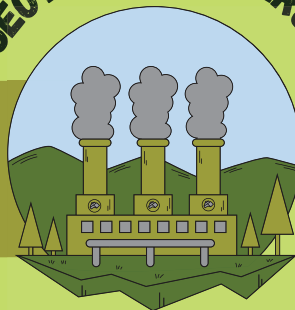
It is the energy obtained from the wind, generated by wind turbines.

TIDAL ENERGY



This type of energy is produced by the rise and fall of strong tides.

GEO THERMAL ENERGY



This type of energy is obtained by harnessing the earth's internal heat.

BIOMASS



It is the energy obtained by materials that come from living organisms, such as plants and animals.

WIND ENERGY



an renewable enrgy

It comes from the wind.

- Is so cheap
- Efient use of the space

Turbines are used to convert the kinetic energy of the wind into electrical energy.

It reduces greenhouse gas emissions and dependence on fossil fuels.



Wind energy

Wind energy is a type of renewable energy that comes from the wind. It is captured using wind turbines, which are tall machines with large blades. When the wind blows, it makes the blades spin, and this movement is turned into electricity by a generator inside the turbine.

Wind energy is clean and does not pollute the air. It is used in many places, both on land and in the ocean, to produce electricity for homes and businesses. However, it only works well in areas with enough wind.

Characteristics

- Renewable: It comes from the wind, which never runs out.
- Clean: It does not produce air pollution or greenhouse gases.
- Variable: It depends on wind speed, which can change daily.
- Large Scale & Small Scale: It can be used in big wind farms or small turbines for homes.
- Space Efficient: Wind turbines take up little ground space, allowing land use for farming or other activities.



Advantages

- ✓ Eco-friendly: No pollution or harmful emissions.
- ✓ Renewable & Sustainable: Wind will always be available.
- ✓ Low Operating Costs: Once built, turbines are cheap to maintain.
- ✓ Job Creation: Provides employment in manufacturing, installation, and maintenance.
- ✓ Reduces Dependence on Fossil Fuels: Helps countries use less coal, oil, and gas.



Disadvantages

- ✗ Weather Dependent: If there is no wind, no electricity is produced.
- ✗ High Initial Cost: Building wind farms and turbines is expensive.
- ✗ Noise & Visual Impact: Some people find turbines noisy or unattractive.
- ✗ Wildlife Impact: Birds and bats can collide with turbine blades.
- ✗ Energy Storage Needed: Since wind is unpredictable, extra storage systems may be required.



Wind energy



Type

Origin

Advantages

Disadvantages

Type

Renewable energy

Origin

It comes from the wind of the clouds.

Advantages



Because it's a renewable energy, we can use it infinitely.

Disadvantages



Wind power must compete with other low-cost energy sources.

Ideal wind sites are often in remote locations.

Turbines produce noise and alter visual aesthetic.

TIDAL ENERGY

Renewable
energy

Generate by
the rise and
fall of
strong tides

Endless and
economical

Largest
instalations in:
South Korea,
UK and France

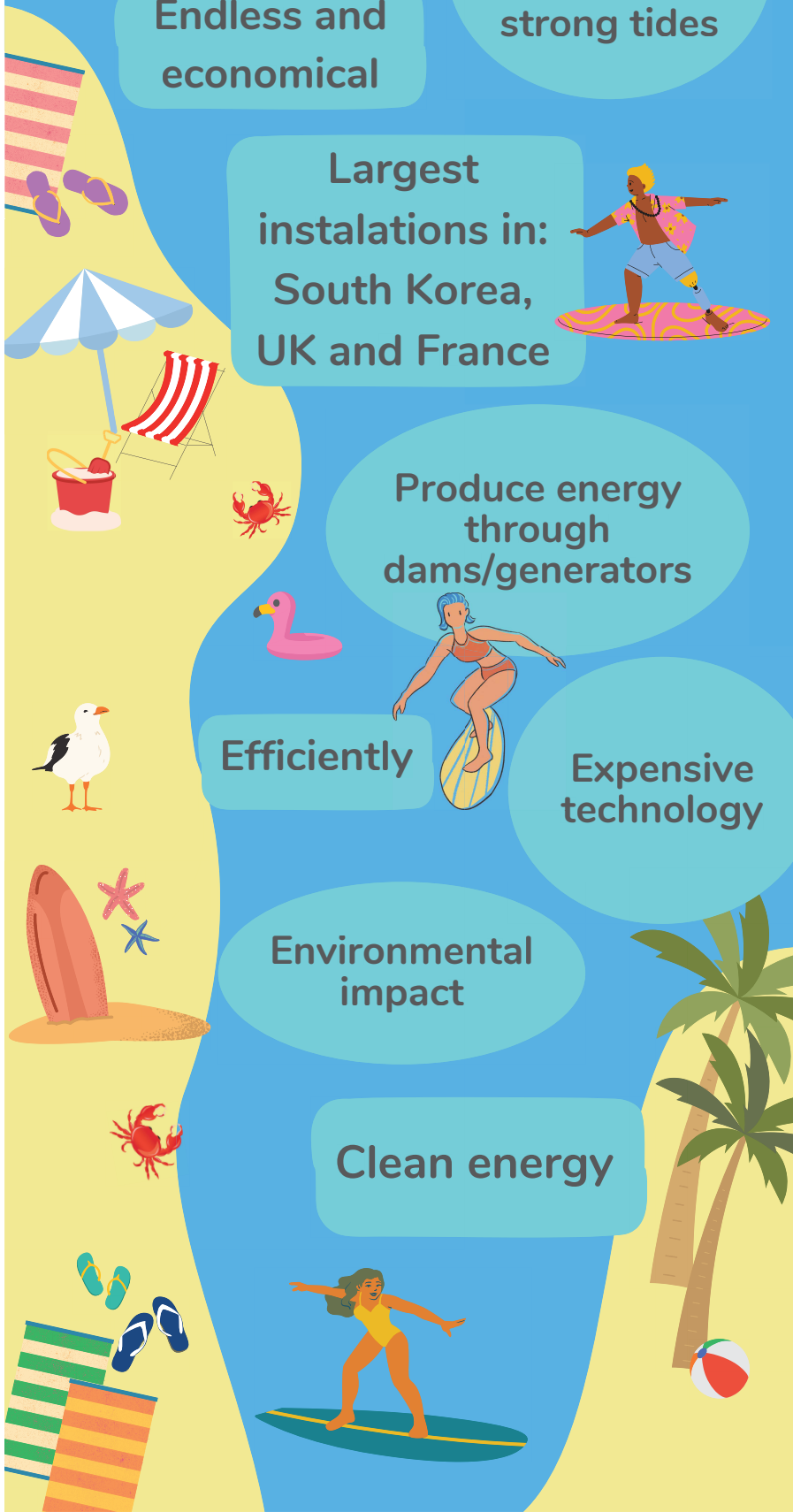
Produce energy
through
dams/generators

Efficiently

Expensive
technology

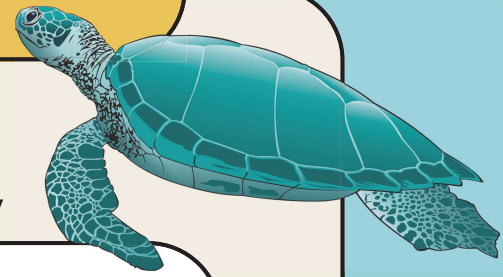
Environmental
impact

Clean energy



WATER ENERGY

by Emma Martín Martínez



Types of water energy

Renewable energy from water includes technologies that use water's power to generate electricity in a clean and sustainable way. Hydropower, wave energy, and tidal energy are some examples, all of which help reduce reliance on fossil fuels and combat climate change by lowering greenhouse gas emissions. These water-based energy sources are renewable and environmentally friendly.

wave energy

Uses the movement of ocean waves to generate energy.



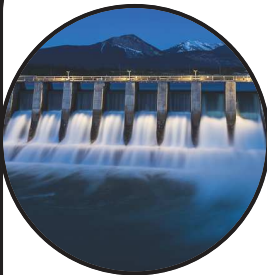
tidial energy

Takes advantage of tidal variations (rising and falling sea levels) to generate power



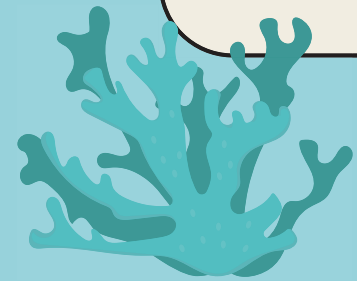
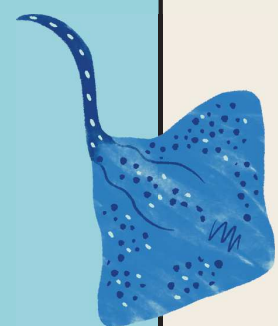
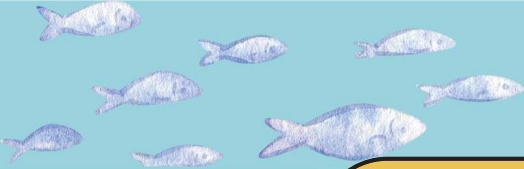
hydropower

Hydropower: It harnesses the flow of water in rivers or reservoirs to move turbines and generate electricity.



ocean energy

Similar to wave energy, but focuses on the movement of surface waves to generate electricity.



Geothermal energy

It's a type of renewable energy obtained from the Earth's heat

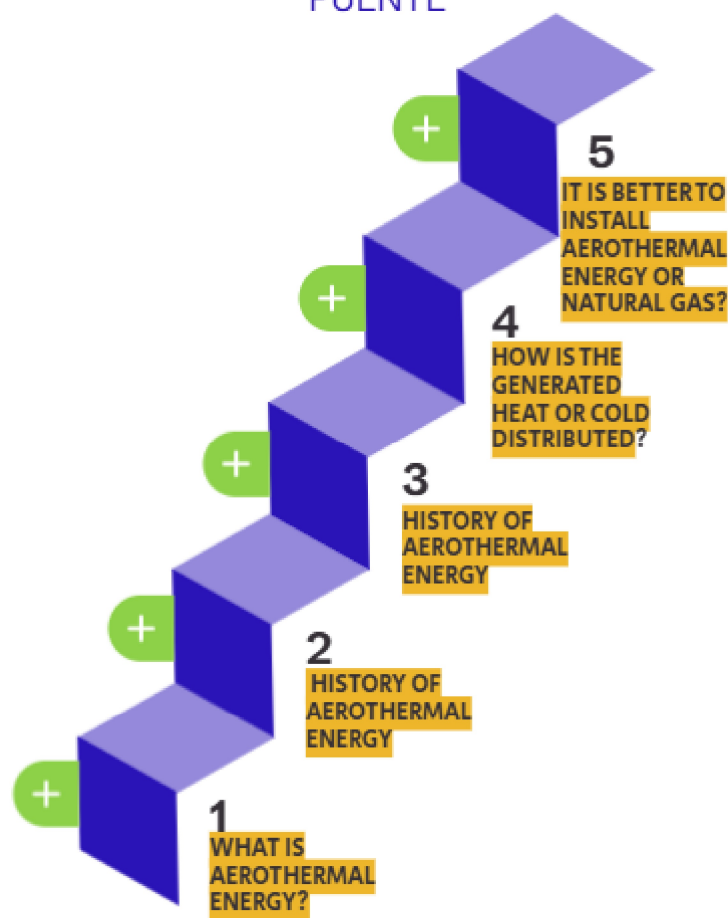
It's extracted from volcanoes or geysers, through an expensive process

It has become more popular in the last century, in places like Iceland or the USA.



INFOGRAPHIC OF THE AEROTHERMAL ENERGY

MADE BY: MARIO RODRÍGUEZ DE LA PUENTE



INTRODUCTION

Aerothermal energy is a renewable energy source that arrived in Europe decades ago. Its use is currently widespread and positioned among the most widely installed systems, even in Spain, making it the leading renewable source.