

## Energy

# Renewable Energy: Infinite Sources of Energy

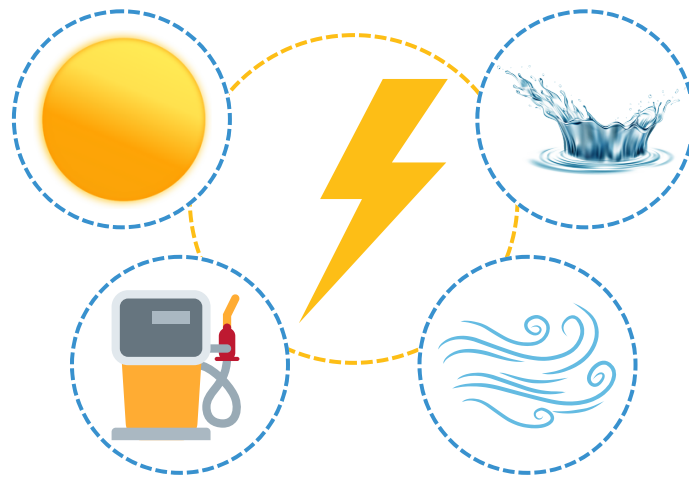
### NCF and/or NCERT Learning Outcomes:

- To learn about various renewable sources of energy.
- To learn why we should adopt renewable energy.

### Why should you learn this?

- Learning this will help us understand various renewable energy sources and their importance. It will also show why increasing our reliance on them is essential for protecting the environment.

Energy is essential for countless daily activities. It comes from various sources around us, such as the Sun, wind, water, petrol, diesel, and more. The sources from which we get this energy are known as sources of energy. Let's learn more about different energy sources!



### Before going ahead answer these questions:

- Why do you think the Government is encouraging and subsidizing the use of electric cars and solar panels?
- Are there any forms of energy that will never run out and are less harmful to the environment? If so, which ones and why are they less harmful?
- Why are solar lights, electric bikes, and cars becoming increasingly popular these days?

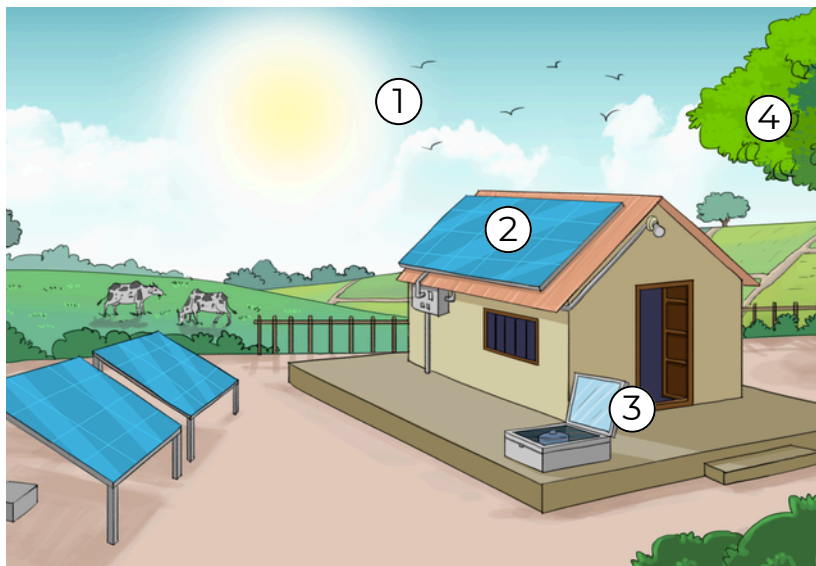
Here, we will learn about energy sources that are abundantly available in nature and provide us with sustainable energy.

## Renewable Energy: Infinite Sources of Energy

### Renewable Energy Resources

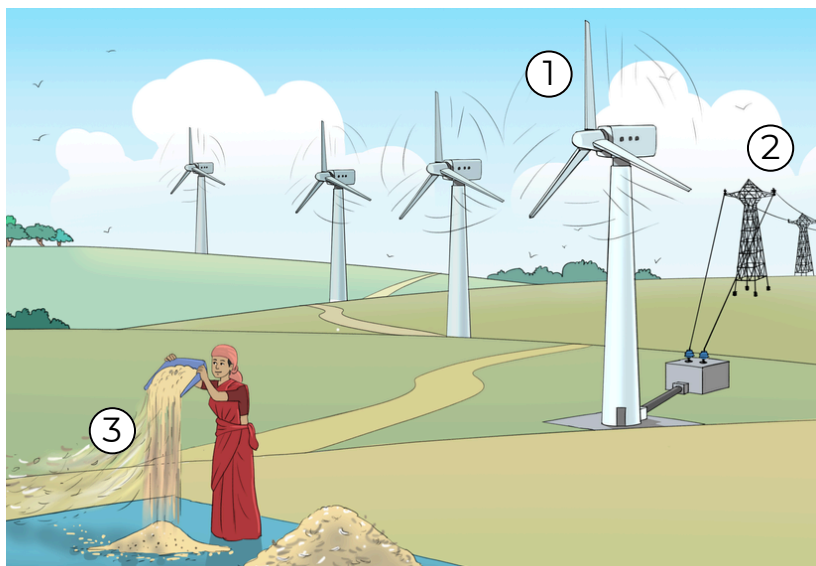
Renewable energy sources are naturally occurring sources of energy that are available in unlimited quantities and are not likely to be depleted by human activities. They are generally less harmful to the environment. Unlike fossil fuels, they do not produce harmful emissions that contribute to air pollution and climate change. By using renewable energy, we can reduce our dependence on non-renewable sources and help to protect the planet for future generations. Below are some of the forms of renewable energy resources.

**Solar Energy:** The Sun's rays bring light and heat energy to Earth, and this energy is known as Solar energy.



- 1 The sun's heat and light make the earth livable.
- 2 Solar panels convert sunlight into electricity.
- 3 Solar cookers cook food using sunlight.
- 4 Plants use solar energy for photosynthesis.

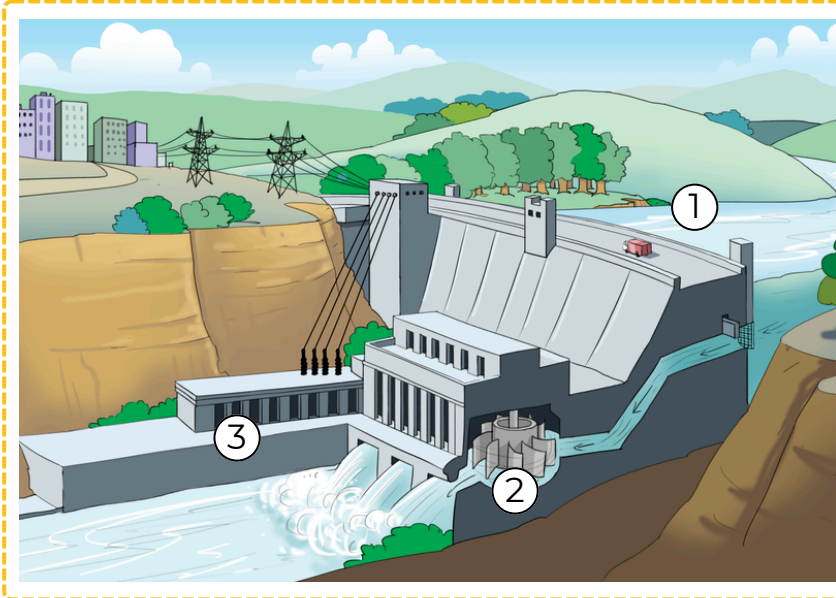
**Wind Energy:** Energy harnessed from the wind is called wind energy.



- 1 Windmills convert wind energy into electricity.
- 2 Electricity flows from powerhouses to settlements.
- 3 Wind energy separates grain from chaff.

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**Hydroelectric Energy:** The energy obtained from the flow of water is called hydropower energy.

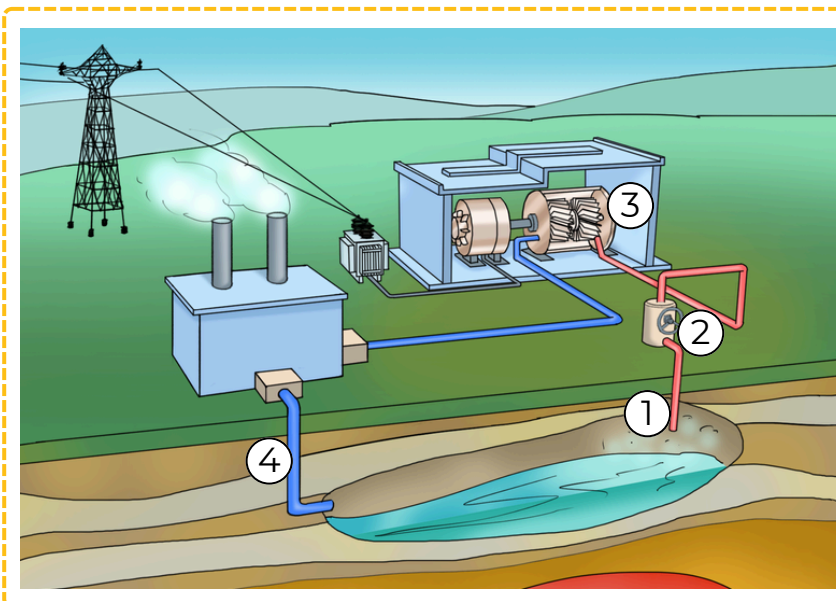


- ① River water collects in a dam.
- ② The water is allowed to fall from a height onto a turbine which rotates, generating electricity.
- ③ A powerhouse transmits the electrical energy to human settlements.



Find out: How is fast-flowing water used to grind grain in hilly areas?

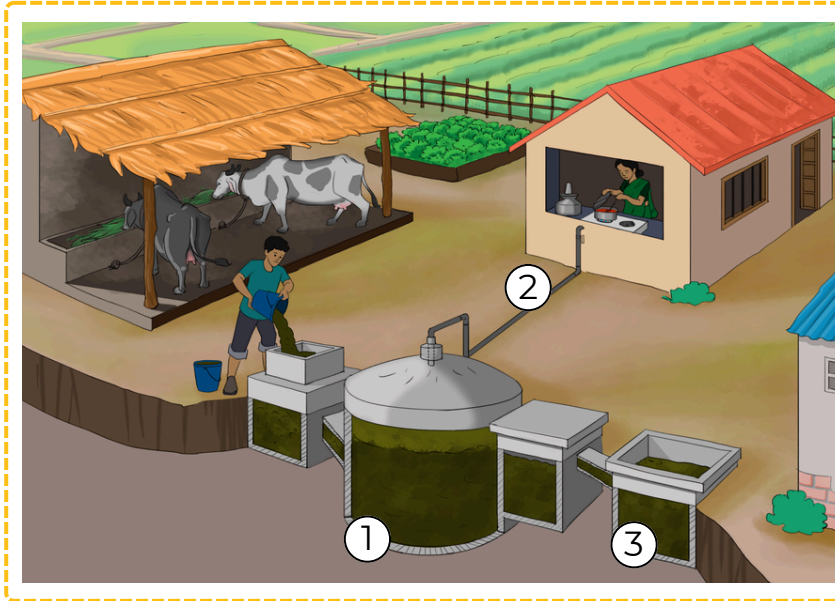
**Geothermal Energy:** A huge amount of heat energy stored beneath the Earth's surface is known as geothermal energy. This heat energy gets converted for different uses.



- ① The heat energy is used to convert water to steam.
- ② The steam moves through pipes to spin a turbine.
- ③ The spinning turbine generates electricity.
- ④ Cooled steam is re-injected back into the Earth's surface.

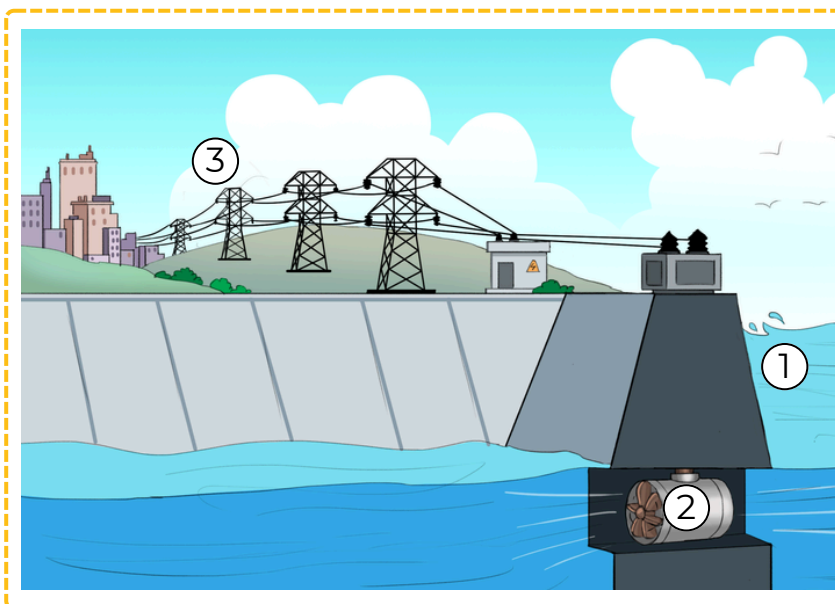
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**Biomass Energy:** Biomass energy generated by fermenting organic waste such as leaves, branches and dung is called Biomass energy.



- 1 The mixture is fermented in a tank.
- 2 Fermentation produces a gas mixture called biogas which is used as a domestic fuel.
- 3 The leftover slurry is used as fertilizer in fields.

**Tidal Energy:** Tidal energy is a form of energy generated by harnessing the movement of ocean tides.



- 1 The water that comes in during high tide is used to turn turbines.
- 2 The spinning turbine generates electricity.
- 3 Electricity is distributed to human settlements.

### Now, a few questions

- Why do these energy sources provide us with continuous energy?
- Why are these energy sources beneficial from an environmental perspective?
- Why should we prefer renewable energy sources over non-renewable ones?