

50
FAQS
ON
RENEWABLE
ENERGY



From the desk of Dr R K Pachauri

Over half the population of the world today lives in urban areas, and even though in India we still have almost two thirds of our population living in villages, in the next few decades we would also have a majority of our citizens living in towns and cities. One of the realities of urban life is its remoteness with the pristine existence of all things natural. Urban children in North America when asked where milk comes from generally respond that it comes from plastic bottles or cardboard cartons. They have no knowledge that cows provide us with milk that we drink.

A good psychologist friend of mine who is a professor at Yale University, Paul Bloom, has been researching for years now on what provides human beings joy and happiness. His research reveals that the greatest pleasure human beings experience is derived from being in the company of nature and indulging in the delights that we sense when we are in the midst of beautiful scenery or in the company of animals, birds, plants and flowers. The richness of the environment around us is a source of joy that many of us living in urban areas miss greatly, day in and day out.

Children in particular need to see and feel the benefit of life that exists in the kingdom of plants, birds, animals and insects. It is only when they touch, feel and smell the environment in open areas that they realize the richness of our natural heritage.



R K Pachauri

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50 FAQS ON RENEWABLE ENERGY



The Energy and Resources Institute





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Preface

Renewable energy is part of nature's bounty. Fossil fuels are a finite energy resource and reliance on them poses many a problems, because the world will run out of them one day or they will become extremely expensive. Besides, they have contributed enough to pollute our planet.

Also known as "clean energy" or "green energy", renewable energy is generated from natural resources such as sunlight, wind, rain, and tides. These resources are considered renewable, because they keep replenishing themselves and are usually available in a never-ending supply. It is now clear that renewable energy is the most environment-friendly alternative to the problem of depleting resources.

All forms of energy are expensive, but as time and technologies progress, generating renewable energy will get cheaper and we will overcome another drawback, that is, reliability of supply. And those of us wishing to live a Utopian life in the bounty of nature might be interested in learning about some of these new, energy-smart innovations of Mother Earth.

Find out more about it through *50 FAQs on Renewable Energy*, so that you can also make a difference.

What's inside?

- 6 Energy and its forms
- 7 Renewable and non-renewable energy
- 8 Green energy and renewable energy
 - 9 Types of renewable energy
 - 10 Benefits of renewable energy
 - 11 Global warming
 - 12 Fossil fuels
 - 13 Solar energy
 - 14 Photovoltaic (PV) cell
 - 15 Functioning of PV cells
 - 16 Leading countries using solar PV
 - 17 Solar energy scenario in India
 - 18 World's largest solar plant
 - 19 Electricity from wind energy
 - 20 Wind turbines and number of blades
 - 21 Windmills
 - 22 Wind farm
 - 23 World's largest offshore wind farm
 - 24 World leader in wind power production
 - 25 Geothermal energy
 - 26 World leader in geothermal energy
 - 27 Geothermal power plants and pollution
 - 28 Energy from water
 - 29 Electricity from tides
 - 30 Impactful hydroelectric dams

- Issues in dam construction 31
 - 32 Biomass
 - Jatropha 33
 - 34 Biofuels
- Current biofuel scenario in India 35
 - 36 Ethanol as vehicle fuel
 - Biodiesel 37
 - 38 Hybrid car
 - Hydrogen as vehicle fuel 39
 - 40 Fuel cells
 - Energy from landfills 41
 - 42 Renewable Purchase Obligation
 - Renewable Energy Certificate 43
 - 44 Nuclear fission and nuclear fusion
- Nuclear energy and its pros and cons 45
 - 46 Fuel from algae
- Global renewable energy scenario 47
 - 48 Carbon capture
- Ministry of New and Renewable Energy 49
 - 50 Renewable energy senario in India
 - Energy labels 51
 - 52 Clean coal
 - Energy efficiency 53
 - 54 Energy security
- Reasons to switch to renewable energy 55

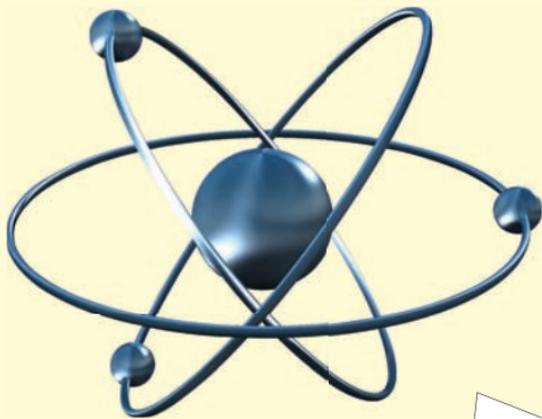
What is energy and what are its various forms?

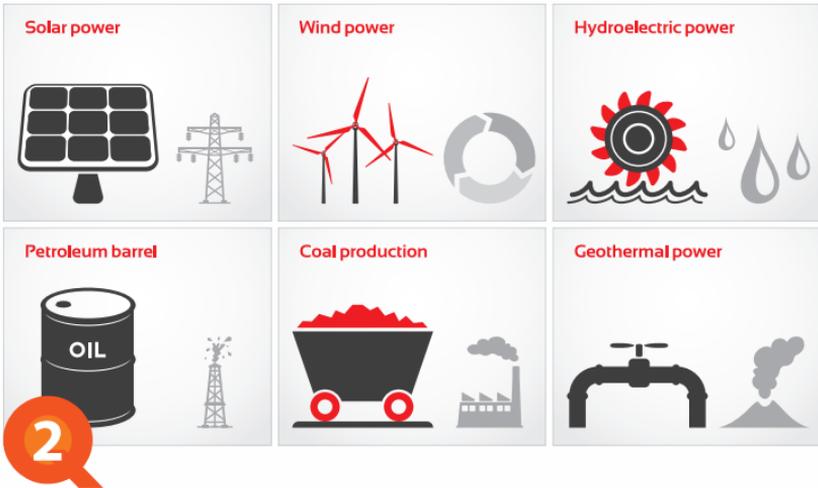
Energy can be defined as the “ability to do work”. For instance, we need energy to lift a heavy box, because as we try to pick it up, it is pulled downward by gravitational force.

Broadly, energy can be divided into two types – potential energy and kinetic energy. Potential energy, or energy stored inside an object, can again be subdivided into several types. Objects under tension, such as a coiled spring or a stretched rubber band, contain mechanical energy, while chemicals inside batteries store electrical energy. Protons, neutrons, and electrons are held together by nuclear energy, while objects at a height contain gravitational potential energy.

Acts like releasing a stretched rubber band or a coiled spring or pushing a rock downhill convert potential energy into kinetic energy (energy of an object in motion). Energy can also take several other forms, such as heat energy, light energy, magnetic energy, and sound energy. It is to be noted that energy cannot be created or destroyed, but can only be changed from one form to another.

1





Define non-renewable energy and renewable energy.

Energy that we use comes either from fossil fuels (coal, oil, and natural gas) or other sources like wind, sun, water, and so on. The problem with fossil fuels is that it took millions of years for them to form underneath the Earth, but it may only take another 50–120 years for their entire stock to be used up!

Since energy obtained from fossil fuels cannot be replaced or replenished within a reasonable amount of time, it is also called non-renewable energy. For example, when coal is burnt to extract energy, it changes into a pile of ash and is no longer a source of energy. It takes millions of years for nature to create coal. The same holds true for oil and natural gas.

On the other hand, energy obtained directly from natural sources, such as sunlight, wind, rain, tides, waves, and geothermal heat, is known as renewable energy. The natural sources of energy are available in infinite quantities (since they are naturally replenished), can be used over and over again, and do not pollute the environment.



Is “green energy” just another name for “renewable energy”?

The two terms, though often used interchangeably, are however not identical. Green energy can be produced with little or no impact on the local, regional, or global environment. On the other hand, renewable energy can be produced continuously from the same resource for an infinite amount of time.

To understand the difference between the two better, let us consider an example. Installing a hydroelectric dam will generate large amounts of renewable energy (hydropower). However, it will also impact the surrounding ecosystem in a negative manner in the form of displacement of people, loss of land that could have been used for farming, loss of biodiversity, and so on. Hence, hydropower in this case is a renewable source of energy, but not “green”.

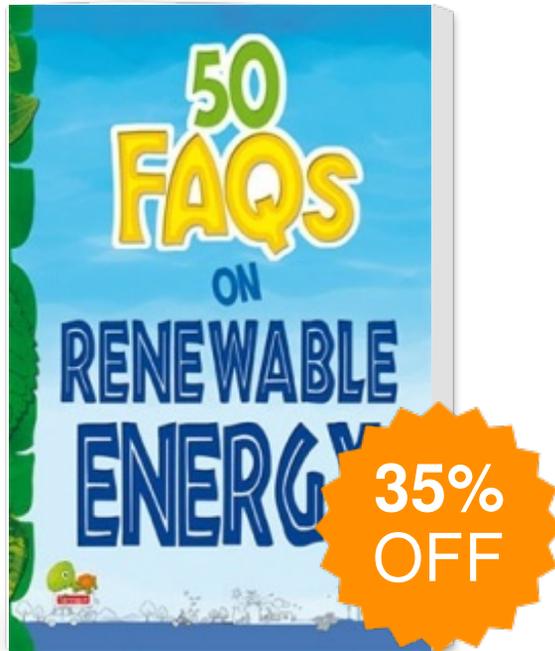
On the other hand, installing a mini hydro plant on a creek of the river will not lead to any displacement or loss of biodiversity. Hence, the energy generated by the plant can be considered both “clean” and “green”.



3



50 FAQs on Renewable Energy : know all about renewable energy and learn to make use of it



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