



Enviro Notes

Environment Periodical for change makers
(An Environment Awareness Initiative by Nirvaan Somany)

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What is renewable energy?

Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example, are such sources that are constantly being replenished. Renewable energy sources are plentiful and all around us.

Fossil fuels - coal, oil and gas - on the other hand, are non-renewable resources that take hundreds of millions of years to form. Fossil fuels, when burned to produce energy, cause harmful greenhouse gas emissions, such as carbon dioxide.

Generating renewable energy creates far lower emissions than burning fossil fuels. Transitioning from fossil fuels, which currently account for the lion's share of emissions, to renewable energy is key to addressing the climate crisis. Renewables are now cheaper in most countries, and generate three times more jobs than fossil fuels.

EXAMPLES OF RENEWABLE ENERGY

SOLAR ENERGY

Solar energy is the most abundant of all energy resources and can even be harnessed in cloudy weather. The rate at which solar energy is intercepted by the Earth is about 10,000 times greater than the rate at which humankind consumes energy.

Solar technologies can deliver heat, cooling, natural lighting, electricity, and fuels for a host of applications. Solar technologies convert sunlight into electrical energy either through photovoltaic panels or through mirrors that concentrate solar radiation.

Although not all countries are equally endowed with solar energy, a significant contribution to the energy mix from direct solar energy is possible for every country.

The cost of manufacturing solar panels has plummeted dramatically in the last decade, making them not only affordable but often the cheapest form of electricity. Solar panels have a lifespan of roughly 30 years, and come in variety of shades depending on the type of material used in manufacturing.

WIND ENERGY

Wind energy harnesses the kinetic energy of moving air by using large wind turbines located on land (onshore) or in sea- or freshwater (offshore). Wind energy has been used for millennia, but onshore and offshore wind energy technologies have evolved over the last few years to maximize the electricity produced - with taller turbines and larger rotor diameters.

Though average wind speeds vary considerably by location, the world's technical potential for wind energy exceeds global electricity production, and ample potential exists in most regions of the world to enable significant wind energy deployment.

Many parts of the world have strong wind speeds, but the best locations for generating wind power are sometimes remote ones. Offshore wind power offers tremendous potential.

GEOTHERMAL ENERGY

Geothermal energy utilizes the accessible thermal energy from the Earth's interior. Heat is extracted from geothermal reservoirs using wells or other means.

Reservoirs that are naturally sufficiently hot and permeable are called hydrothermal reservoirs, whereas reservoirs that are sufficiently hot but that are improved with hydraulic stimulation are called enhanced geothermal systems.

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Once at the surface, fluids of various temperatures can be used to generate electricity. The technology for electricity generation from hydrothermal reservoirs is mature and reliable, and has been operating for more than 100 years.

HYDROPOWER

Hydropower harnesses the energy of water moving from higher to lower elevations. It can be generated from reservoirs and rivers. Reservoir hydropower plants rely on stored water in a reservoir, while run-of-river hydropower plants harness energy from the available flow of the river.

Hydropower reservoirs often have multiple uses - providing drinking water, water for irrigation, flood and drought control, navigation services, as well as energy supply.

Hydropower currently is the largest source of renewable energy in the electricity sector. It relies on generally stable rainfall patterns, and can be negatively impacted by climate-induced droughts or changes to ecosystems which impact rainfall patterns.

The infrastructure needed to create hydropower can also impact on ecosystems in adverse ways. For this reason, many consider small-scale hydro a more environmentally-friendly option, and especially suitable for communities in remote locations.

OCEAN ENERGY

Ocean energy derives from technologies that use the kinetic and thermal energy of seawater - waves or currents for instance - to produce electricity or heat.


Ocean energy systems are still at an early stage of development, with a number of prototype wave and tidal current devices being explored. The theoretical potential for ocean energy easily exceeds present human energy requirements.

BIOENERGY

Bioenergy is produced from a variety of organic materials, called biomass, such as wood, charcoal, dung and other manures for heat and power production, and agricultural crops for liquid biofuels. Most biomass is used in rural areas for cooking, lighting and space heating, generally by poorer populations in developing countries.

Modern biomass systems include dedicated crops or trees, residues from agriculture and forestry, and various organic waste streams.



Energy created by burning biomass creates greenhouse gas emissions, but at lower levels than burning fossil fuels like coal, oil or gas. However, bioenergy should only be used in limited applications, given potential negative environmental impacts related to large-scale increases in forest and bioenergy plantations, and resulting deforestation and land-use change.






NON-RENEWABLE ENERGY

How short-termism is killing our planet




THE PROBLEM

<p>Increased Consumption</p>  <p>Demand for fossil fuels is at an all-time high with ongoing rises in energy consumption</p>	<p>Finite Supply</p> <p>2265 250 years</p> <p>Total depletion of non-renewable energy sources is expected within the next quarter century</p>	<p>Carbon Imbalance</p>  <p>Burning fossil fuels disturbs the carbon budget with a rise in atmospheric CO2 concentrations</p>
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THE IMPACT



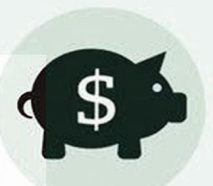



<p>Rising Temperatures</p>  <p>Carbon imbalance is raising global temperatures at a rate above what living organisms can adapt to survive</p>	<p>Air Pollution</p>  <p>When burned, fossil fuels give off atmospheric pollutants, toxins and greenhouse gases impacting the entire planet</p>	<p>Environmental Disasters</p>  <p>Sourcing & transporting fossil fuels is harmful to wildlife, in particular oil spills and destruction of natural habitats</p>
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THE SOLUTION

<p>Solar Energy</p>  <p>A self-sufficient source of household electricity that can generate income</p>	<p>Wind Farms</p>  <p>A low cost source of renewable energy producing zero greenhouse gases</p>	<p>Tidal Energy</p>  <p>Proven to be the most efficient renewable energy source available</p>
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THE BENEFITS

Implementing a global renewable energy strategy will...

 <p>Provide a sustainable form of energy production</p>	 <p>Save lives & improve the health of land & sea creatures</p>	 <p>Reduce costs for energy consumers & producers</p>
 <p>Reduce the dependence & consequences of extracting fossil fuels</p>	 <p>Alleviate emissions to produce cleaner air and water</p>	 <p>Increase technology, manufacturing & installation jobs</p>

• INFORMATION PROVIDED BY

- http://education.nationalgeographic.com/education/encyclopedia/non-renewable-energy/?ar_a=1
- <http://www.epa.gov/state/localclimate/state/topics/renewable.html>
- <http://www.whrc.org/global/carbon/>
- <http://energy.gov/eere/wind/advantages-and-challenges-wind-energy>
- http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/public-benefits-of-renewable.html

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How Do Mobile Phones Affect The Environment?

Mobile phones have become an intrinsic part of most people's lives, connecting them with other people around the world. A mobile phone has several advantages, enabling communication with family, friends, and business wherever a signal is available. In addition, the telephone enables users to access data; listen to music; play games; send and receive simple text messages known as short message service, access multimedia messaging services, voice, and video, as well as internet access through wireless application protocol. Even though mobile phones have several advantages, there are also significant disadvantages associated with its use.

Chemical substances from mobile phones such as arsenic, lithium, cadmium, copper, lead, mercury and zinc are considered toxic. Mobile phones contain a large number of hazardous substances, including antimony, arsenic, beryllium, cadmium, copper, lead, nickel, zinc and this persistent bio accumulative toxins (PBTs), have been associated with cancer and a range of reproductive, neurological, and developmental disorders. When mobiles are discarded, these toxic substances may be released or exposed from decomposing waste in landfills, contaminate the soil and seep into groundwater. Lithium batteries may contribute substantially to environmental pollution, and adverse human health impacts due to potentially toxic materials. Plastics are the leading chemical substance found in mobile phones followed by other miniature materials. Metals build-up in the soil, which can enter the food chain, and in sufficient concentrations may cause health problems. Using mobile phones can harm the brain, and excessive use of mobile phones has been associated with dizziness. The radiations emitted from the phone are also harmful for the eardrum. Furthermore, World Health Organization (WHO, 2013) said that exposure to the radiofrequency (RF) fields emitted by mobile phones are generally 1000 times more than that emitted from base stations, and noted that research had almost exclusively conducted on the possible effects of mobile phones, such as electromagnetic interference, road traffic accidents, cancer and other health-related effects.

Energy Consumption

The production of new mobile phones contribute to the climate change by exhausting energy and virgin materials in processes, thereby releasing greenhouse gases into the atmosphere. The United Nations Environment Programme (Kick the Habit, 2008) estimated that the manufacture of a mobile phone produces about 60 kg of CO₂e and using a mobile phone for a year produces about 122 kg of CO₂e. A study shows that if 10% of the world's mobile phone users turned off their chargers after use, the energy saved in one year could power 60,000 European homes.

Environmental Risks

Mobile or Cell phones are fabricated with heavy metals such as cadmium, lead, lithium, mercury and brominated flame retardants, which are used in the parts of printed circuit board (PCB), liquid crystal display (LCD), keypad,

plastic casing, batteries and chargers. These substances cause severe environmental collision due to their levels of toxicity. Replacing the handsets every year, as new models become available every year, creates an unnecessary carbon footprint and hazardous waste. Improper disposal of waste mobile phones caused significant health effects and environmental degradation in the developing world. Mobile recycled wastes led to contamination of the soil, water, fish, and wildlife. For example, the leakage of cadmium in the battery from a single phone could contaminate 600,000 litres of water. Unused parts of the cell phone are disposed in the environment affecting all the elements of the environment, i.e. fertility or geological structure of the land, human health, wildlife, sea and plant life. Semiprecious metals like copper is extracted when mobile phones are recycled casually, leading to the discharge of toxicants into groundwater below and the air above. Lead, a possible carcinogen can accumulate in the environment resulting in acute and chronic effects on microorganisms, plants, animals and humans. Lithium has a high degree of chemical activity which by itself can pollute the water when exposed. Thus, these substances may cause major crisis in the environmental by seeping from the decaying waste in landfills into ground water, contaminating the soil and eventually entering the food chain.

Health Risks

Cadmium may cause lung and prostate cancer, and is toxic to the gastrointestinal tract, the kidneys, and the respiratory, cardiovascular and hormonal systems. Lead causes damage to the central and peripheral nervous systems, blood systems, and kidneys. Brominated flame retardants may increase the cancer risk of digestive and lymph systems. Studies found that increase in the frequency of mobile phone usage was associated with sleep disturbances and symptoms of depression for men and women. Scientific proof is available to explain that the radiations produced by mobile phones cause severe health injury by affecting the brain of the human being. It is observed that mobile phone users often suffer from frequent headaches, neck pains, limb pains, back aches, and have signs of redness in their eyes and symptoms of ringing sensation in the ears or tinnitus in their ears due to continuous mobile usage on some days. Certain neurological symptoms occur due to the frequent use of mobile phones, such as depression, sadness, irritability and headaches, anxiety, loss of memory and lack of sleep. Mobile phone's electromagnetic radiations and listening to loud music will cause hearing defects. The exposure to radiation from cell phones may also play a vital role in the growing spate of serious problems including attention and hearing deficits, autism, behavioural changes, insomnia, tinnitus, Parkinson's disease, Alzheimer's disease and a broad array of nervous system disturbances.

While developing awareness among customers in using mobile phones so as to minimize risks, manufacturers should develop safe measures with greenery quotes that would influence customer buying behaviour and customer retention of mobiles. We should be mindful of our use of our mobile phones and responsibly dispose our handsets to help the environment.



ANIMALS THAT SERVE AS NATURAL PEST CONTROL

Animals that prey on rodents or insects can be very helpful for homeowners, farmers, and gardeners. Specially trained dogs can even sniff out bed bugs or termites. While animals may not replace an entire pest control plan, they can help you in your efforts to control your local pest population.

OWLS AND BIRDS

Owls are expert rodent hunters and can be extremely helpful for controlling rodent populations. Barn owls can also help control some pest birds, moles, gophers, and flying insects. To attract owls one can provide them with shelter by building and placing nesting boxes. Some birds feed on pests like grasshoppers, webworms, slugs, snails, and some types of moths, which can help a garden thrive.

CATS

Cats can also help you control a rodent problem. Because cats can feed on mice, gophers, and rats, they are ideal for controlling these populations. Not every domestic cat will kill mice though.

DOGS

In addition to drug-sniffing dogs and bomb-sniffing dogs, some pest control companies are utilizing dog's unique sense of smell to find bed bugs and termites. They can help locate the initial population or make sure that no pests were left behind after treatment. This helps home and business owners by saving time and ensuring that their pest problem is truly resolved.

LADYBUGS

Ladybugs are beloved by gardeners everywhere. Specifically, because they prey on aphids, which can damage or kill crops. One ladybug can eat as many as 5,000 aphids during its lifetime. They also prey on mites, scale insects, and leafhoppers. While ladybugs can be pests themselves if too many of them gather together, they are typically helpful and will contribute to a healthy garden ecosystem.

FROGS, TOADS, AND SALAMANDERS

Amphibians like frogs and toads can help rid a farm or garden of problem insects. They don't discriminate, however, so they may be eating beneficial insects like ladybugs as well. Just one frog or toad can eat up to 100 insects per night. They eat pests like beetles, flies, moths, caterpillars, other insect larvae, slugs, and snails. Salamanders eat similar pests, but they can also feed on mosquitoes and ticks.

