

Stop Using Fossil Fuels!

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February 21, 2013

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The world today is a scary place. The use of fossil fuels have polluted the atmosphere, the earth, and the oceans with the by-products, and discarded items that are used by the billions of eco-unfriendly, consuming hordes that do not care what kind of environment future generations of humans will have



to endure. Burning fossil fuels creates carbon dioxide, the number one greenhouse gas contributing to global warming. Combustion of these fossil fuels is considered to be the largest contributing factor to the release of greenhouse gases into the atmosphere. In the 20th century, the average temperature of Earth rose 1 degree Fahrenheit. This was a period that saw the most prolific population growth and industrial development in Earth's history. Fossil Fuels are derived from three different sources; crude oil, natural gas, and coal: all of these are remnants of plant and other organic matter that have decomposed and had the chance over millions of years to change into the different forms of fossil fuels. The problem is fossil fuels are non-renewable, they are limited in supply and will one day be depleted. There is no escaping this fact. The good news is that there are other options available to replace fossil fuels, and one of them is biofuels. Biofuels like methanol, ethanol, and a few others can be made from plants, trees, and even algae. All of these are renewable, much easier, and cheaper to acquire; they also produce much less harmful by-products during manufacturing, and burn cleaner than fossil fuels.

There are thousands of products that are made from crude oil, some of them are: plastics, solvents, skin lotion, insecticides, lip balm, adhesives, shoe polish, antiseptics, and soap. Plastics



are a large contributor to the problem of landfills, but broken down plastics are better than litter, right? Wrong. In fact, plastics often create more environmental harm when broken down than when intact. When plastics do finally break down in the oxygen-free environment of a landfill, they will emit

methane, a greenhouse gas approximately twenty times more potent than carbon dioxide, the primary greenhouse gas emitted through fossil fuel combustion. When plastic waste finds its way to the ocean it ends up being ingested by fish and other animals living in the ocean, which can then work back up the food chain to humans. (Ranken Energy Corporation, 2013, EPA, 2013)

All the products made from fossil fuels can be produced from Biomass, which is defined as, plant material, vegetation, or agricultural waste used as a fuel or energy source. Biomass plastics use the resources of renewable biological origin. The one being in practical use now is based on plant-derived material. The plastics are high-polymer materials whose raw materials are the starch, sugar, or cellulose contained in plants. An example is polylactic acid, the chemically-synthesized lactic acid fermented from starch. Even if carbon dioxide is ejected when polylactic acid is incinerated, it is absorbed by photosynthesis when the plant used as material grows; it does not increase carbon dioxide in the atmosphere, also known as carbon-neutral. Therefore, it is an environmentally-friendly material that does not contribute to global warming. Ethanol is a biologically produced biofuel that although being produced throughout the world is mainly produced in America and Brazil. The production of ethanol takes a number of stages. First the biomass is anaerobically fermented for a period of time allowing the breakdown of the sugar or starch contained in the plant material. However, a number of companies are now producing

bioethanol by converting plant cellulose into sugars allowing a wider range of biomass to be used. After fermenting the fuel must be distilled to allow the removal of water. However, this stage is gradually being replaced by dehydration as it produces better results using less energy, increasing the net energy gain of the fuel.

Biodiesel is produced from the fatty acids found in vegetable oils and is produced using a process known as trans-esterification which involves using methanol to create a catalytic reaction. A number of biomass types can be used in the production of biodiesel such as rapeseed, sunflower and palm oil. Biodiesel is extremely versatile as it can be used in any diesel engine if it has been mixed with common diesel. However, many car manufactures are now designing cars so that they can run on biodiesel alone. Another increasing section of the biodiesel market is the re-use of vegetable oils used in the catering industry. McDonald's now converts it's used cooking oil into biodiesel to power its fleet of delivery trucks. The oil is filtered and pre-processed before being manufactured into biodiesel. Both ethanol, and biodiesel when used in conventional combustion engines produce much less greenhouse gasses than when fossil fuels are used. (Ricoh Global, 2011, Msangi, Sulser, Rosegrant, Valmonte-Santos, Ringler, 2006, Antoni, Zverlov, Schwarz, 2007, Stevens, Verhe, 2004)

At the moment coal power plants produce forty-four percent of the power in America if the America continues burning coal the way it does today, it will be impossible to achieve the reductions in heat-trapping emissions needed to prevent dangerous levels of global warming. Coal-fired power plants represent the nation's largest source of carbon dioxide, so coal power plant emissions must be cut substantially if we are to have a chance of avoiding the worst consequences of climate change. Some of the ways that can achieve this goal would be to replace these coal power plants with solar power plants and wind power farms.

Wind is a clean source of renewable energy that produces no air or water pollution. And since the wind is free, operational costs are nearly zero once a turbine is erected. Mass production and technology advances are making turbines cheaper, and many governments offer tax incentives to spur wind-energy development. Most wind energy comes from turbines that can be as tall as a twenty story building and have three two-hundred foot-long blades. The biggest wind turbines generate enough electricity to supply about six-hundred American homes. Wind farms have tens and sometimes hundreds of these turbines lined up together in particularly windy spots, like along a ridge or off-shore where there is no obstruction for the wind. Smaller turbines erected in a backyard can produce enough electricity for a single home or even a small business. Some people think wind turbines are ugly and complain about the noise the machines make. The slowly rotating blades can also kill birds, but not nearly as many as cars, power lines, and high-rise buildings do

Solar power plants use the most abundant power source on our planet, the sun's rays to produce electricity. Photovoltaic plants and solar thermal systems are the most commonly used solar technologies today. There are two types of solar power plants. They are differentiated depending on how the energy from the sun is converted into electricity, either thru photovoltaic or solar thermal power plants. Photovoltaic plants use huge banks of photovoltaic cells commonly called a solar cell and is used to convert solar energy directly into electricity. A photovoltaic cell is usually made from silicon alloys. Particles of solar energy, known as photons, strike the surface of a photovoltaic cell between two semiconductors. This causes them to absorb the photons and



release electrons. The electrons are captured in the form of an electric current. A solar thermal plant generates heat and electricity by concentrating the sun's energy. That in turn builds steam that helps to feed a turbine and generator to produce electricity. (Make it Solar, 2013, NREL, 2013)

The bottom line is that all humans need to start taking an active role in reversing the effects of using fossil fuels, and overcome the greed and poor judgment used by governments, and companies worldwide concerning the health of the planet instead of their pocketbooks. This will be not be easy, but never-the-less needs to be done so that future generations will have a chance.

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