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Biomass

When you think about renewable energy you think about wind, solar and, hydropower. But have you ever thought about biomass? Biomass can be used all over the world and in many different forms. It is abundant, converts waste into energy, and a biomass power plant costs very little compared to a coal power plant. Biomass has been used since prehistoric times and we should use it far into the future.

Biomass energy is produced when you burn biomass fuels like wood, straw, manure, and food waste.Biomass can be used in many forms. We can burn wood to boil water to make steam to turn turbines to spin a generator to make electricity. This is how 46% of biomass energy is used. We can also make alcohol fuels like ethanol, biogas or biodiesel which can power vehicles. An important use of biomass energy is that it can power different things like cars, buses and trains. You couldn't put a wind turbine on a car but you could put biogas in a vehicle to power it with clean energy.

Biomass energy has been used since man first discovered fire. Many people around the world still burn wood as their primary source of heat in the winter. Ethanol, biogas and biodiesel were also used for some time in the 1800s to power lamps. It also powered the first Model T Ford until 1908. Recently, biofuel has been a popular alternative to fossil fuels/gasoline because it is a good way to get rid of waste.

Before the Industrial Revolution, 99% of the world's energy came from using biomass. Now, however, we rely much more on fossil fuels. As people around the world

realize the advantages of using biofuels, the number of biofuel plants being built globally is increasing. The U.S. is currently the world's largest producer of biofuels followed by Brazil and China. In 2013, the U.S. produced more than 13.3 billion gallons of biofuel. As of 2012, there were also more than 800 landfill waste to energy plants in nearly 40 countries worldwide. Biofuels and waste to energy plants reduce greenhouse gases, save habitat that would be used for landfills and decrease the number of mines and oilfields.

Biomass can be converted into energy by burning, co-burning with other fuels or gasification. Gasification is a process that breaks down any carbon-based waste into carbon monoxide, hydrogen and carbon dioxide. The resulting gas can be used as fuel. Biomass fuels include wood pulp and pellets, textile waste, waste products from crops such as husks, pips and cores, waste from industrial food production including alcohol and dairy products and used cooking oils. Using these biomass fuels prevents them from accumulating in landfills.

Biomass can be used in many ways and also in many places. Biomass fuels are available all over the world. In 2011, a total of 27 countries were consuming 100 million tons of biomass energy and in Germany alone 30 million tons were consumed. In 2013, the U.S. consumed 4,400 trillion BTU (British Thermal Units) of biomass energy. Biomass is also used in third world countries where people are too poor to afford power plants which would make electricity and heat their home. The only source of heat people have in these countries is from biomass fuels like wood.

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Although biomass is widely available, it is not the cleanest energy source. While biomass does create some pollution, the material we burn (i.e. wood waste, food waste, manure, food crop waste products) would be rotting away in a landfill creating methane which is a very powerful greenhouse gas. Instead of throwing biomass waste away there is no harm in making energy from it to power our homes, schools and businesses. Some people say biomass is not that useful because some of the fuels are seasonal. That doesn't really matter though because there is so much waste to burn that we won't run out of it any time soon. Many people argue that biomass power plants are too expensive to build. However, a biomass plant is not very expensive compared to a new 600 MW (megawatt) coal powered plant which would cost over $2 billion when financing costs are included. A biomass power plant only costs $100 - $400 million. This is important because compared to a coal powered plant a biomass power plant is cheaper and renewable.

In summary, biomass is the energy that has been with us since the beginning and we should make it the energy of the future. Biomass is a source that is abundant, doesn't destroy habitat, converts waste into energy, and a biomass power plant costs nothing compared to a coal power plant. It also is available all over the world and can be used in many different forms. Biomass is a reliable energy source that can get rid of waste in an efficient way. Biomass should be used as our energy of the future.