

# **A Sustainable Environment: Our Obligation to Protect God's Gift**

by

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## **We Need to Adopt More Old Technologies for Climate Change**

There is no question that climate change must be addressed as quickly as possible before it is too late, although some people think it is already too late. What is encouraging is that researchers are working on developing some new technologies to capture the carbon dioxide that is emitted from fossil fuel power plants. These include collecting the emissions and storing them in the void from where the fossil fuel was extracted. This sounds great but how feasible is it and at what cost?

There are several very old technologies that should be implemented, or better yet, expanded to minimize the use of fossil fuels. Over 20 years ago, a process was developed to take non-recyclable cellulosic waste that had to be landfilled and convert it to a sustainable fuel – cleaner and cheaper than coal. This waste was industrial process waste primarily from paper converters and could not be recycled because it was plastic coated, wax coated, chemically treated, or contained metals. In any event, the repulping process to reuse the cellulose could not accept this material. There were also large quantities of waste polypropylene film that had to be landfilled. The cellulosic waste was combined with about 10% of the polypropylene, fed to a grinder and then to a pelletizer. These half-inch diameter pellets that varied from two to three inches long had a heat value of about 10,000 BTU per pound compared to about 12,000 BTU per pound for coal. Instead of placing these wastes in a landfill which eventually convert to methane (about 22 times worse than carbon dioxide toward climate change), the pellets became a fuel that kept an equal amount of coal, in terms of heat value, in the ground.

There is also a new onsite waste-to-energy technology that mitigates climate change. As an example, a large equipment assembly plant receives parts from abroad that are shipped in wooden or corrugated cardboard boxes, on pallets, or in crates, and this wood must be heat treated or chemically treated with methyl bromide to destroy any potential microorganisms from entering the U.S. This waste wood cannot be recycled and must be landfilled, eventually decomposing and converting to methane. However, the wood can be combusted in a high efficiency boiler that converts the heat of combustion to thermal energy (steam, hot air, and hot water), electrical energy or even refrigeration. This process eliminates the landfilling of methane producing waste while reducing the demand for fossil fuels.

Another example, and a big one, is the conversion of coal fired power plants in the U.K. and Europe to burning wood pellets. As quickly as possible, the power plants are switching from coal to wood with much of the wood pellets being produced in the U.S. and shipped to the

E.U. Other countries are also switching to wood pellets and away from coal. But you are probably asking how is the burning of wood considered a sustainable fuel?

Let's use a working forest as an example. It is harvested annually, and each harvested plot is replanted. The quantity of carbon sequestered by each plot over the, say, 40 years it takes to reach maturity is the same quantity of carbon released when this wood is burned as pellets. Demand for forest products is continuous. Harvesting, replanting, and regrowth happen daily, not annually. Carbon released by the continuous use of pellets consumed daily by power plants is sequestered immediately by the continuous regrowth that occurs in balance with the harvest. Since some of the wood from such a harvest is used to produce lumber and therefore not combusted, the amount of carbon released by the pellet combustion is less than the amount sequestered. So this process is actually carbon negative. If producing wood pellets for power generation will actually reduce the quantity of carbon emitted, why do we still have coal-fired power plants?