



Image: Jon Sullivan

Wood-burning power plants: Misguided climate change solution?

By Steve Goreham

Originally published in [The Washington Times](#)

Is wood the best fuel to generate electricity? Despite wood's low energy density and high cost, utilities in the US and abroad are switching from coal to wood to produce electrical power. The switch to wood is driven by regulations from the US Environmental Protection Agency (EPA) and other international organizations. These regulations are based on the false assumption that burning wood reduces carbon dioxide emissions.

Wood has never been a major fuel source for electrical power. In 1882, when Thomas Edison built the first power plant in New York at Pearl Street Station, he [used](#) coal to fire the plant. A switch to wood is not going back in time; it's adopting a fuel that was regarded as inferior at the dawn of the electrical age.

Pound for pound, wood contains less energy and is more expensive than other fuels. A 2008 [study](#) conducted at the Rapids Energy Center plant in Minnesota found that, compared to coal, more than twice the mass of wood was required to produce the same electrical output. A 2008 study by the UK House of Lords [concluded](#) that electricity from biomass was more than twice the cost of electricity from coal or natural gas. Nevertheless, an increasing number of electrical power plants are switching from coal to low-energy-density and high-cost wood fuel.

This irrational behavior is driven by the EPA, the US Department of Energy, the European Union, the California Air Resources Board, and other world organizations that assume that biomass fuel is "carbon neutral." Biomass-fired plants receive carbon credits, tax exemptions, and subsidies from promoting governments.

When burned, biomass emits carbon dioxide into the atmosphere like any other

combustion. A 2012 paper by Synapse Energy Economics [estimated](#) that burning biomass emits 50 to 85 percent more CO₂ than burning coal since the energy content of biomass is lower than coal relative to its carbon content.

The “carbon neutral” concept originated in a 1996 Greenhouse Gas Inventory [paper](#) from the Intergovernmental Panel on Climate Change (IPCC) of the United Nations. The IPCC *assumed* that, as biofuel plants grow, they absorb CO₂ equal to the amount released when burned. If correct, substitution of wood for coal would reduce net emissions.

But a 2011 opinion by the European Environment Agency [pointed](#) to a “serious error” in greenhouse gas accounting. The carbon neutral assumption does not account for CO₂ that would be absorbed by the natural vegetation that grows on land not used for biofuel production. Substitution of wood for coal in electrical power plants is actually *increasing* carbon dioxide emissions.

Nevertheless, governments have adopted the “carbon neutral” assumption and continue to promote biomass as a substitute for coal. As a result, nations and utilities are not required to count their CO₂ emissions from biomass combustion.

In July, Dominion Virginia Power [completed](#) conversion of its Altavista Power Station to biomass fuel, the first of three planned facility conversions at a total cost of \$165 million. The change was lauded as a method to “help to meet Virginia’s renewable energy goal.” Virginia citizens paid for the conversion and will pay higher electricity bills in the future.

The Altavista station and other biomass plants [claim](#) to be using “waste” fuel that would otherwise be going into landfills. But according to the DOE, 65 percent of US biomass-generated electricity comes from wood and 35 percent from waste.

Finding sources of wood to feed ravenous power plants is not easy. The small wood-fired EJ Stoneman power plant in Cassville, Wisconsin is [rated](#) at 40 megawatts. Each day it [burns](#) 1,000 tons of wood delivered by 30 different suppliers. The 100-megawatt Picway power plant in southern Ohio [considered](#) a conversion to biomass, but could not secure a good wood supply. Picway will be shut down in 2015 when tougher EPA emission regulations take effect.

Following President Obama’s direction, the EPA [plans](#) to impose CO₂ emission limits on existing power plants, requiring the shuttering of US coal-fired power stations. In 2012, 37 percent of US electricity was [produced](#) from coal, with only 1.4 percent produced from biomass. Without some common sense about CO₂ emissions, look for expanded efforts to cut down US forests to feed a growing number of biomass plants.

The height of eco-madness is the [conversion](#) of the Drax Power Station in the United Kingdom from coal to wood fuel. Drax is the largest power plant in Europe, generating up to 3,960 megawatts of power from 36,000 tons of coal per day, delivered by 140 trains every week. In order to “reduce emissions” at Drax, more than 70,000 tons of wood will be harvested *every day* from forests in the US and shipped 3,000 miles

across the Atlantic Ocean to Britain.



Drax Power Station, image by Paul Glazzard

Conversion of the Drax facility will cost British citizens £700 million (\$1.1 Billion) and the new wood-fired electricity will cost double or triple the cost from coal. Drax Group plc will receive a subsidy of over £1 billion (\$1.6 billion) per year for this green miracle.

Steve [Goreham](#) is Executive Director of the [Climate Science Coalition of America](#) and author of the [book](#) *The Mad, Mad, Mad World of Climatism: Mankind and Climate Change Mania*.