RECYCLING WASTE TREATED WOOD AS FUEL; AN ENVIRONMENTALLY RESPONSIBLE OPTION

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States and regulatory agencies should encourage the use of used, waste treated wood as fuel in properly permitted and operated industrial boilers, furnaces, waste-to-energy facilities, or incinerators to enhance U.S. energy independence and environmental quality. Waste treated wood should be regulated like other potential fuels through use of facility operating permits. Where facilities are judged by the permitting regulators to have adequate combustion and emission control equipment, treated wood should be allowed as fuel in accordance with those applicable permit requirements. The option of recycling waste treated wood for energy recovery should be preserved.

Over the last few years, several states, including Colorado and Washington, have proposed legislation that is intended to promote use of renewable energy sources, including wood biomass, byproduct, or waste. Some of these have included terms that exclude waste treated wood from such use. Such restrictions would force disposal of waste treated wood to landfills. Such terms are unnecessary and counter-productive. The main issues brought by opponents of beneficial recycling of used treated wood include air pollutant emissions, disposal of ash, resource conservation, and green house gas emissions.

1) Emissions from the burning of treated wood can be controlled properly with available air pollution control equipment.

There is nothing in treated wood that is not already in other fuels, particularly in coal or municipal solid waste. Consider creosote treated wood. Creosote is derived from coal. Emissions from creosote treated wood would be expected to be cleaner than coal burning because the fuel is a mixture of coal oil and wood. Concerning pentachlorophenol treated wood, there are a number of chlorinated hydrocarbons in municipal waste, such as PVC and other plastics, that present the same emission concerns as would apply to pentachlorophenol treated wood. Arsenic is present in coal and can be removed by such equipment as wet scrubbers. Chrome and copper are present in municipal waste, such as from used cans, glass, and film. The chemicals used in treated wood present no unusual challenges for emission control equipment. Thus, the proper way to deal with treated wood, as with any other potential fuel, is through the permitting process. Permits must address potential emission constituents and require appropriate controls.

Treated wood has been and is now being burned in permitted industrial boilers and cogeneration facilities. Stack emission tests at facilities burning used treated wood have demonstrated destruction/removal efficiencies (DREs) in the range of 99.99% for the primary organic preservative constituents resulting in emissions as clean as or better than when burning only untreated wood fuel. The ability of industrial combustion facilities to effectively combust the organic wood preservatives in waste treated wood are proven.

Other potential energy conversion methods that may not involve direct combustion, such as gasification, may also be able to safely handle the chemicals of treated wood. Integrated Gasification Combined Cycle (IGCC) technology now under development for conversion of coal to electricity may be perfectly suited for treated wood waste. Unwanted contaminants will remain with the char waste or may be cleaned from the gas prior to combustion in a gas turbine so that very low emissions will result.

Finally, prohibiting the use of treated wood may cause larger waste streams of construction and demolition waste to be rejected due to the small fraction of treated wood and the high cost of separation. Wood waste, treated and untreated, can be problematic for landfills because its form (long, stiff, sometimes sharp pieces), low density, and large volume. Forcing more waste to landfills is not environmentally sound.

Air quality can best be protected through effective permitting, monitoring, and enforcement of combustion and other emission sources under existing air pollution control authority, not by simply eliminating waste treated wood from being a potential energy source. Rather than restricting the use of treated wood or other potential fuels, legislation promoting biomass use should include provisions, such as *"Facilities that use biomass based fuel, including construction or demolition debris, wood byproducts, agricultural products, waste treated wood, or other residential or industrial waste, shall obtain and comply with appropriate air pollution control operating permits."*

(2) Ash resulting from burning treated wood requires no extra disposal expenditures.

Like emission controls, requirements for handling ash should be subject to appropriate permit requirements rather than overly broad legislation. Since the organic chemicals, such as creosote or pentachlorophenol, will be destroyed by combustion, this issue only applies to the metal containing treatments, such as CCA treated wood. The same metals are present in coal and municipal waste at various levels. Whether the metals would be leachable from the ash would depend on several variables, including the actual fuel mixture and the combustion equipment. Facilities generating ash must dispose of the ash at their own site or at commercial disposal sites that are operated in accordance with site and waste specific permit provisions that protect the environment. Legislation to prohibit reuse of waste treated wood as fuel would be a counterproductive, unnecessary restriction.

(3) Conserve resources

After treated wood has completed its normal product life cycle as a pole, tie, or deck, it still is a potentially valuable energy resource. Use of used treated wood as fuel presents a win-win situation. The last owner of the product may be able to sell the wood or, at least, can avoid the cost and/or potential liability of disposal. The fuel user obtains a good quality fuel at a competitive price. The public benefits by minimizing use of valuable landfill space, not needing to develop new landfills, importing less fuel, emitting less pollution, and obtaining competitively priced electric power. As fuel, used treated wood offers approximately 6,000 BTU/pound. Every two tons of treated wood used to generate electricity will replace approximately one ton of coal or 90 gallons of oil. For every utility pole that is recycled for energy, about 33 gallons of oil

are saved[1]. Encouraging, or at least allowing, use of treated wood for fuel will help to conserve natural resources.

(4) Greenhouse Gases

Any use of carbon-based fuel will result in production of carbon dioxide (CO_2), including the food we all consume. Combustion of wood fuel will produce CO_2 at levels similar to competing fuels. The difference is that wood fuel is a renewable energy source and that the CO_2 was previously removed from the atmosphere by the trees producing the wood. This is part of the natural carbon cycle. If the same wood was left to rot or burn in the forest rather than being harvested or if the waste treated wood eventually degrades in a landfill, the same CO_2 would be emitted. As new trees are grown, the CO_2 will again be incorporated into wood tissue. The life cycle of wood products, from production, use, burning, and replacement is carbon neutral and, as such, should be encouraged by public policy.

Conclusion

Waste treated wood can be and is being used safely and economically as fuel to generate heat and power. Facility operating permits can and do address the potential risks from burning waste treated wood and other fuels using sound science and existing regulatory authority. Efforts by legislators or regulators to broadly prohibit the use of waste treated wood as fuel are misguided and counter to U.S. goals for energy independence and environmental protection. Legislators should not restrict the use of treated wood as fuel in appropriate energy recovery facilities. Legislators should preserve the environmentally responsible option of recycling waste treated wood for energy recovery.

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[1] Assuming typical utility pole is class 4-40 foot long with 21.2 cubic feet at 35 pounds per cubic foot and 6,000 BTU per pound and oil at 135,000 BTU per gallon.