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## Conversion of Wood Fiber and Wood Waste Materials to Activated Carbon Monoliths by Chemical Activation

### Project Summary:

The proposed project will produce activated carbon monoliths by chemically activating wood-based materials (ACM-CAWM) from virgin and recycled wood sources. Two processing routes will be explored: (1) carbonization of wood-based composites custom made from chemically treated wood elements and (2) carbonization of commercial wood-based composites that have been pressure treated with activation chemicals. These techniques have the potential to produce durable, high strength activated carbon monoliths with uniform, high surface areas from low cost, wood-based precursors, leading to an estimated 5 trillion BTU energy savings by 2020.

The ACM-CAWM processing technique has the potential to utilize waste streams such as penta- and creosote treated wood, corporate wood waste, and recycled pulp. The ACM-CAWM process is ver-

satile, utilizing paperboard, fiberboard, or particleboard made from wood waste. The technique should be tolerant of organic impurities, a particularly attractive feature for recycling penta- and creosote treated wood wastes that are difficult to recycle using current methods.

The use of low-cost precursors (virgin and recycled wood) and established processing steps used by the wood preservation industry, activated carbon manufacturers, and wood-based composite manufacturers is expected to significantly reduce the production cost of ACM's, enabling their use in applications that are currently cost prohibitive. Currently, activated carbon monoliths have found only a select few niche applications (such as ozone filters for laser printers), because the benefits of a monolithic structure don't justify the expensive price.