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WOOD FOR ENERGY—THE ROLE OF RESEARCH

The United States consumes nearly 80 quads (80×10^{15} Btus) of energy annually. Wood now provides about 1.4 quads or a little less than 2% of the nation's energy budget. Unused wood biomass available annually is about 600 million dry tons, or 10.3 quads, more than three-fourths of which occurs in the forest. Although much of this residue is unrecoverable for economic, environmental, or other reasons, if only one-half of the unused wood could be recovered, it could supply about 5 quads or 6% of our nation's energy needs.

Before this can be accomplished, however, several technological and information barriers must be addressed by the forestry community, especially the research organizations. These are:

- The inadequate quantifications and characterization of forest biomass.
- The lack of harvest and transportation systems to recover forest residues economically.
- The need for improved silvicultural techniques to maximize fiber production in plantation and natural stands.
- The lack of economic processes to gasify wood and to produce alcohol and petrochemical substitutes.
- The need to understand better the environmental consequences of increased removal of forest biomass.
- The need to improve technology transfer mechanisms to reach a greater number of users.

Action on these problem areas must be supplemented by an aggressive conservation program to reduce energy consumed in forestry activities and in the conversion of woody raw material to products. Also, we must call attention to wood construction since it is an energy-efficient building material. Finally, we must consider the efficient allocation of wood to its various uses—energy, pulp and paper products, plywood and panels, and sawn lumber.

Let us not forget that the forest industries currently produce about 80% of the nation's wood-derived energy—a trend likely to continue. Thus, despite the fact that wood will be vitally important for home heating and other small-scale energy needs, it is through the forest industries that wood is likely to make its greatest contribution to the nation's energy budget. These industries are also in the best position to monitor market signals that are so important for the efficient allocation of wood among its various uses.

Wood can supply a significant portion of our nation's energy needs. It can also provide the economic incentives to improve forest management by supplying a market for wood resources currently left unused. All that is really needed is to remove those technical barriers and to better inform users of the opportunities.

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