



# SHADE

**A**n Auburn University study sheds new light on just how valuable shade trees are in reducing homeowners' electricity bills during hot summer months.

Professor David Laband in the Auburn University School of Forestry and Wildlife Sciences says electricity usage and costs will be 11.4 percent less if a house has just 17.5 percent heavy shade coverage. This is compared to a house with no shade.

"The keys are heavy foliage and late afternoon shade," Laband said. "The savings can be very significant for homeowners. Over the years I had read statements that shade trees reduce electricity consumption, so we wanted to put a dollar amount to it."

His office conducted a yearlong study of 160 houses in the Auburn, Alabama area to determine the annual energy savings provided by shade trees, primarily looking at the months of May to September. He analyzed power bills, calculated shade coverage, and surveyed the homeowners about household makeup, electricity-usage habits, square footage, type of air conditioning, appliances, roofing, exterior material, and other factors.

"We looked at the amount of shade in the early morning, early afternoon, and late afternoon,"

Laband said. "If you have trees on the west side of your house, you will have a much lower power bill."

*How much does tree shade save on home energy usage? Turns out there has been very little research until now. An Auburn professor has completed a study that settles once and for all the value of planting shade trees to conserve energy costs. Read on, then plant some trees!*



# TREES

## Can Reduce Power Bills

Using local power company rates for kilowatt hours per day, Laband said the 11.4 percent savings would equal \$31 to \$33 per month. The study, which categorized types of shade into light, moderate, and heavy, also found that a house covered with 50 percent of light shade will save 10.3 percent.

Thermostat settings were important as well. “For each degree you raise your thermostat in the summer, you will save 3.3 percent on your power bill,” he said. “We also found that children under age 12 are the major power consumers in the home. They watch television, play games, and leave lights on.”

Laband hopes the study will encourage real estate developers not to cut down all the trees on new lots. “Many older houses have large trees around them because the owners did not rely as much on air conditioning then,” he said. “Houses today often do not have shade trees because it’s easier to run an air conditioner. This study shows how much can be saved when trees are used in yards.”

Auburn’s study was funded by a \$116,000 grant from the USDA Forest Service’s Urban and Community Forestry Program and a matching \$116,000 grant from Auburn’s School of Forestry and Wildlife Sciences. Laband has briefed USDA officials on the results and has presented seminars in Australia at the Tropical Forest Research Institute, the University of Melbourne, and the University of Adelaide. “It gets very hot there, too,” he said. “They are interested in doing a similar project.”

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Editor’s Note: Laband, who earned his Ph.D. in economics from Virginia Tech in 1981, conducts research and teaches on topics related to economics and policy, with a focus on natural resources. He joined the Auburn University faculty in 1994 and the School of Forestry and Wildlife Sciences in 2000, where he is a member of the Center for Forest Sustainability and the Forest Policy Center.