



Southern Growth Policies Board
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Seeing the City for the Trees: Economic Opportunities and Benefits in the Urban Forest

The urban forest consists of the street trees, parks, gardens, and greenways. The strategic stewardship of the urban forest creates economic benefits for municipal governments and the communities they serve through energy savings, energy creation, and carbon sequestration.

Trees Save Energy

There are many relatively simple ways to make buildings more energy efficient, one of which is thoughtful landscaping. For example, trees, bushes and shrubs placed around residential buildings can provide natural heating and cooling benefits. By providing shade in the summer, trees reduce energy use and related costs from air conditioning. If placed properly, these same trees can also allow the penetration of winter sunlight, which reduces the need for heating. These same landscaping treatments can be applied to commercial districts.

The U.S. Department of Energy estimates that three properly placed trees around a residential building can save up to 25% of a household's annual heating and cooling expenses, thus providing enough energy savings to pay off initial investments in an average of 8 years. The national Alliance for Community Trees estimates that shaded houses reduce their energy consumption by 30-50%, and that the return on every dollar invested in urban trees is \$2-5 in energy savings.

Another energy-saving landscaping technique is green roofing. Green, or living, roofs are covered with soil and vegetation; this greenery produces a myriad of benefits, one of which is energy savings. Green roofs improve the insulation properties of the roof, keeping buildings cooler in the summer and warmer in the winter, and thus reducing the use of heating and cooling systems. Green roofs can also extend the lifespan of a building's roof, making replacement costs less frequent.

The City of Chicago was a leader in the use of green roofs when it installed a 20,000 square foot green roof atop its 11-story, City Hall building in downtown Chicago in 2000. In the first five years, the city saved \$25,000 in energy costs. Increasingly, green roofs can be found on municipal and private buildings of all types and functions throughout from Atlanta's City Hall to the U.S. Social Security Administration building in Birmingham, and on schools, hospitals, visitors' centers and parking decks throughout the South.

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Trees Make Energy

Trees can also provide a local source of energy, which is important for the growing population of the southern United States.

Waste wood is a readily available source of renewable energy for the South that can be found in urban settings. Urban waste wood comes from tree trimming, land clearing for development, and storm damage. It can also be the byproduct of industrial activity, such as pallets from manufacturers. Researchers from the Centers for Urban and Interface Forestry (InterfaceSouth) estimate that the South's urban and rural forests produce 0.12 tons of dry urban wood waste per person per year. For an average county in the South with a population of 75,000, this translates to enough energy to power somewhere between 400 and 900 houses a year.

There are multiple economic and social benefits to using urban waste wood for energy:

- The construction and operation phases of wood-to-energy power plants and facilities can provide jobs and economic value for local companies who can supply inputs and services;
- Wood-to-energy facilities act as a steady source of demand and potential income for local suppliers of waste wood, including landowners on the urban periphery;
- Waste wood is an inexpensive and low polluting alternative to fossil fuel-based energy sources;
- Using waste wood for energy amounts to diverting solid waste from a local landfill.

InterfaceSouth found examples from throughout the South of wood being used to power utilities, schools, industrial sites—even a whiskey distillery!

For example, after the energy crisis of the 1970s, Northwest Missouri State University, a public university with 6,500 students, was looking for an alternative energy source to natural gas. The school's Energy Committee came up with a number of criteria for the ideal alternative source—including availability, cleanliness and capacity to displace traditional fuels—and determined that wood chips fit the bill. Today, woodchips from local sawmills and forestry products companies are converted to thermal energy in boiler and produce enough energy to heat 65% of the school's 1.7 million square feet of building space. The university establishes contracts with local suppliers at the beginning of each year for the purchase of woodchips, and estimates that this form of energy generation saves the school \$375,000 a year, on average.

Resources

Alliance for Community Trees: <http://actrees.org/site/stories/energy.php>

InterfaceSouth Wood to Energy Project: <http://www.interfacesouth.org/woodybiomass/>

The Greenroofs Project Database: www.greenroofs.com

Urban Forestry South: www.urbanforestrysouth.org

U.S. Department of Energy, Energy Efficiency and Renewable Energy Energy Savers Program: http://www.energysavers.gov/your_home/landscaping/index.cfm/mytopic=11910

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