

Urban Forests Conserve Energy

How can urban forests conserve energy?

Trees can reduce the energy needed to heat and cool buildings by lowering temperatures and shading buildings during the summer, and blocking winds during the winter. However, they can also increase energy use by shading buildings in winter but that is not a major concern in this part of Florida. Therefore, the proper placement of trees near buildings is critical for conserving energy used by buildings. Lowering building energy use has the added effect of reducing greenhouse gas emissions from power plants that produce the energy.

What types of trees are used to conserve energy?

Deciduous trees, such as red maple lose all or most of their leaves throughout the year. Deciduous trees are known to be excellent energy conservation trees because they generally grow a large canopy of foliage that can shade a building during the hot summer months, but then lose their leaves during the winter months allowing the sunlight to warm the building.

Evergreen trees, such as slash pine, do not lose their foliage during the year. The structure of evergreen trees is better adapted to block winds and provide dense shade. Since evergreen trees do not typically lose their foliage during the winter, they also act as a wind barrier and protect homes from harsh gusts of wind.

What is the value of energy conserved by trees for residents of Tampa?

During 2007 the total amount of energy conserved in cooling residential buildings within the City of Tampa was estimated to be 34,743 MWh's (megawatt hours), equaling a value saved of approximately \$3.9 million. The amount of energy conserved by reducing the need to heat buildings was 2,994 MBtu (million British thermal units), saving an additional hundred thousand dollars. As a result of these savings it was estimated that the total amount of carbon emissions avoided from burning fossil fuels at power plants was 6,185 tons and saved another \$1.25 hundred thousand dollars. In total, trees helped to conserve energy and saved the residents of Tampa approximately \$4.2 million dollars in 2007 (Table 1).

Table 1: Energy conserved and associated dollar values due to the proximity of residential buildings to in 2007.

	Heating	Cooling	Total
<hr/>			
Energy Saved			
Mbtu ^a	2,994	n/a	2,994
Mwh ^b	106	34,637	34,743.00
Carbon avoided	68	6,117	6,185
<hr/>			
US Dollars Saved			
Mbtu	\$100,479	n/a	\$100,479
Mwh	\$12,141	\$3,967,322	\$3,979,463
Carbon avoided	\$1,389	\$124,292	\$125,681
Total Dollars Saved	\$114,009	\$4,091,614	\$4,205,623

^a Million British Thermal Unit

^b Megawatt-hour

