



City of Tampa's Urban Forest *Energy Conservation*

Tampa's Urban Forests Conserve Energy

How can urban forests conserve energy?

Trees can reduce the energy needed to heat and cool buildings. This is done by shading buildings during the summer and blocking winds during the winter.

Therefore, the proper placement of trees relative to 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 since they emit these gases while producing energy.

What types of trees are used to conserve energy?

Deciduous trees, such as red maple, lose all or most of their leaves in fall and winter each 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 pines and live oaks, do not lose all of their foliage during the winter. Therefore, they can act as a wind barrier, protecting homes from winter winds (Andreu et al 2008b).

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 Tampa was estimated to be 34,743 Mwh (megawatt hours), equaling a value saved of approximately \$3.9 million. The amount of energy conserved by reducing the need to heat residential buildings was 2,994 MBtu (million British thermal units), saving an additional \$100 thousand. Without its urban forest, it was estimated that Tampa would have emitted 6,185 tons more carbon into the atmosphere and would have burnt \$125 thousand worth of fossil fuels at power plants in order to heat and cool residential buildings. In total, trees helped to conserve energy and saved the residents of Tampa approximately \$4.2 million in 2007 (Andreu et al. 2008a).

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

	Heating	Cooling	Total
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
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

