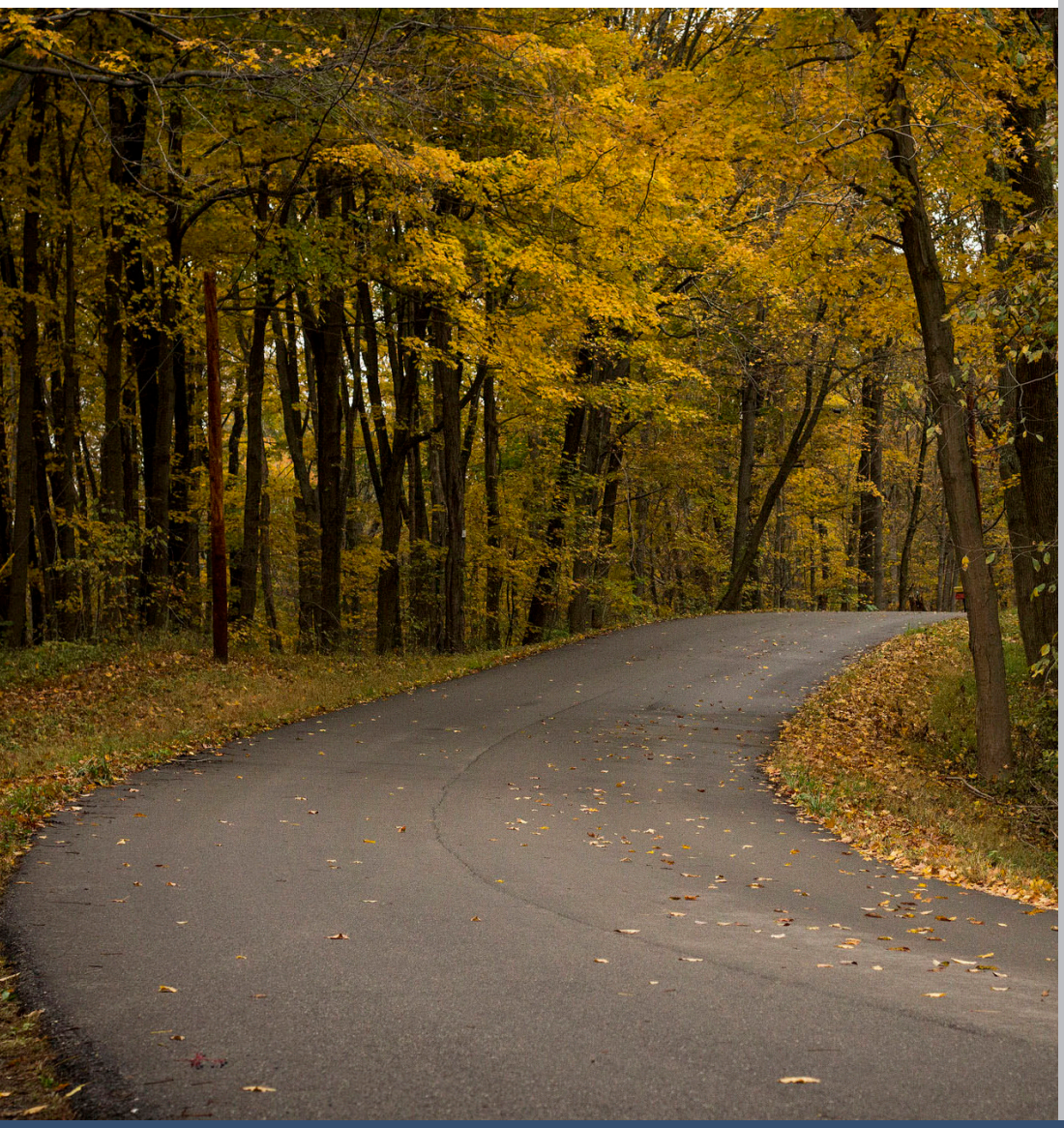
Urban Forests & Energy

Forests are fundamental to the region's sustainable energy future



Energy Reduction

Trees provide shade cover that, when used best, can reduce energy consumption (and energy bills) by 10%.

Forest Products

North Carolina's loblolly pine forests are projected to be a huge economic resource in the future. Their potential to produce energy pellets and biofuels has yet to be fully developed and will likely be a key player in the state's future economy.

Household Energy Use

Increases in tree cover will have large impacts for both urban and rural residents. With less household energy use, homeowners will save on their utility bills, water will be conserved and greenhouse gas emissions will be reduced, making North Carolina a healthier and cleaner place to live, work, and play.

North Carolina is home to 9.5 million people and will grow to 12.4 million in the next 20 years. To prevent brownouts and minimize greenhouse gas emissions, it is necessary to seek out new energy solutions. Trees can reduce energy consumption and offer numerous forest products that are "cleaner" alternatives to fossil fuels.

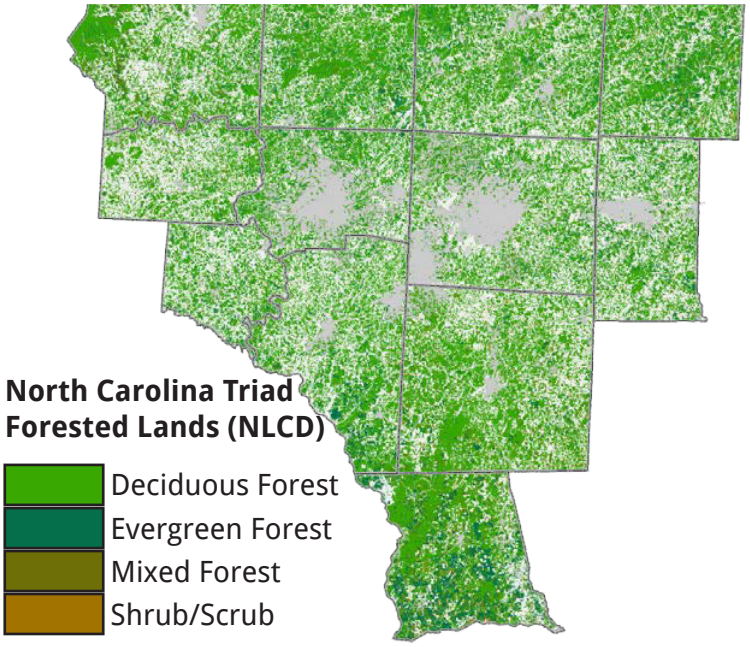
Using Forests to Build a Sustainable Future for North Carolina

North Carolina is one of the country's fastest-growing states. The use of shade trees and investments in biomass fuels can reduce greenhouse gas emissions.

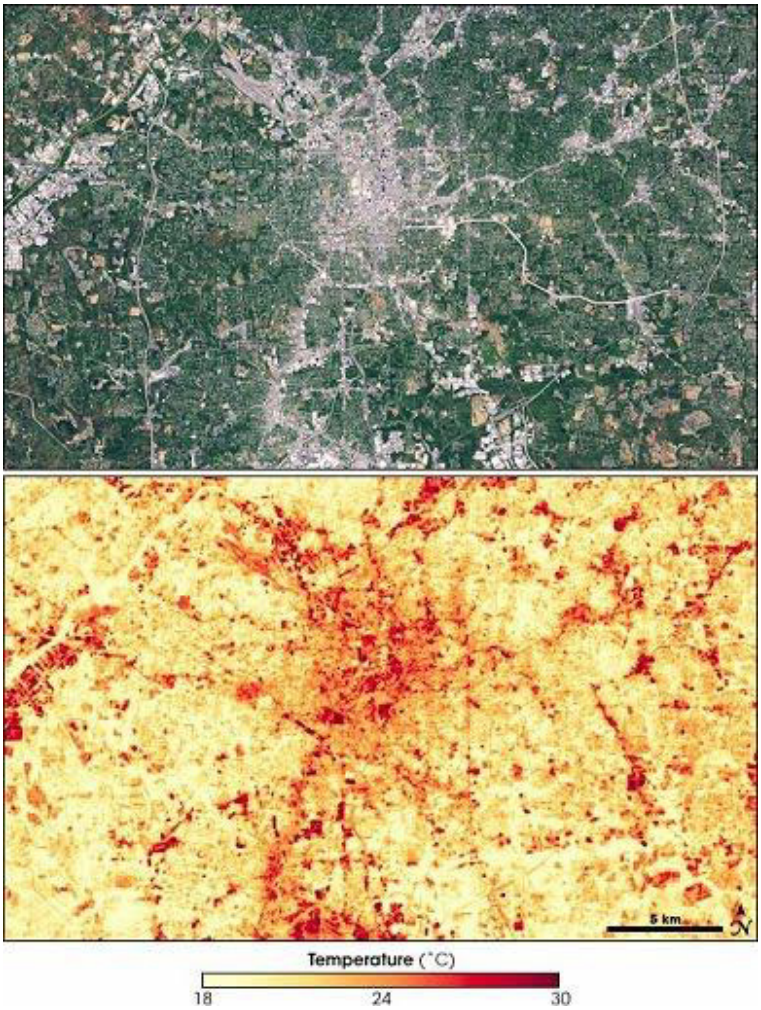
North Carolina is projected to grow from about 9.5 million people in 2010 to 12.4 million in 2030. These people will all need homes and jobs that could stress our air, water, open spaces, and ecology. Market studies show that most of these new families want to move to towns and cities, straying from the historic trend in suburban lifestyles that made the state one of the most sprawling areas in the United States, consuming over 100,000 acres of land every year. This is great news for our forests and farms, but it makes the need to develop sustainable energy policies and practices imperative.

North Carolina's energy largely comes from natural gas, coal, and nuclear sources. It is a region with persistent air quality concerns related to greenhouse gas (GHG) emissions, namely ground-level ozone and fine particulate materials. It has an immediate need to reduce GHG emissions as well as a vested interest in its future to do so. The state's urban heat island effect is already creating disproportionate literal hot spots in urban centers, where older adults and children are vulnerable to extreme heat conditions. The use of shade trees can reduce energy consumption, provide relief for urban residents, and absorb many of these air pollutants. Shade trees also benefit rural residents who mostly live in older homes with poor insulation – half of the state's population, and one that is generally disconnected from health care.

Trees also offer an opportunity to invest in fuels that may burn cleaner than fossil fuels. Biomass fuels are derived from – among other matter – trees and timber byproducts. With global demand for inexpensive lumber such as that produced by loblolly pines, this could be a large emerging market for the state's rural communities that will reduce global GHGs and deliver global revenues to local businesses.

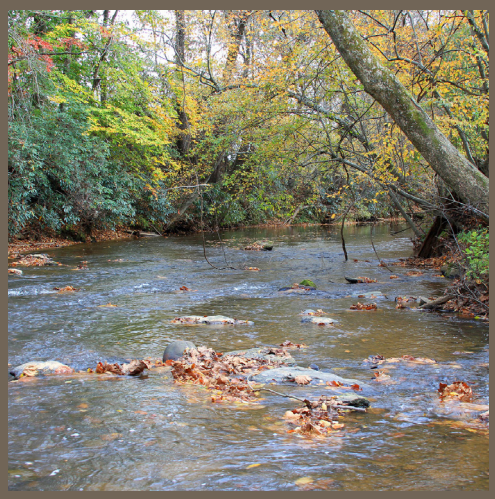


NC'S FORESTS CONTRIBUTE NEARLY $24 BILLION TO THE ECONOMY ANNUALLY, WITH >$60 MILLION GENERATED EVERY YEAR IN THE TRIAD ALONE. HOWEVER, ALL OF THESE BENEFITS ARE RURAL: MOST NC TOWNS AND CITIES HAVE SLIM TO NO CANOPIES.



INCREASED TREE COVER CAN HELP REDUCE THE URBAN HEAT ISLAND EFFECT, DECREASE DEPENDENCY ON FOSSIL FUELS, IMPROVE HEALTH, AND DECREASE ELECTRICITY BILLS.

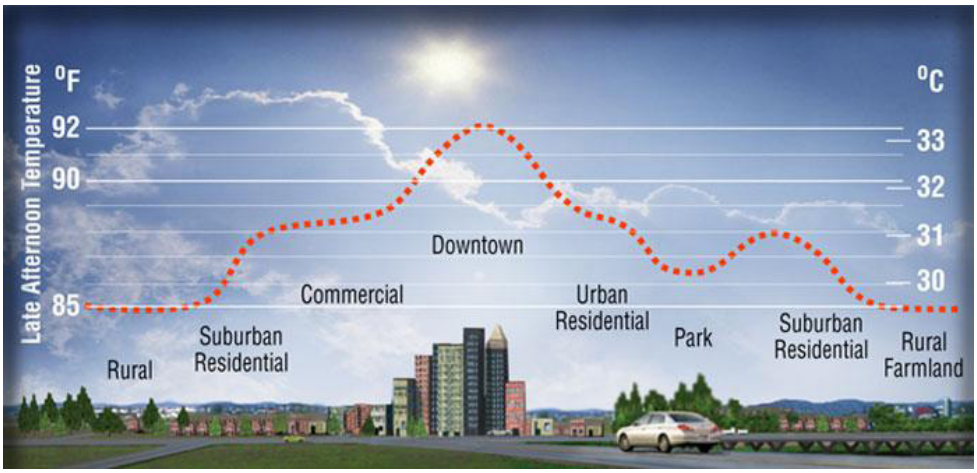
Using shade trees to reduce energy consumption will better ensure sustainable water supplies.



Forested buffers of all sizes provide enormous value for streams and rivers.

Urban trees reduce air and water pollution, as well as cool cities and increase property values. Charlotte's most valuable urban trees return $150 in services for every $1 spent.

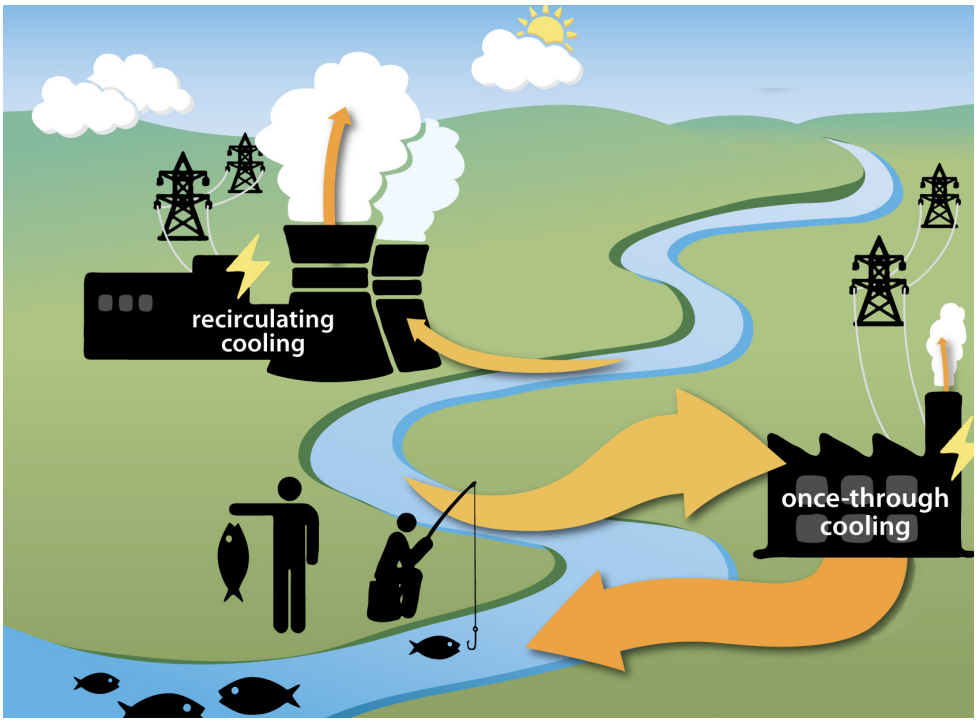
Urban Heat Island Effect



URBAN HEAT ISLAND EFFECT, US DEPARTMENT OF ENERGY

The urban heat island effect is one of the biggest challenges for city and town residents. It amplifies heat and humidity, posing a risk especially for seniors and children.

The Energy-Water Nexus



THE ENERGY-WATER NEXUS, EWWWI, 2011.

Projected to grow from 9.5 million to 12.4 million people by 2030, North Carolina's demand for water and energy will increase significantly. Power plant cooling is by far the largest off stream use of water in North Carolina (Eldridge, M. et al. 2013, 47). During summer months when air conditioning is used more often and water is used by agriculture and residents, there is an increased risk for brownouts.

PIEDMONT
together
Community Choices. Regional Solutions.

In 2011, the Piedmont Triad Regional Council and the Piedmont Authority for Regional Transportation received a $1.6 million grant from the US Department of Housing and Urban Development. With key support from agencies such as the NCFS, they produced Piedmont Together, a sustainable communities plan for the twelve-county Triad region. It features all of the information in this booklet and more. Please visit us at: www.piedmonttogether.org.

Using Trees to Reduce Energy Demand

North Carolina has many tools with which it can solve its current and future challenges. It is one of the fastest-growing states in the country, and the growth is only anticipated to get faster. North Carolina is wealthy in water, but we must protect and manage it so there is plenty for business, residents, and the environment tomorrow. Forests can protect drinking watersheds more efficiently and effectively than any engineering solution; stream buffers are the most cost-effective pollutant management system; and trees only increase in value to absorb stormwater and protect fragile urban streams. Trees are necessary for our state's' future, and we need to recognize their economic and social values as we grow.

Top Recommendations:

- Incorporate forest products into economic plans for rural and urban communities
- Create site design standards that optimize shade cover on the southwest facing sides of buildings.
- Aim for 40% canopy cover of all cities and towns in the state.

NORTH CAROLINA FOREST SERVICE NC

PIEDMONT TRIAD REGIONAL COUNCIL

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