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Woody Biomass for Energy

Biomass is "organic nonfossil material of biological origin constituting a renewable energy source." (USDOE)

With the increase in energy prices in the last few years, biomass is certainly a "hot" topic these days. It's so "hot" in fact, the North Carolina General Assembly recently passed, and Governor Easley signed into law, Senate Bill 3 which is intended "to promote the development of renewable energy." This law establishes a "renewable energy and energy efficiency portfolio standard" (REPS) that requires public utilities to generate a portion of their electricity sales from renewable sources. The REPS starts phasing in five years from now at 3% of the total electricity output and culminates in 2021 at 12.5%. In addition to solar, wind, landfill methane, and hydropower, a significant portion of the REPS will come from biomass, particularly woody biomass.

What this means to YOU

North Carolina landowners potentially stand to benefit from the development of new markets for wood residue from current harvests and small-diameter, low-quality timber. These new markets would allow cost-effective forestry options that currently don't exist in the state. In other words, silvicultural activities such as thinnings or timber stand improvement cuts may be much easier to accomplish. Not only that, final harvests will be "cleaner," and thus more aesthetically pleasing, which will make reforesting these sites much less costly for

landowners. The bottom line? Healthier, more productive forests are good for landowners, good for our forest industry, and good for our state's economy and environment too.

The following two articles provide an easy-to-read overview of the major benefits of woody biomass energy production:

Woody Biomass: The New Frontier?

By John I. Zerbe

With the high cost of refined products from crude oil, it is important to find less expensive alternatives. It is also desirable to reduce fossil fuel consumption to alleviate harmful effects of global warming. This would mean use of more renewable fuels and, possibly, nuclear energy, although there is less concern about global warming in this country than in most other countries.

We should do all we can to use energy from residue wood efficiently and economically, and thereby conserve fossil fuel and reduce high costs incurred through use of petroleum-based fuels. The Energy Policy Act of 2005 should be a big help.

We can have the greatest direct impact on petroleum and natural gas fuel usage by burning or gasifying wood for space heat, process energy and power. One alternative source that is available and underused is surplus wood.

Certainly wood that is suitable for use in more valuable products should not be diverted to energy use that provides less income; however, other wood is unused or even burned or landfilled for disposal. Such wood is well suited for energy applications.

This wood includes small wood that should be removed from stands of timber for fire protection or in regular thinnings in accord with good forest management, "noncommercial" timber (rough trees, rotten trees, and salvageable dead trees), harvesting residues (growing and non-growing residues, uncut trees, and bark), softwood and hardwood removals (land clearing, stand improvement), insect and disease-killed trees, manufacturing residues, and construction/demolition waste.

A 1980 report (USDA 1980) estimated the unused wood available annually for energy in the United States as equivalent to 544 million metric dry tons of energy. This could translate into 1,675 million barrels of oil. A 2005 report estimates that forestlands in the contiguous United States can produce 334 million dry metric tons (368 million dry tons) of biomass for energy annually. Thus it is likely that through the use of existing inventory and expanding productivity and accessibility of forest biomass it would be possible to obtain 10% of our energy needs from forest biomass.



NCWoodlands supports the use of woody biomass, not only for renewable energy, but as a means of providing new markets to help improve the health and productivity of North Carolina's forests.

Analyzing the Future of Wood Energy

Next to hydropower, wood is the most important renewable energy source, and during periods of drought and lowered snow cover on the mountains of the West, wood provides more energy than hydropower. To maintain healthier forests, it is important to remove more material that contributes to dangerous forest fires from forest stands. Much of this wood is more valuable for use as energy than when used for other purposes.

Air and water emissions from burning wood are less problematic than from burning or gasifying coal. With coal there can be problems with sulfur, mercury, and other heavy metals, which don't occur with wood. Air emissions of particulates from burning wood can be reduced with catalytic converters for combustion of unburned hydrocarbons and treatment of exhaust gases through proper individual or combined methods of filtering, scrubbing, and precipitating.

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In the United States, we could and should be getting 10 percent of our energy consumption from wood. It is possible to grow to this level from the current supply of 3.1% of our energy consumption by applying good forestry practices and using more wood residues.

The time is right for implementing available technology in using wood for energy in order to gain economic and environmental advantages. Expansion of infrastructure is also needed (roads, machinery for small-diameter removal, and processing plants) to improve accessibility, harvesting, and the production of wood fuel.

Unless there is greater implementation of the current state of technology, research to improve technology, and infrastructure is given a boost, we cannot make more progress in the next 25 years than we have in the past 25 years.

The original version of this article appeared in the Forest Products Journal, the major academic research journal for the wood science and forest products industry. The author is an Energy Specialist (retired), USDA Forest Service, Forest Products Laboratory, Madison, Wis. You may e-mail John at izerbe@fs.fed.us ■

A Quick Look at Woody Biomass Potential in North Carolina...

- Woody biomass is a **renewable resource** from growing forests with a **sustainably available supply**.
- Woody biomass is a **local resource** that allows money to be re-circulated in North Carolina's rural communities rather than being transferred to coal, gas, and uranium producing states.
- Sustainable woody biomass electricity could displace approximately **\$200 million** of the \$1.7 billion that the state annually exports for coal purchases.
- Woody biomass emissions, contrasted to coal, generate **no mercury, no SOx, and little NOx**.
- Woody biomass is essentially a **carbon-neutral** source of energy.
- Woody biomass is a sustainable, economically viable fuel alternative for the state's utilities and its use would generate **new markets** for residual forest products that are currently unavailable to North Carolina's 700,000 private woodland owners.
- The use of woody biomass fuels would employ North Carolina industries such as trucking, logging, and heavy

equipment that other technologies do not.

- A well-developed woody biomass market would help **improve the health, productivity, and retention of North Carolina's 14 million acres of private forests** by providing viable and much-needed silvicultural options.
- Wood-fueled combustion plants may be established economically and these plants may purchase biomass at prices competitive with the coal, nuclear, and other technologies;
- There is enough annually sustainable wood fuel (harvested as wood chips) from current and expected conventional harvesting operations to generate **875 MW years of electricity** annually in North Carolina and that **none of this** would compete with the forest products industry's use of biomass to generate its own electricity or impact current markets for pulpwood and
- Residual woody biomass can be produced at delivered prices per unit of energy that make it an **economically viable fuel alternative** for public utilities.

SOURCE: Department of Forestry and Environmental Resources, North Carolina State University ■

Quotable...

"Don't be distracted by criticism. Remember - the only taste of success some people have is when they take a bite out of you."

Zig Ziglar



New Officers for NC Woodlands

NC Woodlands is pleased to announce that retired State Forester **Stan Adams** has agreed to serve as the first **NC Woodlands** President. Former NC Forest Landowners Association Executive Director **Ron Bost** will act as Vice-President, Chatham County landowner **Jim Pick, DVM** is Treasurer and Johnston County landowner and retired section supervisor with NCDA's Agronomic Division **Kathleen Whitfield** will serve as Secretary. Please welcome your new officers! ■



The Sustainable Forestry Initiative

The **Sustainable Forestry Initiative (SFI)** is a program put in place by participating forest products companies "to meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic that integrates *reforestation* and the managing, growing, nurturing, and harvesting of trees for useful products with the *conservation* of soil, air and water quality, *biological diversity*, *wildlife* and *aquatic habitat*, recreation, and aesthetics."

The SFI program standards encourage landowners to use the services of "qualified resource professionals" which include **consulting foresters**. The standard also advocates "development of markets for underutilized species and low-grade wood" which—TAA DAA!—are the ingredients of **woody biomass**. If you'd like more information on SFI, go to the program's website at <http://www.sfiprogram.org/>

REPORT POOR LOGGING!
If you see a harvest operation in North Carolina that you believe does not meet the standards of the Sustainable Forestry Initiative, call the SFI Non-Compliance Hotline toll free at
1-877-271-6531

Owen Named New State Forester

Wib Owen has been named as the new director for the NC Division of Forest Resources and began his duties Feb, 1.

Owen, 51, replaced acting director Dan Smith, who retired to take a position with the U. S. Forest Service.

"North Carolina's forest lands add immeasurable value to our economy and quality of life," said Bill Ross, secretary of the NC Department of Environment and Natural Resources, "Wib's experience in managing the state's natural resources and his knowledge of state budget and management practices will be a major asset to the division and the department."

Owen comes over from the NC Wildlife Resources Commission, where he served as the assistant chief of the commission's wildlife management division. In this position, he was responsible for field operations, including land management, technical guidance and wildlife diversity, and coordinated land acquisition for the division. Prior to that position, Owen served the commission for eight years as a wildlife forester, where he had forest management responsibilities on 65,000 acres of state-owned property and also provided technical guidance to private landowners.

Owen is a native North Carolinian and received a master's in wildlife biology and bachelor's degrees in forestry and recreation from NC State University.

SOURCE: NC Division of Forest Resources *North State!*

NC Woodlands Branches Out

"Big Doin's" in Harnett County!

The Harnett County Forestry Association has become the state's first **NC Woodlands** county affiliate.

"Linking with the only statewide organization completely devoted to forest landowners just made sense for us," said association president Rick Cotton, DVM. "Now our folks will get the benefit of being members of **NC Woodlands** too."

"Our members share the vision of **NC Woodlands**," said County Ranger Buren Fulmer, "and we think this vision is important not only to Harnett County but to the rest of the state as well."

This vision may best be summed up by the **NC Woodlands Statement of Purpose**:

- To increase overall awareness of the importance North Carolina's forestland to the overall economic and environmental health of the state;
- To encourage the practice of forestry in North Carolina;
- To promote unity of purpose among North Carolina's woodland owners ;
- To represent the interests of North Carolina woodland owners to legislators and policymakers;
- To keep North Carolina's woodland owners informed of important issues affecting them in the legislative, regulatory, environmental, educational, and legal arenas; and
- To advance the interests of North Carolina's woodland owners in coop-

eration with compatible entities including appropriate state agencies, universities, and other environmental interest groups.

Perhaps Harnett County Extension Agent Gary Pierce said it best: "This is a 'win-win' for us and we encourage other county forest landowner associations to follow our lead."

Caveat venditor!

You've no doubt heard of *caveat emptor*, Latin for "let the buyer beware." Well, there's another phrase called **caveat venditor** or "let the seller beware."

If you've got timber to sell, *caveat venditor!* There are folks out there called "pinhookers" whose goal in life is to separate you from your timber "for a song." Here's how they work: The pinhooker approaches you with what appears to be an enticing offer to buy your timber, knowing the offer is well below the fair market value. Far too often, landowners will jump at what seems like a great price. If you take the bait and sell, the pinhooker immediately resells your timber for its actual value and pockets the difference. That's money that should have gone to you!

Now don't misunderstand, there are plenty of reputable timber buyers in this world who are **not** pinhookers. But always remember pinhookers are con men who *appear* reputable! They'll say anything to con you out of your timber! Here are just a few of the phrases they may use to try to reel you in:

"I'm in the neighborhood so you won't have a better opportunity to sell"

"You've got bugs and need to harvest now before you lose your timber"

"I'll thin it out and cut the big trees and leave the little ones to grow"

"You don't need a consultant, they're expensive and I can pay top dollar"

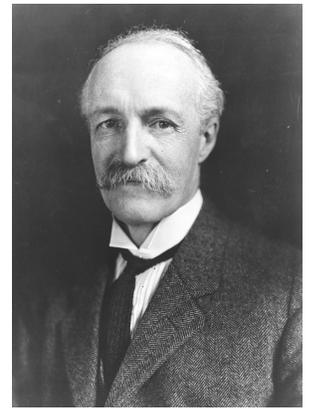
"Global warming is killing your trees and you need to cut them before they die"

So what's a woodland owner to do? Before you sell your timber, make sure you consult with an ethical, competent, and fully-qualified professional **forester** (be sure to check out our next newsletter for how to identify a professional forester). You and your timber will be glad you did.

For more information on finding the right forester for you, contact the North Carolina Chapter of Association of Consulting Foresters at 919-303-9957 or NC State University's Extension Forestry Department at 919-515-5638.

"Next to the earth itself the forest is the most useful servant of man. Not only does it sustain and regulate the streams, moderate the winds, and beautify the land, but it also supplies wood, the most widely used of all materials. The object of practical forestry is precisely to make the forest render its best service to man in such a way as to increase rather than diminish its usefulness in the future."

Gifford Pinchot (First American Forester) from *A Primer on Forestry*



Gifford Pinchot
Photo courtesy of Library of Congress

RESISTANCE IS FUTILE...



MEMBERSHIPS START AT ONLY \$15

FOR MORE INFORMATION CONTACT:



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NCWoodlands

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Mission Statement of NCWoodlands:

To promote responsible stewardship of North Carolina's woodlands through sound and sustainable forest management.