

Wood Bio Guide 2018

# wood bioenergy

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## Ten Years In The Books: Sustainability Stands Tall

Enviva's Sampson, North Carolina industrial wood pellet production plant, one of seven such facilities the company operates in the southeastern U.S.



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# Operating Sustainably Low Impact Harvests



A decade after the first export pellet plant started up, recent research shows the industry operates sustainably.

By Dan Shell

Remember those heady days a decade ago, when Green Circle and Dixie Pellets were the first two mills to start up in 2008? And soon after a stream of similar projects were announced, kicked around and in some cases greenlighted, leading to today's industry that features almost 20 export pellet mills scattered from Virginia to Texas in close proximity to Gulf and Mid Atlantic ports. The industry's annual production is approaching 5 million tons with a collective annual capacity of 6 million tons.

As with any major natural resource-based industrial expansion, there's bound to be critical assessments from environmental groups, and the pellet industry has seen its share of ginned-up controversy from groups such as the Dogwood Alliance, which has made the most noise over pellet industry harvesting practices.

"For as long as I've been in the business, we have had these groups that hate the idea of industrial forestry," says Dean McCraw, consulting forester and owner of McCraw Energy, who's worked in Southern fiber management for decades. "I never understood their campaign of lies and hatred for the industry, as the alternative to forestry is what?"

Yet despite such environmental concerns, recent research shows that after a decade of operations and rapid expansion, the wood fuel pellet export industry has had minimal impact on Southeastern U.S. timber inventories and even less discernable impact on environmental quality.

Research released in 2017 and supported by the U.S. Dept. of Energy's Oak Ridge National Laboratory Center for BioEnergy Sustainability and other groups has shown the pellet industry, after a decade of operation and growth, is quite sustainable.

One paper, "Status and prospects for renewable energy using wood pellets from the southeastern United States," covered a mountain of scientific studies and literature related to the question.

Findings show that pellet production accounted for only 2% of total tree harvest removals in 2014. Additional data shows pellet exports account for less than 1% of U.S. forest products by weight and less than .5% of total export value.

The research also shows that the biggest threat to Southern U.S. timber inventories isn't logging, it's land conversion to other uses. While logging can produce short-term loss of carbon stock and habitat alteration, responsible management is always preferable to non-forest conversion.

Pellet production also provides a key market input by creating demand for lower value timber, which in turn gives landowners more incentive to manage for timber.

With the Forest Service projecting up to a 10% decline in forest area in the Southeastern U.S. by 2060 due to population growth, urban development and conversion to agricultural use, it's important for landowners to have motivation to retain forested land, researchers say.

Researchers note that in response to future forest product market conditions landowners could go to shorter rotations, higher density planting or more frequent thinning that could affect carbon stock levels, but to date there's no evidence of any change in stocking density trends according to Forest Service data for counties in areas of high pellet production.

Researchers also report that prices for bioenergy feedstocks are unlikely to increase enough to drive major shifts in forest management because low-cost biomass is plentiful across the globe.

One indirect benefit of pellet demand is closer review of current practices by all stakeholders involved in the industry, and an ongoing monitoring of the effects of pellet industry harvests to ensure confidence in forest and habitat management systems.

In its final conclusion on the prospects of using Southeastern wood pellets for renewable energy, researchers stated "The balance of evidence... suggests that current levels of wood pellet production in the SE



Timber inventories have grown since 2009.

USA have had a benign effect on forest ecosystem services."

Another research study supported by the same groups looked at Forest Service Forest Inventory and Analysis annual survey data for two timber regions supplying pellet wood to mills feeding the ports of Chesapeake, Va. and Savannah, Ga., from 2002-2014.

Both recorded timber inventory increases during that time, including more timber and plantation volume on the Chesapeake area, and larger carbon pools and more areas with large timber in the Savannah area. According to the study, "These results show that benefits accrue when sustainable forest management provides wood pellets for energy that keep fossil fuel in the ground."

## Certification

Jennifer Jenkins, Enviva Vice President and Chief Sustainability Officer, notes the Southeastern U.S. provides one-sixth of the timber used globally every year. Pellet producers source raw material as part of a much larger forest products market, and lower-grade material used for pellets generally takes a backseat to other landowner objectives.

"Landowners don't manage and harvest forests for the lowest value product, which is biomass, and pellet demand does not drive harvest and management decisions," she says.

"There is a positive relationship between rates of forest harvests on the one hand, and forest regrowth on the other," Jenkins emphasizes. "This makes sense, because landowners respond to strong markets for forest products by planting more trees." She adds that in the areas that supply Enviva's mills, "Forest acreage and forest inventory have increased, not decreased, since we established our first U.S. plant."

According to Seth Ginther, Executive Director of the U.S. Industrial Pellet Assn. (USIPA), "Sustainability is the cornerstone of our industry. As providers of renewable fuel, it is critical that we not only utilize sustainable raw material, but that we are able to demonstrate sustainability to our customers throughout the entire supply chain."

Indeed, maintaining sustainable raw material procurement operations and certifying them through a third-party auditing system is crucial to European power markets, where most pellet exports are destined, and also to define fuel pellets as sustainable in global markets as well.

"European sustainability regulations apply to every shipment of wood pellets for energy that cross the Atlantic," Ginther says, noting that the U.S. industry uses internationally-recognized forestry certification programs for chain of custody and supply chain certification, including

FSC, SFI, PEFC, and SBP. Each program requires regular audits by independent, third-party auditors. This information, plus the greenhouse gas emissions calculations for sourcing, production and transport, are then reported to European regulators who determine compliance with laws and regulations.

In addition to sustainability certification programs, industry also relies on an extensive network of state and federal forestry and environmental laws to ensure sustainability and limited environmental impact. In the U.S., both industrial and non-industrial private landowners operate and manage their forests according to state forestry best management practices (BMPs) and are also subject to federal, state and local laws and regulations, including the Clean Water Act, Clean Air Act, and Endangered Species Act.

Ginther also cites the recent research showing that wood fuel pellet harvests make up a small amount of overall logging activity and the FS FIA Program that has shown stable and increasing timber inventories in many regions despite population growth and urban development. “This is thanks to strong markets for wood fiber, which make forest land more valuable, and lead to more forests and healthier forests overall as landowners are incentivized to replant and sustainably manage their lands,” he says.

Developing a truly sustainable energy source is key to re-



Pellet demand motivates landowners to grow trees.

ducing carbon emissions, he adds. “The industrial pellet industry has tapped into an underutilized natural resource in the U.S. South and developed a sustainable, innovative supply chain that can take this raw material and deliver it to the world in the form of densified renewable fuel that provides a low-carbon, baseload substitute for coal,” Ginther says.

## Investments In Sustainability

As the world’s largest industrial wood pellets producer, Enviva is making major investments in sustainability. Here, Enviva’s Jenkins details some of the company’s programs and efforts:

“As businesspeople, the last thing we want to do is reduce the long-term productivity of the forests in our sourcing regions, and as responsible forest stewards, we work hard to ensure that ecologically sensitive forests stay intact,” Jenkins says. “We strive to be leaders in environmental stewardship and we know we can always do better. Our Track & Trace (T&T) supply chain transparency program is a one-of-a-kind system that makes it possible for

us to track every ton of wood we buy back to its origin in the forest or at a sawmill.”

The T&T program is audited by NSF International (an independent third party) and provides stakeholders with unmatched supply chain transparency, Jenkins says. “We are able to continuously monitor the types of forests and harvests from which we source in order to ensure our feedstock aligns with the value we place on people and forests.”

T&T features a Forest Trend Map based on time-series data from the U.S. Forest Service that displays changes in overall forest conditions in the Southeastern U.S. and in each of Enviva’s forest supply areas. T&T also features the Enviva Wood Supply Map, which provides detailed information on actual timber harvests around each of Enviva’s facilities, including harvest site, landowner type, forest type, harvest type, years since last harvest, the number of acres harvested and the percentage of the harvest volume provided to Enviva for wood pellet production. The information is available at [www.envivabiomass.com/sustainability/track-and-trace/](http://www.envivabiomass.com/sustainability/track-and-trace/).

“As the T&T system matures, we expect to learn more and incorporate our findings into our operations and procedures,” Jenkins says, adding the T&T online data is updated quarterly, with six months’ worth of data always being available, and historical summaries are posted as well.

Jenkins notes that Enviva does not source wood from sensitive ecosystems. Working with the U.S. Endowment for Forestry and Communities, Enviva decided not to accept biomass from four sensitive types of bottomland hardwood forests—certain cypress-tupelo swamps, Atlantic white cedar stands, low pocosins, and Carolina bays.

And to help preserve some of the most special tracts of bottomland forests, Enviva started the Enviva Forest Conservation Fund, managed by the Endowment. Enviva is investing \$5 million into the Fund over 10 years. Counting additional investments and grants, Enviva and Endowment officials hope to support the protection of at least 35,000 acres of bottomland forests.

Thanks to the 2016 Enviva Forest Conservation Fund grants, more than 1,200 acres of bottomland forests have already been preserved with perpetual easements, and counting grants made in 2016 and 2017, the Fund has already made possible the preservation of about 4,000 additional acres of bottomland forests.

In 2016, Enviva and the Endowment convened a panel of experts from NGOs, state agencies, private industry, and landowners to recommend enhanced bottomland forest management practices and ways to increase implementation and also identify research or knowledge gaps.

A significant outcome from the panel process was the augmentation of high conservation values (HCV) protection using a tract-by-tract assessment, Jenkins says. “Before buying any biomass, Enviva assesses each tract to make sure it’s not a high conservation-value forest as well as to ensure that it meets our other high standards for sustainability,” she adds.

According to Jenkins, the Enviva Forest Conservation Funds Request For Proposal (RFP) for 2018 announced an



Operations monitoring is key.

expansion to include more counties in the coastal plain of North Carolina, which will help preserve critical habitats in the Cape Fear River

and Pee Dee watersheds.

Jenkins adds that she has “no doubt that the growing wood pellet industry is a positive development for forests and for people, and we at Enviva work hard every day to make sure that continues to be true.”

### Future

Looking ahead, it’s important to maintain and expand efforts to promote sustainability.

McCraw notes that pellet producers need to be proactive and not reactive in the face of increased scrutiny. He cites the landowner assistance programs that were popular during the era of integrated forest industry companies. Landowners would sign right of first refusal contracts with mills that would in turn offer landowners

forest management assistance, discounted seedlings or other benefits.

“This would assure that the harvested stands are regenerated, which is the real backbone of sustainability,” McCraw says.

Jenkins believes an emphasis on transparency reflects a sustainability commitment, as evidenced by Enviva’s Track & Trace program, and she’d like to see more producers adopt similar systems as a boost to overall industry.

Using Track & Trace, “We can now provide stakeholders with unmatched supply chain transparency and are able to continuously monitor our feedstock sourcing in order to ensure that we are sourcing wood in a way that is consistent with the value we place on people and forests,” Jenkins says. 🍃