

Biomass and its Environmental Justice Impacts on Low-Income and Minority Communities in North Carolina

By: McKenna Fono

I. Introduction

In 2009, the European Union made a commitment to have twenty percent renewable energy by 2020 and included biomass on the list of available sources of renewables.¹ Biomass became a popular choice among European nations, accounting for forty percent of their renewable energy in 2014, because of its ability to “hit two birds with one stone”: (1) it is a renewable energy source and (2) it is considered carbon neutral.²

The theory behind this carbon neutrality is that the carbon burned through biomass pellets can be offset by newly planted trees, eventually reaching parity and equalizing the amount of carbon released into the atmosphere.³ Capitalizing on a process known as clear cutting,⁴ the pellet industry uses cleared timber, which would otherwise go to waste, to produce biomass pellets.⁵ Biomass pellets are created through a “manufacturing process that puts razed trees through a chipper and compresses them into pellets, which are then sold to companies that incinerate the wood bits to generate energy.”⁶

Unfortunately, the reality of the benefits associated with biomass production is more complicated. Tree regrowth is a slow process, and the time that it would take to reach parity spans from decades to centuries.⁷ During this time, the carbon dioxide released into the

¹ Saul Elbein, *Europe’s Renewable Energy Policy is Built on Burning American Trees*, VOX (Mar. 4, 2019, 7:20 AM), <https://www.vox.com/science-and-health/2019/3/4/18216045/renewable-energy-wood-pellets-biomass>.

² *Id.*

³ *Id.*

⁴ Clear cutting is a practice by which the logging industry clears forests in order to promote growth. *Id.*

⁵ *Id.*

⁶ Luis Feliz Leon, *Can’t See the Forest Through the Trees*, AM. PROSPECT (Oct. 11, 2021), <https://prospect.org/environment/cant-see-the-forest-for-the-trees/>.

⁷ *See id.*

atmosphere from burning biomass will exacerbate climate change and reaching parity will not reverse that damage.⁸

The Southeastern United States “has become ground zero” for the production of wood pellets for Europe⁹ since the region has considerably fewer forestry regulations than Europe.¹⁰ For example, according to the North Carolina Forest Service (“NCFS”), there are currently no best management practices for handling logging for biomass manufacturing.¹¹

Currently, North Carolina does not use biomass as a source of clean energy, concluding that the science behind the associated carbon neutrality is contentious.¹² Because of this position regarding biomass, North Carolina should examine, and caution, its continued use and create better protections for communities that are at risk due to their proximity to biomass production facilities, especially regarding new clean energy techniques that need a better vetting process. Part II of this paper will discuss why North Carolina is invested in producing biomass despite its own qualms about using it for energy. Part III will examine the impacts of biomass production on North Carolina citizens and communities, and Part IV will illustrate these impacts, using Robeson County as a case study. Finally, Part V will discuss possible solutions to protect North Carolinians and look forward to where the biomass industry is heading in North Carolina.

⁸ *See id.*

⁹ *Fact Sheet: New Report Shows Wood Pellets from Drax’s U.S. Mills Increase Carbon Emissions During the Timeframe Necessary to Address Climate Change*, S. ENV’T L. CTR. 1–2., https://www.southernenvironment.org/wp-content/uploads/2021/09/Biomass_Factsheet_0921_F.pdf.

¹⁰ *Clean Energy? Don’t Look for Wood Pellets to Supply It*, SIERRA CLUB (Jan. 19, 2021), <https://www.sierraclub.org/north-carolina/blog/2021/01/clean-energy-dont-look-for-wood-pellets-supply-it>.

¹¹ *Frequently Asked Questions About Logging in North Carolina*, N.C. FOREST SERV., http://ncforestservice.gov/managing_your_forest/logging_faq.htm.

¹² Majlie de Puy Kamp, *How Marginalized Communities in the South Are Paying the Price for ‘Green Energy’ in Europe*, CNN (Jul. 9, 2021), <https://www.cnn.com/interactive/2021/07/us/american-south-biomass-energy-invs/>.

II. Biomass Production in North Carolina

The North Carolina Department of Environmental Quality (“NCDEQ”) concluded in its 2019 Clean Energy Plan for North Carolina that biomass does not advance the state’s clean energy goals.¹³ They found, based on scientific research, that “[b]iomass combustion releases carbon into the atmosphere at a faster pace than if the forests were left intact to absorb and sequester carbon dioxide emitted from anthropogenic sources.”¹⁴ Based on these concerns and other scientific findings “that the use of wood as fuel is likely to result in net CO₂ emissions and may endanger forest biodiversity[,]” the NCDEQ believes that the use of biomass as an energy source should be challenged at both the national and international levels.¹⁵ However, this strong stance has not curbed interest in producing biomass pellets in the state, as North Carolina is soon to have five operating biomass pellet plants.¹⁶

A primary reason for this contradictory behavior is that many proponents in North Carolina feel that believe that biomass production can improve and promote the rural economy in North Carolina, which should in turn improve rural communities.¹⁷ In fact, “[s]ince the industry began expanding in the state in 2014, the pellet producer Enviva has received \$7 million in state incentives, most tied to job creation”, thus reinforcing North Carolina’s strong belief in biomass production’s economic potential.¹⁸ Despite these potential economic benefits, however, the

¹³ *North Carolina Clean Energy Plan*, N.C. DEP’T OF ENV’T QUALITY, 1, 25 (Oct. 2019), https://files.nc.gov/governor/documents/files/NC_Clean_Energy_Plan_OCT_2019_.pdf.

¹⁴ *Id.* at 25–26.

¹⁵ *Id.* at 26.

¹⁶ *See* Leon, *supra* note 6.

¹⁷ Emma Gosalvez, *Biomass, A Sustainable Energy Source for the Future?*, N.C. STATE UNIV. COLLEGE OF NAT. RES. NEWS (Jan. 15, 2021), <https://cnr.ncsu.edu/news/2021/01/biomass-a-sustainable-energy-source-for-the-future/>.

¹⁸ David Boraks, *Environmental Groups Urge NC Gov. Cooper to Cut Support for Wood Pellet Industry*, WFAE (May 26, 2021, 6:01 PM), <https://www.wfae.org/energy-environment/2021-05-26/environmental-groups-urge-nc-gov-cooper-to-cut-support-for-wood-pellet-industry>.

biomass industry may pose significant environmental and public health threats to North Carolina communities.

III. Impacts of Biomass Production on North Carolina Communities

A. Potential Benefits

With abundant trees in the state, North Carolina has viewed the biomass industry as a way to support the economies of its lower-income counties.¹⁹ For example, in Northampton County, local officials used financial incentives to lure Enviva to construct a biomass production facility.²⁰ Enviva has created sixty-two local jobs, provided supplies to local schools, sponsored food banks during the pandemic, and even given residents hams for Christmas.²¹

Regrettably, the economic benefits have not been felt at the local level.²² Though the Northampton facility has created jobs, local property taxes subsequently increased by six percent, with the biomass plant as one of the biggest drivers of this increase.²³ Northampton County now has the third highest property tax rate in the state.²⁴ Moreover, the county still has one of the highest unemployment rates statewide, and this rate has doubled during the pandemic.²⁵ While Enviva has created jobs and participated in community outreach, this has not been enough of a solution to the economic issues poor, rural counties like Northampton are facing.²⁶ Although policymakers in North Carolina feel that biomass manufacturing can be the solution to the economic issues faced by poorer, rural counties, the state might be better off looking elsewhere, given the additional downsides associated with biomass manufacturing.

¹⁹ de Puy Kamp, *supra* note 12.

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ de Puy Kamp, *supra* note 12.

²⁶ *See id.*

B. Environmental and Public Health Harms

The negative impacts of biomass production in North Carolina include air and noise pollution. Biomass plants in the Southeast consistently release large amounts of pollutants into the air, resulting in respiratory illnesses in surrounding communities.²⁷ The Environmental Protection Agency (“EPA”) has classified some of these pollutants as “hazardous air pollutants.”²⁸ Companies, like Enviva, claim that since they are complying with their permits and federal and state legal emission standards, these pollutants should not pose a risk to public health or the environment.²⁹ Moreover, Enviva made a statement that a state air quality monitor five miles from their Northampton plant determined that particulate matter 2.5 (“PM2.5”) levels did not pose a public health risk.³⁰ Yet year-round exposure to PM2.5 has been linked to “asthma and slowed lung function in children and increased risk of cancer, heart attacks, strokes and death from cardiovascular disease.”³¹

Additionally, community members living near these plants claim that the associated air pollution greatly impacts their daily lives, preventing some from even being able to go outside without coughing.³² Although the National Ambient Air Quality Standards (“NAAQS”) for PM 2.5 have not been strengthened since 2012, the EPA admitted in June, 2021, that current PM2.5 NAAQS are being reexamined since “scientific evidence and technical information indicate that the current standards may not be adequate to protect public health and welfare”³³ Thus,

²⁷ *See id.*

²⁸ Hazardous air pollutants include formaldehyde, methanol, and other dangerous particles like carbon dioxide and PM2.5. *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ de Puy Kamp, *supra* note 12.

³² *Id.*

³³ *EPA To Reexamine Health Standards for Harmful Soot That Previous Administration Left Unchanged*, U.S. EPA (Jun. 10, 2021), <https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged>.

although biomass pellet producers may be complying with current standards, this does not mean that public and environmental health are not negatively affected. As long as companies meet current standards, they are unlikely to take additional, and expensive, measures to decrease pollutant levels.

Biomass facilities in North Carolina run twenty-four hours per day, seven days a week, emitting extremely loud noise.³⁴ As a result, many nearby residents are not able to sleep properly at night or even relax during the day.³⁵ Exposure to noise pollution is a serious issue because it may result in many health issues, including increased stress and anxiety, difficulty sleeping, hearing issues, and an increase in blood pressure and cardiovascular diseases.³⁶ Noise pollution may also cause problems in children's development by affecting their ability to concentrate, communicate, and form relationships.³⁷

Currently, biomass facilities operate unregulated at these extreme noise levels at all hours.³⁸ The EPA does not regulate or enforce noise pollution laws.³⁹ Instead, regulation is left to North Carolina counties.⁴⁰ It is possible that noise pollution complaints by residents have been ignored because biomass companies have shifted the blame to other plants in the area, confirmed their compliance with current regulations, and claimed that residents are not being

³⁴ de Puy Kamp, *supra* note 12.

³⁵ *Id.*

³⁶ Hellen Millar, *What are the Health Effects of Noise Pollution?*, MEDICAL NEWS TODAY (Dec. 21, 2020), <https://www.medicalnewstoday.com/articles/noise-pollution-health-effects>.

³⁷ *Id.*

³⁸ See David Boraks, *As the Wood Pellet Industry Expands in North Carolina, Global Debate Ensues*, WUNC (Dec. 14, 2021, 7:10 AM), <https://www.wunc.org/environment/2021-12-14/as-the-wood-pellet-industry-expands-in-north-carolina-global-debate-ensues>.

³⁹ See *Clean Air Act Title IV Noise Pollution*, EPA, <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution>.

⁴⁰ N.C. Gen. Stat. Ann. § 153A-133.

truthful.⁴¹ Until biomass companies are subjected to strong regulations, noise pollution will likely continue to harm these community members' daily lives.

C. Environmental Racism Concerns

It is no secret that the biomass companies have set up their facilities in majority minority and/or impoverished communities across the Southeast.⁴² In fact, nine out of ten of Enviva's biomass plants are set in communities where there is a higher percentage of Black residents than in the state as a whole.⁴³ Moreover, all of Enviva's U.S. plants are in communities that have lower median household incomes than their states.⁴⁴

There are two possible reasons for this. First, biomass companies publicly assert that rural communities need businesses to boost their economies, since the textile and forest industries have disappeared.⁴⁵ Second, communities in these largely rural areas do not have adequate access to information about these new, incoming plants.⁴⁶ Companies that produce biomass pellets lack transparency with the communities they operate in, and most citizens in these rural communities get their information from their church or local paper, many of which have dramatically decreased distribution.⁴⁷

⁴¹ Rebecca Speare-Cole, *Biomass is Promoted as a Carbon Neutral Fuel. But is Burning Wood a Step in the Wrong Direction?*, The Guardian (Oct. 5, 2021, 1:00 PM), <https://www.theguardian.com/environment/2021/oct/04/biomass-plants-us-south-carbon-neutral>.

⁴² See de Puy Kamp, *supra* note 12.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ Boraks, *supra* note 38.

⁴⁶ *'We are Worth More': Lumber Riverkeeper Protects Key Community Resource*, S. ENV. L. CTR. (Aug. 19, 2021), <https://www.southernenvironment.org/news/we-are-worth-more-lumber-riverkeeper-labors-to-keep-a-key-community-resource-safe/> [hereinafter *We are Worth More*].

⁴⁷ *Id.*

Additionally, many counties themselves have not been transparent with their citizens about biomass plants.⁴⁸ For example, in Richmond County, an air permit for an Enviva plant was issued without any notice to citizens or opportunity for comment.⁴⁹ The only public notice of the draft permit included an invalid address.⁵⁰ Therefore, residents only became aware that the plant was coming to their county after the permit's finalization.⁵¹ Even after being notified of this error, the NCDEQ did not draft a new permit and allow for a new hearing; instead, they merely amended the address on the permit.⁵²

Because of the lack of access to information in rural, low-income communities, it is easier for companies to obtain necessary permits since citizens are unable to challenge what they do not have information about.⁵³ Thus, it is possible that biomass companies prefer these poorer communities since they can operate their facilities without much pushback and easily disguise their endeavors as a goodwill campaign to improve local economies.

IV. Case Study: Robeson County

Active Energy, a newer biomass company, recently began operations in Lumberton, North Carolina, hoping to break into the biomass industry with their new type of wood pellet.⁵⁴ Active Energy's pellet mill manufactures coal-like, black pellets ("CoalSwitch") for exportation to European and Asian markets.⁵⁵ Active Energy touts the benefits of CoalSwitch, including (1) its ability to be both a standalone fuel for power plants or be burned with coal, (2) its cost

⁴⁸ See *N.C. Citizens Group, SELC Challenges Permit for Polluter Issued Without Public Notice*, S. ENV. L. CTR. (May 8, 2017), <https://www.southernenvironment.org/news/n.c.-citizens-group-selc-challenge-permit-for-polluter-issued-without-publi/>.

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ See *We are Worth More*, *supra* note 36.

⁵⁴ See *id.*

⁵⁵ *Id.*

savings for utilities that use the pellets since these facilities would not need to do any retrofitting, and (3) its ability to burn cleaner than coal due to the steam manufacturing process that removes some contaminants.⁵⁶ However, the techniques associated with the new pellets bring new dangers for the residents of Robeson County, some of which Active Energy has not properly communicated or has even tried to cover up.⁵⁷

Active Energy, like other biomass companies in North Carolina, has placed its plant in a majority minority community.⁵⁸ Additionally, Robeson County has a high level of poverty, with 29.2 percent of the population living below the federal poverty level.⁵⁹ Some residents feel Active Energy chose their community in hopes that, like other demographically similar communities, their operations would face little pushback.⁶⁰

Active Energy has not been transparent about its pollution in Robeson County and has tried to cut corners where they can.⁶¹ Active Energy touted that its emissions of air pollutants would be so insignificant that they would not need to obtain a permit and tried to avoid getting one.⁶² However, absent empirical evidence, the NCDEQ still required a permit.⁶³ After the NCDEQ granted Active Energy's permit, the company tinkered with their technology, purportedly to decrease emissions.⁶⁴ The company filed an amended permit application to

⁵⁶ Lisa Sorg, *Once Planned for North Carolina, Active Energy's Wood Pellet Experiment in Maine Hits a Snag*, THE PULSE(Jul. 20, 2021), <https://pulse.ncpolicywatch.org/2021/07/20/once-planned-for-north-carolina-active-energys-wood-pellet-experiment-in-maine-hits-a-snag/#sthash.MnOpNHYA.dpbs>.

⁵⁷ *See id.*

⁵⁸ *We are Worth More*, *supra* note 36 (“Approximately 39 percent of the population in Robeson County is American Indian, . . . [r]oughly 26 percent of the county population is white, and 23 percent is Black or African American.”)

⁵⁹ *Environmental Justice Snapshot Report, Active Energy Renewable Power-Proposed Facility*, 1, 9 (Feb. 14, 2020) <https://files.nc.gov/ncdeq/EJ/Active-ERP-EJ-Snapshot-.pdf>.

⁶⁰ *See We are Worth More*, *supra* note 36.

⁶¹ *See id.*

⁶² Lisa Sorg, *Active Energy's Wood Pellet Operation in Maine has Failed; No Word on Fate of Lumberton Plant*, THE PULSE(Nov. 18, 2021), <https://pulse.ncpolicywatch.org/2021/11/18/active-energys-wood-pellet-operation-in-maine-has-failed-no-word-on-fate-of-lumberton-plant/#sthash.1INNLEsP.dpbs>.

⁶³ *Id.*

⁶⁴ *Id.*

reflect these changes in April, 2021 where The NCDEQ found inconsistencies in Active Energy’s emissions estimates.⁶⁵ There were significant projected increases for carbon monoxide, particulate matter, and hazardous air pollutants⁶⁶ These are sharp—and potentially dangerous—changes that Active Energy did not disclose to NCDEQ officials.⁶⁷ Now, it is unclear what the future holds for the Lumberton facility.⁶⁸

Additionally, the CoalSwitch manufacturing process discharges polluted wastewater into the nearby Lumber River, a source of drinking water for the surrounding community.⁶⁹ The Southern Environmental Law Center (“SELC”), sued Active Energy for discharging wastewater for nine months without a permit.⁷⁰ The lawsuit was filed on behalf of the Winyah Rivers Alliance and outlines concerns about unlawfully discharged pollutants like nitrogen, suspended solids, coppers, zinc, and chromium by Active Energy in the Lumber River and Jacob’s Branch.⁷¹ Without a permit, a company can store wastewater on or offsite or sell it, but they cannot discharge wastewater into a river.⁷² Obtaining a permit would require a company to monitor and limit toxic pollutants.⁷³ Active Energy likely wanted to avoid the permit application process, which would require the company to disclose its treatment of contaminated water to residents and give them an opportunity to comment.⁷⁴ The pollutants stored on site have the potential to deplete oxygen in the water, which would result in suffocation of aquatic life and

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *See id.*

⁶⁸ *See Sorg, supra* note 63.

⁶⁹ *See Conservation Groups Seek to Stop Wood Pellet Company’s Illegal Pollution of Lumber River*, S. ENV. L. CTR.(Aug. 11, 2020), <https://www.southernenvironment.org/news/conservation-groups-seek-to-stop-wood-pellet-companys-illegal-pollution-of-lumber-river/> [hereinafter *Conservation Groups*].

⁷⁰ *We are Worth More, supra* note 36.

⁷¹ *Active Energy Sued for Illegal Pollution of N.C.’s Lumber River from Toxic Site*, S. ENV. L. CTR.(Mar. 10, 2021), <https://www.southernenvironment.org/news/active-energy-sued-for-illegal-pollution-of-north-carolinas-lumber-river-from-toxic-site/>.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *See id.*

harm the drinking water supply.⁷⁵ If the SELC had not acted, the repercussions from Active Energy's illegal discharging could harm both aquatic and human health, and it would have gone unknown until health issues appeared.⁷⁶

V. Conclusion

Without proper regulations on the biomass industry, legal action by public interest groups, like SELC, might be the only feasible answer to the industry's consequences on North Carolina communities by holding these companies accountable. Having these companies' actions and statements double checked by public interest groups and taking legal action on inconsistencies can greatly protect the environment and communities affected by these plants.

These types of legal challenges are even more important as the Biden Administration begins pushing for more green initiatives, which has led to a rush of companies aiming to capitalize on available subsidies in the green industry.⁷⁷ Likely, there will be more innovative green technologies, like CoalSwitch, entering the market and affecting other disadvantaged communities. While it is important that we innovate to protect our world from ongoing climate change, we need to ensure new practices do not harm our communities or further harm our climate. As Active Energy's implementation of CoalSwitch has illustrated, new technology brings uncertainty about environmental and public health impacts., To combat such uncertainty, we need to: (1) help educate and disseminate information to communities where these plants are potentially being placed, (2) accurately vet these new processes to ensure they are not causing undue harm, and (3) improve permit requirements to accurately reflect levels that are safe for people and communities.

⁷⁵ *Conservation Groups*, *supra* note 70.

⁷⁶ *See id.*

⁷⁷ *Leon*, *supra* note 6.