

Active Energy

Summary

Active Energy,ⁱ \$13 million in market capitalization, 40 employees and no debt, through subsidiaries, provides biomass fuel and energy efficient solutions to reduce energy consumption and CO2 emissions. Active Energy Renewable Power LLC (AERP) proposed to produce wood pellet biofuel for export to Europe as a coal amendment/substitute, using a new proprietary technology. The technology is untested but is revealed to produce a likely public health risk through air pollution, in an already heavily polluted black, Indigenous, and people of color (BIPOC) community, producing a disproportionate environmental health burden.

AERG's Lumberton facility faced substantial opposition before the controversy that led to the notice of intent to sue. The CoalSwitch™ pellets burn cleaner than coal in power plants, but the emissions from the manufacturing plant are undocumented. The controversy extended beyond emissions to encompass the feedstocks for the pellets, which while marketed as “waste wood” byproducts of lumber operations, also include whole trees.

Company Overview

Active Energy uses a proprietary technology called CoalSwitch™ to produce an improved biomass pellet using waste materials from lumber operations to create a direct replacement for coal, with a calorific value that compares with industrial coals. Active Energy presents CoalSwitch™ as a viable solution to the problem of coal-fired power plants having to shut down or invest in refitting to comply with regulations curbing carbon dioxide emissions, by providing a direct substitute for or amendment to coal.

Active Energy claims that the manufacturing process uses no chemicals and leaves no damaging waste residues, and that most of the water produced is recycled and reused within a closed system.ⁱⁱ Active Energy's air permit application to the North Carolina Department of Environmental Quality acknowledges that the proposed process has no precedent “to calculate air emissions from the proposed sources.”ⁱⁱⁱ

Critics argue that the facility will emit volatile organic compounds (VOCs) that will contribute to the air pollution of the BIPOC community of Lumberton (majority Native American) which is already heavily polluted (see Annex 2).

A North Carolina Division of Air Quality application review indicates that 20 percent of VOCs produced will be vented to the atmosphere. Condensed liquids with the remaining 80 percent would be disposed of or separated from water that would be processed through a wastewater facility and then discharged into the Cape Fear River.^{iv} The air quality permit did not address the company plans to ramp up production tenfold in 2021.

Active Energy also entered into a joint venture with the owners of an adjacent coal-fired power plant, North Carolina Renewable Energy (NCRE), suggesting that it would supply pellets to be burned in Robeson County. NCRE is a major polluter of VOCs.

For these reasons, Active Energy's Lumberton, North Carolina facility in Robeson County, North Carolina is opposed by many residents.

Climate, Community, and Environmental Risks

Climate Risks

The Active Energy facility in Robeson County illustrates how a “climate opportunity” with imputed benefits in terms of GhG reductions can have negative consequences in the unreported environmental harm involved in the production process. It demonstrates the need to disclose the details of industrial activity even when it is supposed to produce net GhG emissions reductions, in order to understand the collateral damage of cleaner energy on the environment and on people, especially disadvantaged people, and on locations already burdened with heavy pollution loads.

Active Energy would manufacture 40,000 tons of biomass pellets in its pilot phase, producing 11,309 tons of greenhouse gases (GhG), 23.6 tons of VOCs, 9.4 tons of nitrogen oxides, 7.9 tons of carbon monoxide, 2.5 tons of hazardous air pollutants (including benzene and benzo(a)pyrene, acetaldehyde, acrolein, ammonia, formaldehyde n-hexane, and toluene), as well as fine particulate matter.^v

Additional regulation, especially triggered by additional data from monitoring once a plant of this nature is built, is an important risk. Risks may also arise from changing markets and additional regulation concerning GHG. Dependence on forest feedstocks is a potential risk; documentation on the environmental footprint of timber operations to support the demand generated was not found.

Community Risks

Robeson County is an environmental justice hotspot. It is ranked the lowest of 100 counties in North Carolina in health outcomes. 75 percent are people of color, of which 41 percent are Native American. 8,000 people live within 2 miles of the plant. Within the census block of the plant, 90 percent of the residents are people of color. 66 percent of the county are low-income. The impact on a poor community in an already heavily polluted location is a serious concern not addressed in the planning process.

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Environmental Risks

The Active Energy facility poses significant challenges to regulators as an untested facility in which pollution impacts can only be monitored post-permitting and post-construction, representing sunk costs that would make it difficult to close the facility. Active Energy has been cited multiple times for environmental violations.^{vii}

Full environmental impacts are unknown as this is an untested technology. Concern has been raised about the environmental footprint of feedstock demand on forests of the region. It is unclear also if the project would source from natural or plantation forests.

Risks to Investors and Cost to the Company

Costs to Active Energy

\$10 million in equity was raised in support of constructing the Lumberton CoalSwitch™ facility.

On March 31, 2022, Active Energy announced an agreement to sell the site for its planned Lumberton NC wood biomass facility.^{viii ix x} Active Energy is launching a trial project in Maine.

Risks to Investors

This \$10 million loss may have been offset by the sale of the Lumberton facility for \$4.65 million when Active Energy canceled the Lumberton project. After the announcement of the closure, Active Energy's shares fell 3.3 percent.

Annex 1: Timeline

February 8, 2016. Active Energy revealed its new biomass fuel manufacturing process to representatives of power generation utilities, government bodies, manufacturing partners and investment firms at a 4-day event in Utah.

October 2018. Start date told to investors.

March 2019. Active Energy acquires Lumberton industrial site.

November 4, 2019. North Carolina Division of Air Quality issues an Application Review for the Lumberton facility.

April 2021. The state of Maine grants a temporary operating permit to Player Design Inc. to expand an existing operation in Ashland Maine.

May 20, 2021. Active Energy announces that it will build a facility in Ashland Maine to produce up to 35,000 tons of wood pellets. It will do this in partnership with Player Design Inc., an engineering company with an existing wood bioenergy facility in Corinth Maine. Player Design Inc. has an operational log processing facility in Ashland that has been expanded to accommodate CoalSwitch™ production.

September 28, 2021. Active Energy completed a £7 million equity fundraise in H1 2021 which helped fund the Lumberton and Ashland CoalSwitch™ plants.

February 9, 2022. Southern Environmental Law Center (SELC) and the Winyah Rivers Alliance notified Active Energy of intent to sue for violations of the Clean Water Act and the Resource Conservation and Recovery Act. his notice follows on from the original claim made by SELC, which was announced by the Company on 4 May 2021, to which the Company has actively sought resolution.

March 31, 2022. Active Energy sells Lumberton, North Carolina site to Phoenix Investors LLC, a commercial real estate firm.

Annex 2: Water pollution at the Lumberton facility

On February 9, 2022, the Winyah Rivers Alliance issued a notice of intent to sue for water pollution in violation of federal environmental laws.^{xi} The pollution is from a textile mill that previously occupied the site. The previous owners had entered into a Brownfields Agreement with the North Carolina Department of Environmental Quality to clean up contamination, and the responsibility conveyed to Active Energy when it purchased the site.

Active Energy released toxic per- and polyfluoroalkyl substances (PFAS) into the Lumber River without a National Pollutant Discharge Elimination System (NPDES) permit. PFAS cause developmental effects to fetuses and infants, lower birth weight and size, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, obesity, decreased immune response to vaccines, reduced hormone levels, and delayed puberty. Fish such as striped bass that are commonly consumed have been shown to have high levels of PFAS.^{xii xiii}

PFAS are endocrine systems disruptors that are resistant to breaking down in the environment and can travel long distances. They have been shown to cause damaging effects in fish, amphibians, mollusks and other aquatic invertebrates. It bioaccumulates in fish tissue and are associated with altered immune and liver function.

The Lumber River downstream from the Active Energy facility is a federally designated Wild and Scenic River. It is a popular recreation area and is categorized by the North Carolina Wildlife Resources commission as a high-quality fishery.^{xiv}

References

ⁱ Active Energy's ticker is AEG LN Equity, FIGI BBG000BCR1Q0, and ISIN GB00B1YMN108.

ⁱⁱ Press Release, AEG (February 8, 2016). *CoalSwitch International Reveal Event and Developments*. <https://www.streetinsider.com/Press+Releases/Active+Energy+Group+PLC%3A+AEG+CoalSwitch+Intl.+Reveal+Event+%26amp%3B+Developments/11286944.html>

ⁱⁱⁱ Sorg, North Carolina Policy Watch (April 27, 2020). *Waiting to exhale: Controversial wood pellet plant would burden Lumberton with more pollution*. <https://s39248.p1438.sites.pressdns.com/2020/04/27/waiting-to-exhale-controversial-wood-pellet-plant-would-burden-lumberton-with-more-pollution/>

^{iv} North Carolina Division of Air Quality (received November 4, 2019). *Application number 7800242.19A*. https://files.nc.gov/ncdeq/Air%20Quality/permits/2020_public_notice_documents/draft_reviews/Active-Energy-Permit-Review-7800242--20200115.pdf

^v North Carolina Division of Air Quality (received November 4, 2019). *Application number 7800242.19A*. https://files.nc.gov/ncdeq/Air%20Quality/permits/2020_public_notice_documents/draft_reviews/Active-Energy-Permit-Review-7800242--20200115.pdf

^{vi} North Carolina Division of Air Quality (received November 4, 2019). *Application number 7800242.19A*. https://files.nc.gov/ncdeq/Air%20Quality/permits/2020_public_notice_documents/draft_reviews/Active-Energy-Permit-Review-7800242--20200115.pdf

^{vii} Sorg, North Carolina Policy Watch (May 7, 2021). *Active Energy disregards state rules (again), DEQ cites wood pellet plant for violations*. <https://pulse.ncpolicywatch.org/2021/05/07/active-energy-disregards-state-rules-again-deq-cites-wood-pellet-plant-for-violations/#sthash.e0wMMUOh.dpbs>

^{viii} Southern Environmental Law Center (March 31, 2022). *Press release*. <https://www.southernenvironment.org/press-release/active-energy-sells-lumberton-facility-and-abandons-plan-for-controversial-wood-pellet-facility/>

^{ix} Blum et al., *Health Perspectives* (2015). *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4421777/>

^x U.S. EPA (November 2016). *Fact Sheet: PFOA & PFOS Drinking Water Health Advisories 2*.

https://www.epa.gov/sites/default/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf

^{xi} Winyah Rivers Alliance, Feb 9 2022. Notice of Intent to Sue for Violations of the Clean Water Act and the Resource Conservation and Recovery Act. <https://www.southernenvironment.org/wp-content/uploads/2022/02/2022-02-09-Notice-of-Intent-to-Sue.pdf>

^{xii} Winyah Rivers Alliance, Feb 9 2022. Notice of Intent to Sue for Violations of the Clean Water Act and the Resource Conservation and Recovery Act. <https://www.southernenvironment.org/wp-content/uploads/2022/02/2022-02-09-Notice-of-Intent-to-Sue.pdf>

^{xiii} Guillette et al., *Environment International* (February 3, 2022). *Elevated Levels of Per- and Polyfluoroalkyl Substances in Cape Fear River Striped Bass (Morone saxatilis) are Associated with Biomarkers of Altered Immune and Liver Function*. <https://perma.cc/5CBW-AMGA>

^{xiv} National Wild and Scenic Rivers System, *Lumber River, North Carolina*, <https://www.rivers.gov/rivers/lumber.php>