

Blue Ridge Environmental Defense League

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February 12, 2014

Ms. Lauren McGee Rayburn
Environmental Scientist
USDA
Rural Utilities Service
lauren.mcgee@wdc.usda.gov

RE: Rural Utilities Service Environmental Assessment for the North Star Jefferson Biomass Generation Station Project

Dear Ms. Rayburn:

On behalf of the Blue Ridge Environmental Defense League and its members in Jefferson County and the State of Georgia, I write to request a public hearing for the purpose of gathering oral comments on the scope of the environmental assessment for the North Star Jefferson project from the residents of Wadley, Louisville and other affected communities in Jefferson County.

Pursuant to 7 CFR § 1794.52(a), Scoping meetings, "Both RUS and the applicant shall have a notice published which announces a public scoping meeting is to be conducted, either in conjunction with the notice of intent or as a separate notice." (Emphasis added.) However, the legal notice published in the local newspaper included no reference to the requirement for a public meeting or hearing, merely an opportunity to comment in writing electronically or on paper.¹ RUS is required to "make diligent efforts to involve the public in the environmental review process through public notices and public hearings and meetings." Further, the holding of a public hearing in proximity to the proposed project is indicated in order to fulfill statutory requirements and develop adequate information on the environmental implications of the proposed action.² See § 1794.13 Public involvement. The RUS should correct this omission by holding a public hearing.

Also, I write to provide comments on the scoping of the environmental assessment for the biomass power plant project.

Background

On January 30, 2014, the US Department of Agriculture, Rural Utilities Service ("RUS") published a Notice of Intent to Prepare an Environmental Assessment for the North Star Jefferson Biomass Generation Station Project.

On March 13, 2012, the Jefferson County Board of Commissioners adopted a resolution approving issuance of \$53 million in revenue bonds to finance a capital project for the North Star

¹ *The News and Farmer/The Jefferson Reporter*, Legal Advertisements, Thursday, January 30, 2014, page 12C, 16233179 405w 1/30/1c

² Policies and procedures of the Rural Utilities Service (RUS) for implementing the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended, 42 U.S.C. 4321-4346

Jefferson project by the county development authority. The project was and is promoted as a "renewable energy facility." According to the Development Authority's public notice, the proposed revenue bonds would be paid by the issuer solely from revenue paid or provided by the company.

The proposed Jefferson North Star facility would be a 312 MMBtu/hr fluidized bed boiler, 25 megawatt electric power plant burning wood and used automobile tires near Wadley, Georgia. Up to 20% of the fuel for the proposed facility in Jefferson County would be scrap tires. The balance of fuel would include agricultural crops, plants, trees, wood, wood residues, sawmill residue, sawdust, wood chips, bark chips, and forest thinning, harvesting or clearing residues; wood residue from pallets or other wood demolition debris, peanut shells, pecan shells, cotton plants, corn stalk and plant matter including aquatic plants, grasses, stalks, vegetation, and residues including hulls, shells, or cellulose containing fibers.³ Air pollution control devices to be required by EPD would include 1) SCR (selective catalytic reduction (NO_x)), 2) DSC (dry scrubber system (SO₂ and HCl) and 3) ESP (electrostatic precipitator (PM, PM-10, PM-2.5)). The pollution reductions (control efficiencies) for these three devices are expected to be: 36% for NO_x, 16.6% for SO₂, 93% for HCl and 95.8% for PM.

General Comments

Burning wood and scrap tires to produce power in the 21st Century is such a bad idea that it begs description; tires are not biomass. The residents of Jefferson County and Georgia do not deserve an additional, unnecessary source of toxic air pollution imposed upon their community.

Even with pollution controls in place, the North Star Jefferson facility would allow huge amounts of air pollution from the plant's smokestack. Used tires are not biomass. "Rubber" tires are manufactured from many compounds, but contain only about 14% natural rubber. In addition to natural rubber, modern automobile tires are made of styrene-butadiene, polybutadiene, carbon black from petroleum, silica from sand or quartz, zinc oxide, steel, textile fabric and various chemicals. Burning these materials increases the air pollution hazard.

Up to 20% of the fuel for the proposed facility in Jefferson County would be scrap tires. The table below ranks the total composition, with natural rubber being the smallest.⁴

Automobile Tire Composition

Carbon black	28%
Synthetic rubber	27%
Fabric, fillers, accelerators, antioxidants, etc.	16 - 17%
Steel	14 - 15%
Natural rubber	14 %

Burning tires can create higher levels of polycyclic aromatic hydrocarbons, dioxins and furans, zinc and particulate matter than the burning of coal. Burning used tires to generate electric

³ EPD Draft Permit Section 2.9

⁴ Rubber Manufacturers Association, website accessed November 25, 2011, http://www.rma.org/scrap_tires/scrap_tire_markets/scrap_tire_characteristics/#anchor156842

power is problematic, unreliable and results in high levels of air pollution. This was the conclusion of an independent investigation of the circulating fluidized bed furnace (CFB) proposed for the Crawford Renewable Energy (CRE) tire-derived fuel (TDF) electric power generation plant in Crawford County, Pennsylvania:

In summary, CRE's burning tire-derived fuel in its CFB furnaces will produce higher than projected emissions because the carbon black and zinc in tires interfere with combustion and the operation of the fluidized bed. Further, the kinetic nature of the combustion process results in the volatile matter of TDF burning above the bed and therefore burning incompletely. The consequence is higher levels of emissions.⁵

Further, it is important to note that high air pollution emissions from this toxic fuel caused the shutdown of Tire Energy Corporation's scrap tire-fueled energy plant in Martinsville, Virginia in 2007.

Specific Comments

Financial Matters

The revenues for repayment of the revenue bond by the Development Authority and Jefferson County would be dependent on the potential income from the electric power plant. The county's proposal stipulated that no performance audit or performance review would be conducted with respect to the bond issue. A feasibility study should be conducted to compare the project's *internal rate of return* to that of another like project, in order to judge the feasibility of the Jefferson venture.

Within the last few years, similar biomass-fueled electric power plants were proposed but not completed—for example, Green Energy Partners' 10 megawatt facility in Lithonia and Wiregrass Power's 45 megawatt facility in Valdosta. In Valdosta, an air permit had already been issued by the Georgia Environmental Protection Division. Other examples of failed prospects for wood and waste burning power plants in Georgia may be found in Elbert and Hart counties.

Problems which must be considered in addition to pollution and its impacts on public health are plant costs and fuel availability. For example, what is the long-term availability of used automobile tires? Could some other waste product be used: sewage sludge, municipal solid waste, or poultry manure? Other projects based on such fuel sources have foundered upon close scrutiny. Clearly, before proceeding further a feasibility study should be conducted to determine the project's internal rate of return in relation to other projects in Georgia.

Environmental Impacts

The Environmental Protection Division of the Georgia Department of Natural Resources issued an air permit for a 312 MMBtu/hr fluidized bed boiler, 25 megawatt electric power plant burning wood and used automobile tires. According to EPD, the permit is drafted in accordance with the

⁵ Lake Erie Group of Sierra Club Pennsylvania Chapter's Position Paper on Tires-to-Energy Plant proposed for Meadville, PA, <http://lakeeriegrouppa.org/tireplant.htm>

provisions of the Georgia Air Quality Act, O.C.G.A. Section 12-9-1, *et seq* and the Rules at Chapter 391-3-1.

Based on the heat input rate of 312 MMBtu/hour for the North Star Jefferson facility and US EPA emission factors for wood burning units,⁶ the potentials to emit air pollution are predicted to be as follows:

North Star Jefferson Renewable Energy Facility Potential to Emit

Pollutant	Emission Factor lb/MMBtu	Fuel/Control	Potential Emissions Tons per year (PTE)
PM	0.56	wet/no control device	765
PM	0.54	bark/mechanical collector	738
PM	0.10	all fuels/fabric filter	137
NOx	0.22	wet wood	301
NOx	0.49	dry wood	670
CO	0.17	fluidized bed combustion	232
CO	0.60	all but FBC	820
SO2	0.025	all fuel types	34
CO2	195.2	all conditions	266753
VOC	0.04	all conditions	55
TOC	0.06	all conditions	82

The PTE (potential to emit) is a product of the EPA emission factor in pounds per million Btu, the facility's rated heat input in Btu/hour and year round facility operation at 24 hours per day; i.e.,

$$EF \text{ lb/MMBtu} \times \text{heat input } 312 \text{ MMBtu/hour} \times 8760 \text{ hours/year} \div 2000 \text{ pounds/ton} = \text{PTE}$$

Fine particulate matter carries potentially harmful chemical compounds, allowing them to "hitch a ride." These contaminated particulates in the air can penetrate deep into the lungs or temporarily attach to the clothes or bodies, depending on their size. The smallest of these particulates, PM-2.5 and ultrafine particulate matter, smaller than 0.1 μm (UFPM), are known to cross the blood-air barrier in the lungs. The toxins then circulate throughout the body to peripheral organs and the brain where they are associated with neurodegenerative pathology.⁷

The Georgia EPD's air permit allows the emission of 39 to 42 tons per year of particulate matter, depending on whether scrap tires are burned with wood or wood alone is used. In 2007 the Massachusetts Department of Environmental Protection issued guidance on biomass air pollution emissions and best available control technology, or BACT.⁸ MassDEP determined that any biomass-fueled plant should emit no more than 0.02 lb/MMBtu. If Georgia EPD had applied state-of-the-art and best available control technology (BACT) to the North Star project, particulate emissions would drop to maximums of 26 to 28 tons per year under the same fuel

⁶ "Background Document Report on Revisions to 5th Edition AP-42, Section 1.6, Wood Residue Combustion in Boilers," US Environmental Protection Agency, July 2001

⁷ *Air Pollution: Mechanisms of Neuroinflammation & CNS Disease*, Block and Calderón-Garcidueñas, Trends Neurosci. 2009 September; 32(9): 5066516.

⁸ "Best Available Control Technology (BACT) Guidance, Biomass-Fired Electric Generating Units," James C. Colman, Assistant Commissioner, Bureau of Waste Prevention, MassDEP, April 18, 2007

usage, a 33% reduction. This is an alternative which must be considered by RUS.

According to the permit application submitted by North Star Jefferson, which formed the basis for Georgia EPD's air permit, the primary emission source will be a fluidized bed boiler referred to as Source Code B1. The boiler will be fueled entirely by wood bio mass, or a combination of wood biomass and tire derived fuel (TDF, up to 20% by weight). The heat input capacity will be 320.6 million BTU per hour (MMBtu/hr) when firing wood biomass only, and 296.2 MMBtu/hr when firing a 80%/20% wood biomass/TDF blend.⁹ Note that the heat capacity of the wood-tire fired boiler is 8% lower than the heat capacity of the wood-only fired boiler.

EPD permit Section 2.10 on Tire-derived fuel (TDF) states, "TDF must meet the legitimacy criteria of 40 CFR 241.3(d)(1) for non-hazardous secondary materials used as a fuel in combustion units." The permit states *inter alia*:

- ii. The non-hazardous secondary material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy.
- iii. The non-hazardous secondary material must contain contaminants at levels comparable in concentration to or lower than those in traditional fuels, which the combustion unit is designed to burn. Such comparison is to be based on a direct comparison of the contaminant levels in the non-hazardous secondary material to the traditional fuel itself.
[emphasis added]

The US EPA's Final Rule on Non-hazardous Secondary Materials implementing 40 CFR Part 241 uses the terms "comparable to or lower than" in its discussion of NHSM, but provides further guidance. However, the state permit fails to address either specific fuel constituents—for example, as is done for sulfur content of fuel oils in industrial boilers—or pollution limits—as is done for NO_x, SO₂ and other criteria pollutants specifying pounds per heat input unit. EPA's final rule gives examples for pollutants lead and barium in parts per million, Georgia EPD provided none.

EPA recognizes that combustion is an inherently destructive process, even when energy is recovered. If a non-hazardous secondary material contains contaminants that are not comparable to those found in traditional fuels, and those contaminants are related to pollutants that are of concern at solid waste combustion units, then it follows that discard is occurring....Units that burn such materials are therefore most appropriately regulated under the CAA section 129 standards for solid waste incinerators.¹⁰

An alternative RUS must consider is that the North Star facility should be regulated as an incinerator. In order to protect air quality, a Georgia EPD permit must have specific standards, recordkeeping, monitoring and enforcement. The permit is unclear on waste storage practices, heat value and contaminant levels.

As noted above, North Star's air permit application stated that the heat value of the proposed power plant's combined fuels is *lower* than the heat value of wood alone. How will waste

⁹ Air permit application for the North Star Jefferson Renewable Energy Facility submitted to the Georgia Environmental Protection Division, December 2011, Section 1.3.1 Fluidized Bed Boiler

¹⁰ 76 Fed. Reg. 15523, March 21, 2011

throughput affect pollution levels? Furthermore, what methods should be used for analysis? How many contaminants are to be compared? Are comparisons are to be made between individual contaminants or groups of contaminants? The state air permit is unclear as to what constitutes legitimate NHSM and what levels of air pollution would be emitted; therefore, the permit is not practically enforceable.

Federal regulations define *potential to emit* (PTE) as: "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of fuel combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable."¹¹

To be federally enforceable, a permit limitation must both meet the requirements specified in 40 C.F.R. Sections 52.21(b) (17) and be enforceable as a practical matter. However, not all elements described in permits meet the standard for determining if a facility meets PTE thresholds. In *United States v. Louisiana Pacific Corporation*,¹² the court held:

[N]ot all federally enforceable restrictions are properly considered in the calculation of a source's potential to emit. While restrictions on hours of operation and on the amount of materials combusted or produced are properly included, blanket restrictions on actual emissions are not.¹³

A *blanket* emission limit is not federally enforceable.

In the North Star case, blanket emission limits included in the permit did not restrict hours of operation, fuel consumption or product and, therefore, are not enforceable as a practical matter. That is, the permit lacks a practical means for regulators and the public to determine if the facility was in compliance. Allowing blanket emission limits to restrict the facility's PTE violate the Clean Air Act's prevention of significant deterioration (PSD) program.

Enforceable permits must include production or operation limits in addition to emission limits where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment.

It is improper to bypass PSD standards by obtaining a permit with restrictions limiting the potential to emit to minor source levels for the purpose of allowing construction prior to seeking a major source permit. Moreover, it would not foreclose EPA's ability to retroactively apply best available control technology (BACT) or other requirements under PSD program.

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation

¹¹ 40 C.F.R Section 52.21(b) (4)

¹² *United States v. Louisiana-Pacific Corporation*, 682 F. Supp. 1122 (D. Colo. Oct. 30, 1987) and 682 F. Supp. 1141 (D. Colo. March 22, 1988)

¹³ *Id* 682 F. Supp. at 1133

which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.¹⁴

The North Star plant should be subject to new source review, including PSD for all significant pollutants and analyzed for BACT.¹⁵

Socio-economic Factors

According to the United States Census Bureau, the population of Wadley is 2,088. The city is 77.11% African American, 20.26% White, 0.14% Native American, 0.05% Asian and 1.92% from other races. The median household income is \$15,300 and 40.2% of the population is below the poverty line. Jefferson County is 56.28% African American, 42.09% White, 0.12% Native American, 0.16% Asian, 0.01% Pacific Islander and 0.83% from other races. The median income for a household in the county was \$26,120 and 23% of the population is below the poverty line.

North Star Jefferson has circulated a pamphlet which touts job creation and the economy. But this is a chimera. According to Dr. Robert Bullard, "economic boosters could usually count on their promise of jobs as an efficient strategy of neutralizing local opposition to growth projects."¹⁶ In *Dumping in Dixie* he cites the following to explain how profit motives were concealed:

Perhaps the key ideological prop for the growth machine, especially in terms of sustaining support from the working-class majority, is the claim that growth "makes jobs." This claim is aggressively promulgated by developers, builders, and chambers of commerce; it becomes part of the statesman talk of editorialists and political officials. Such people do not speak of growth as useful to profits — rather, they speak of it as necessary for making jobs.¹⁷

It would be a classic case of environmental injustice if a facility which emits excessive levels of toxic air pollution was constructed in Wadley, a community with higher rates of poverty and a greater percentage of black residents relative to Jefferson County. The prospect of jobs cannot and must not sacrifice the health of our communities.

Respectfully submitted,



Louis A. Zeller, Executive Director

¹⁴ 40 CFR 52.21(r)(4)

¹⁵ "Guidance on limiting potential to emit in new source permitting," US EPA Memorandum, June 13, 1989

¹⁶ Bullard, R. D. 1990. *Dumping in Dixie: Race, class, and environmental quality*. Boulder, CO: Westview

¹⁷ Harvey L. Molotch, "The City as a Growth Machine: Toward a Political Economy of Place," *American Journal of Sociology* 82 (September 1976): 320.