

Blue Ridge Environmental Defense League

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Air Pollution Potential of the Proposed Green Energy Partners Biomass Gasification Plant 353 tons per year

Green Energy Partners-DeKalb LLC plans to locate a gasification biomass plant fueled by wood chips to generate electricity near Lithonia, Georgia. According to newspaper reports, Patrick Ejike of Aku-Bata Group anticipates the facility would use 240 tons of wood chips per day and have the capacity to generate 10 megawatts of power. At this rate and operating 365 days per year, the plant could receive 87,600 tons of wood annually, mostly yard waste.

What would the impact of such a plant be on Lithonia and DeKalb County? As yet, no air pollution permit has been issued or applied for by Green Energy Partners. However, Green Energy Partners sponsored a field trip to Dalton to tour the Shaw Industries' gasification plant there. The Dalton plant is co-owned by Siemens, one of Green Energy Partners' team members. The Dalton plant's fuel source is carpet fibers and wood chips. A newspaper story reporting on the visit includes this photo of the plant smokestack:

Smokestack of a Waste to Energy Biomass Gasification Plant¹



The Georgia Environmental Protection Division's 2004 permit review for the Dalton plant described the process of biomass gasification in a waste-to-energy plant generating electric power. *next page* →

¹ "Lithonia divided over plan to build gasification plant" *Cross Roads News*, Jennifer French Parker, http://www.crossroadsnews.com/view/full_story/10290232/article-Lithonia-divided-over-plan-to-build-gasification-plant?

The Georgia EPD permit review states:²

A waste-to-energy (WTE) process will be added to the Plant 81 facility. The process will be used to generate steam used in the carpet manufacturing process. Two fuels will be used: scrap carpet and wood flour. The fuel makeup is expected to be approximately 65 % carpet (after removal of inorganics) and 35 % wood flour, but the facility wants the flexibility to vary the fuel mix percentages. The scrap carpet may be either pre-consumer or post-consumer and will come from both on-site and off-site sources. The wood flour, from flooring manufacture, will come from off-site sources. A gasifier will convert the solid fuel into a synthetic gas (syngas) that will be fed to a boiler. The heating values of the carpet and fuel have been measured by the Permittee as 12,660 and 7,139 Btu/lb, respectively. At the expected fuel ratio (65 % carpet / 35 % wood flour), the input to the gasifier would be approximately 12,000 tons/yr (33 tons/day) of carpet and 6500 tons/yr (18 tons/day) of wood flour.

The permit review includes predicted emissions of air pollution based on the fuel used. The pollution totals vary with the type of fuel, and each pollutant total is listed below in tons per year. Table 4 is from the Georgia EPD permit review.²

Table 4: WTE Project Future Potential Emissions Increases for Various Fuel Mixes

Pollutant	Is the Pollutant Emitted?	100% carpet (tpy)	65% carpet, 35% wood flour (tpy)	100% wood flour (tpy)	Worst Case Emission Level (tpy)
PM	Yes	20.4	20.0	18.7	20.4
PM ₁₀	Yes	20.4	20.0	18.7	20.4
SO ₂	Yes	50.2	44.5	26.4	50.2
VOC	Yes	4.6	4.5	4.1	4.6
NO _x	Yes	58.7	57.0	51.3	58.7
CO	Yes	9.6	9.3	8.6	9.6
TRS	Yes	Insignif.	Insignif.	Insignif.	Insignif.
H ₂ S	Yes	Insignif.	Insignif.	Insignif.	Insignif.
Individual HAP (HCl)	Yes	7.6	7.8	8.7	8.7
Total HAPs (HCl)	Yes	7.6	7.8	8.7	8.7

According to the EPD review, the annual heat input of the Dalton plant would be about 200 million BTU's, requiring 27,780 tons of fuel per year using 100% wood. This would be about one-third the 87,600 tons per year of wood fuel used by the plant proposed by Green Energy Partners. **Therefore, pollution totals from the Green Energy Partners plant could potentially be three times the annual 117.8 tons emitted by the Dalton plant burning 100% wood: that is, 353 tons of pollution per year including particulate matter (PM-10), sulfur dioxide (SO₂), volatile organic compounds (VOC), nitrogen oxides (NO_x), carbon monoxide (CO), and hydrochloric acid (HCl, a hazardous air pollutant or HAP).**

² Permit No: 2273-313-0001-V-01-3, Shaw Industries Plant 81, TV-15742, SIP Construction Permit and Title V Significant Modification Application Review, Rec'd: October 18, 2004, Effective date: September 16, 2005