

# Blue Ridge Environmental Defense League

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## Report on Fibrowatt's Proposal to Burn Poultry Litter in NC

The announcement by Fibrowatt LLC of its plans to construct up to three poultry waste burners in North Carolina raises environmental, economic and public health concerns. This report will explore the following questions: Is there a need for such facilities? What would be the impact on air quality? What are the alternatives?

Recently, Fibrowatt sponsored a trip to Great Britain for North Carolina officials to demonstrate to them its operating plants in the towns of Thetford and Eye. We have gathered data from Britian's Environmental Agency to get a better idea of what is released from the smokestacks at those Fibrowatt sites. Also, we obtained the air pollution permit for Fibrowatt's first US poultry waste burner in Benson, Minnesota, which is to operate under the name Fibrominn.

As of the date of this report, no permit application has been submitted in North Carolina, and only a preliminary meeting with the state air pollution agency has taken place. But Fibrowatt representatives are on record saying that the proposals for North Carolina would include plants of about 40-50 megawatts electric output.<sup>a</sup> The Benson, Minnesota plant is permitted to operate at an average of 50 MWe.<sup>b</sup>

### Poultry Litter Would Provide Only 50% Capacity

According to the permit issued by the Minnesota Pollution Control Agency, the Benson plant would have the capacity to burn up to 700,000 tons of waste per year.<sup>b</sup> Fibrowatt executive Carl Strickler estimates that Wilkes and adjoining counties produce about 350,562 tons of poultry litter annually, providing fuel to operate at about half capacity.<sup>c</sup> Natural gas is also to be burned at the Fibrominn plant and is limited to less than 20% of the total heat input. The Fibrominn permit states that waste fuel other than chicken litter may be burned including:

- Agricultural crops
- Herbs, nuts, by-products or waste
- Vegetable oils, by-products or waste
- Crop field residue or field processing by-products
- Shells, husks, hulls, seed, dust, screenings and other agricultural processing by-products
- Agricultural feedstock residues and by-products
- Cultivated grasses or grass by-products
- Wood and wood waste, including wood processing by-products
- Animal manures and wastes, processed or unprocessed

For economic and efficiency reasons, operators of incinerators and powerplants seek to keep their facilities operating at close to 100% capacity, raising the question: What wastes other than chicken litter would be burned if a plant is constructed in Wilkes County? The US Department of Agriculture reports that there was a 9% decrease in the number of farms and farm acreage in Wilkes County between 1997 and 2002. Market value of production during this period fell 11%.<sup>d</sup> Poultry waste volumes decreased by 40,000 tons from 1987 to 1997.<sup>e</sup> The local poultry industry is not producing greater quantities of waste; what prompts the supposed need for a new method of disposal?

### Poultry Litter Better as Fertilizer

We are in the process of assessing the impacts of poultry manure applied to cropland and pasture as fertilizer based on soil test and waste analysis data compiled by the NC Department of Agriculture's Agronomic Division. Our study of Wilkes County is incomplete but already a pattern is emerging. In the reports we have analyzed thus far, the principal problem is copper levels in soil and waste. Excess copper accumulation in soil is detrimental to crop production. Agronomists' reports of high soil levels of copper are limited to a few farms; most soil test reports show acceptable levels of copper and other nutrients. We have not been able to obtain any county-wide assessment of soil nutrient impacts. No groundwater problems have been noted. Copper is not destroyed by burning, so it would either be dispersed into the atmosphere and deposited on the ground, or captured in fly ash and disposed. Fibrowatt touts the use of its ash by-product as a soil nutrient. We will continue our research in this area to determine whether misapplication of poultry litter has caused or contributed to excess levels of soil nutrients.

### Air Pollution Impacts

Air pollution is emitted from the smokestacks of plants burning of fossil fuel such as coal and poultry litter. How do they compare? We selected a relatively small coal fired electric generating plant, Duke Power's Buck Steam Station located in Rowan County, NC,<sup>f</sup> and compared it to the largest operating Fibrowatt plant in Thetford, England.<sup>g</sup> The Duke plant is a 369 megawatt plant; the Fibrowatt plant is about one-tenth as large at 38.5 MWe. The following table compares air pollutant totals emitted by each in 2004:

	<b>Buck</b>	<b>Thetford</b>	<b>Thetford/Buck</b>
<b>Megawatts electricity</b>	369	38.5	10.4%
<b>Carbon dioxide</b>	3,360,486,000 lb.	910,013,024 lb.	27%
<b>Mercury</b>	114 lb.	<2 lb.	0.02%
<b>Dioxin</b>	164 mg	30 mg	18%
<b>Hydrochloric acid</b>	2,100,000 lb.	115,916 lb.	5.5%
<b>Sulfur dioxide</b>	18,560,000 lb.	702,694 lb.	3.8%
<b>Nitrogen oxide</b>	4,004,000 lb.	1,237,552 lb.	31%
<b>Total</b>	3,385,150,114 lb.	912,069,186 lb.	26.9%

If the two plants were equivalent, the pollution ratio in the right column would be equal to the power ratio of 10.4%. We see that the Thetford plant, for the electric power generated, is the

greater polluter. Of course, the much bigger coal-fired plant emits a larger number of pounds, but, per megawatt of electricity, Fibrowatt's poultry litter fueled plant emits two and a half times as much pollution as Duke Power's coal-fired electric plant.

There were some data missing for the Thetford plant in 2004, but looking back to 2000 we were able to make a further comparison of the two plants' toxic air emissions:

	<b>Buck</b>	<b>Thetford</b>	<b>Thetford/Buck</b>
<b>Lead</b>	200 lb.	174 lb.	87 %
<b>Manganese</b>	385 lb.	584 lb.	152 %
<b>Mercury</b>	96 lb.	12.9 lb.	13 %
<b>Nickel</b>	190 lb.	362 lb.	190 %

Again, if the plants were equivalent polluters, the ratio would be 10.4%. However, for these four toxic air pollutants the Thetford percentage is greater and in two cases—manganese and nickel—the poultry litter-fired plant actually emitted a larger amount of pollution than the ten-times larger coal-fired plant.

In summary, there seems to be little advantage and much disadvantage to burning poultry litter for power production.

Louis Zeller  
Clean Air Campaign Coordinator

#### References

- a. "3-County area to get litter plant," *Wilkes Journal-Patriot*, January 23, 2006
- b. Minnesota Pollution Control Agency, Air Emission Permit No. 15100038-001, 1/14/2004
- c. "Poultry plans draw strong views," *Wilkes Journal-Patriot*, March 24, 2006
- d. US Department of Agriculture, 2002 Census of Agriculture, County Profile, Wilkes, NC
- e. Environmental Defense, Trends in Animal Waste Levels, Wilkes County, NC, [www.scorecard.org](http://www.scorecard.org)
- f. US Environmental Protection Agency and Department of Energy data, [www.bredl.org](http://www.bredl.org)
- g. UK Environment Agency data (attached)

**Pollution Inventory****Site details:**

Operator Name	FIBROTHETFORD LTD
Site address	THETFORD POWER STATION, TWO MILE BOTTOM, MUNDFORD ROAD, THETFORD, NORFOLK
Authorisation No.	AP0844
Process type	COMBUSTION

**Release values:**

**Where the total released appears as < XX units (eg <100kg), emissions were below the reporting threshold. XX indicates the reporting threshold for the substance**

The method for reporting waste transfer data from 2003 has changed from previous years. Greater detail is now provided by the Industrial Operator in terms of Waste type and Disposal or Recovery Route.

Route	Substance	Year	Total released	Notifiable releases
Air	Cadmium	2004	3kg	-
Air	Carbon Dioxide	2004	412779200kg	-
Air	Carbon Monoxide	2004	234430kg	-
Air	Mercury	2004	<1kg	-
Air	Particulate Matter - Total	2004	29409kg	-
Air	Dioxins And Furans - as ITEQ	2004	30mg	-
Air	Hydrogen Chloride	2004	52579kg	-
Air	Sulphur Oxides (as SO2)	2004	318740kg	-
Air	PM10	2004	20586kg	-
Air	Nitrogen Oxides (as NO2)	2004	561350kg	-
Air	Inorganic Chlorine compounds	2004	525790kg	-
Air	Dioxins And Furans- as WHO TEQ	2004	30mg	-
Air	VOCs (NMVOCs) (2002 onwards)	2004	<10000kg	-
Controlled Waters	Cadmium	2004	<1kg	-
Controlled Waters	Mercury	2004	<.1kg	-

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[http://maps.environment-agency.gov.uk/wiyby/queryController?topic=pollution&ep=2ndtierquery&lang=\\_e&layerGroups=1&x=585200.0&y=286800.0&extraClause=AUTHORISATION\\_ID~'AP0844'&extraClause=YEAR~'2004'](http://maps.environment-agency.gov.uk/wiyby/queryController?topic=pollution&ep=2ndtierquery&lang=_e&layerGroups=1&x=585200.0&y=286800.0&extraClause=AUTHORISATION_ID~'AP0844'&extraClause=YEAR~'2004')