

Considering the Facts about Fibrowatt

*A Summary of Fact-based Research Regarding the Proposed Poultry Litter
Incinerator and Power Plant in Surry County, North Carolina*

Compiled through the efforts of many citizens of Surry County, NC
February-July 2009

NOTE: At the time of research and compilation of this document, all references and online links were current. For ease of reference and due to the fact that some content may change with time, most of the referenced materials are provided in the Appendix. Look for the note “*see appendix*” at the end of footnotes for which supporting documentation is provided.

For more INFORMATION: See page 29 of this document for “What you can do now”, or go directly to www.yadkinriverkeeper.org/fibrowatt. At this site, you can download the “Facts about Fibrowatt” document as well as the appendix. In addition, you will find other resources, including a two-page briefing document titled “Fibrowatt Incinerator Facts Sheet” and pre-drafted letters to key NC decision makers. These documents were originally created to be specific to Surry County, but nearly all facts and references apply to any of the counties targeted for a Fibrowatt incinerator in North Carolina.

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In order to limit file size, the Appendix is organized in a separate document titled:
“Facts About Fibrowatt – APPENDIX”.

Introduction

The majority of the citizens of Surry County, North Carolina oppose allowing Fibrowatt to build a poultry litter incinerator/ power plant in their county on the banks of the Yadkin River. In fact, according to a recent independent survey, more than 80 percent of Surry County voters do not support moving heavy industry into the county and almost 70 percent disapprove of using taxpayer money for incentives to build the Fibrowatt facility. Even though residents have not been provided information regarding the full range of hazards, almost 70 percent of Surry County residents have concerns about air quality and other impacts to public health from the Fibrowatt operation.¹ Editorials in North Carolina's two leading newspapers have likewise taken a stand against Fibrowatt, making it more than a regional issue. From physicians to local farmers and business owners, the people of North Carolina realize that they have little to gain and much to lose from the Fibrowatt proposition which is both economically unjustifiable and environmentally toxic for the region. Despite this broad-based public concern, requests for information about Fibrowatt's potential impact on the region's economic development, environment and public health have met with repeated defensiveness and rebuke from elected officials. In fact, the decision makers have yet to provide evidence that they exercised due diligence in the Fibrowatt project², have disregarded requests for a Risk and Impact Assessment³, and have openly stretched the limits of the county's own land use plan and zoning ordinances along the way⁴.

Most citizens will agree that the best model for the region's economic growth is one that is balanced with other critical interests related to public health and the environment. This paper was produced by the efforts of many citizens who worked to discover and understand the true costs and benefits of the Fibrowatt proposition. These citizens are not acting on behalf of any formal organization, have no access to big funding or lobbyists, and are not activists. On the contrary, the many contributors of this work represent a true non-partisan, cross-section of the county's voters and tax-payers, including small business owners, farmers, physicians, teachers, and other professionals.

As the facts came to light, it became clear that the decision made today by a few elected officials will have great consequences to the region's economic, environmental, and public health for generations to

¹ New Poll Indicates Strong Opposition To Proposed \$140 Million Fibrowatt Power Plant In Surry County (2009, March 27) *Carolina News Wire*, accessed March 28, 2009

<http://carolinanewswire.com/news/News.cgi?database=0001news.db&command=viewone&id=2064&op=t> -> see appendix

² Letter to the Surry County Commissioners, requesting evidence of due diligence in the Fibrowatt project, March 5, 2009 -> see appendix

³ Request for Risk Assessment from John Lukas sent to Craig Hunter, Chairman of Surry County Commissioners, February 27, 2009 -> see appendix

⁴ For details regarding the direct contradictions between Surry County's adopted Land Use Plan and decisions made for the Fibrowatt project, please see section II-B. on page 15 of this paper "Conflicts with Key Economic Development Initiatives", and supporting materials under Footnote 42 of the appendix.

come. Fibrowatt offers little economic return for Surry County citizens in exchange for millions of dollars in County, State and Federal incentives, State-mandated higher electric rates, and the release of numerous toxins, including arsenic and dioxin into communities across the entire region. Furthermore, while Fibrowatt may campaign to re-focus public attention onto their “controls”, the government’s “regulation”, and a debate about the accuracy of “air dispersion models”, the following fact is not subject to debate: ***A Fibrowatt operation in Surry County would put millions of pounds of harmful pollutants into Surry County’s environment (and that of surrounding counties) that are not there today.*** These issues are not specific to Surry County and North Carolina, rather they apply anywhere Fibrowatt or other incineration facilities plan to operate.

If shortsighted, small-scale growth comes at the expense of our children’s health and everyone’s longevity, then the citizens of Surry County do not want it. If it compromises our soil, water, and air quality, then we do not want it. And if it undermines the economic viability of farmers and drives away tourist dollars and new businesses that would be compatible with our natural resources, then we do not want it. There are clearly less costly and safer alternatives for economic growth. As you form your own opinion, keep in mind a simple question: Who truly stands to benefit from the Fibrowatt operation – the people of Surry County or Fibrowatt’s out-of-state and overseas investors? More importantly, **ask yourself who stands to lose?**

The Root of the Issue

Currently the citizens of three counties in North Carolina find their economy, health and environment threatened by an enterprise that has been legitimized by a state mandate. NC elected officials responded to a targeted public relations and lobbying campaign by placing the “poultry litter provision” in State Bill 3. This provision compromised the bill’s original intent which was to promote clean, renewable energy from sources like wind and solar. Other states have deliberately excluded such allowances since poultry litter is far from being a source for clean energy. While there has been progress on the federal and state levels to support more sustainable energy sources, compromises that allow for the incineration of poultry litter, municipal garbage, and other toxic substances work to undermine clean air initiatives and the public’s confidence in lawmakers. Our elected officials and the agencies appointed by them, need to recognize their responsibilities to promote the economy while at the same time protecting public health and the environment. As public awareness grows, officials who tolerate the use of taxpayer funds to enable unsustainable ventures will be held accountable by a growing population of citizens. Now is the time to take a stand on balancing economic, environmental and social responsibilities. The effort will be recognized now and certainly in years to come.

I. Negative Impacts for Your Wallet

A. How Fibrowatt Makes Money

To understand local opposition to Fibrowatt, you must first understand how the company makes money. In 2002, researchers at the University of Maryland published a study showing that **generating electricity from poultry litter is economically unfeasible without government price supports**.⁵ These government mandated price supports force local power utility companies to pay higher-than-market rates for Fibrowatt's electricity. The local utility companies then pass the increased costs on to customers in the form of higher electricity rates. In other words, Fibrowatt's profits come at the expense of the average rate payer in our homes and businesses⁶.

Fibrowatt has built and operated these types of plants for a number of years, beginning in England in the 1990s. Their business model is as follows: pay the way to government support (i.e. through lobbying and heavy PR work⁷) in order to get bills passed that create mandates for "poultry litter" as a part of the renewable energy mix (i.e., lumping it in with truly green and clean energy like wind and solar). Then, once these mandates exist, local power companies are forced into buying Fibrowatt's heavily government subsidized power through 20-year power purchasing agreements which result in higher energy costs for consumers.

To summarize the Fibrowatt Formula for Business:

State Law + long-term Power Purchasing Agreements + Higher Prices for Dirty, but "Renewable" Energy
= Great Investment for a Few, but a Very Bad Deal for Tax Payers and Consumers

In 2007, the North Carolina General Assembly passed legislation providing financial incentives to businesses to develop renewable energy. Known as NC Senate Bill 3, this legislation requires utilities to pay higher prices for electricity generated from "renewable" resources. The original purpose of this law was to protect the environment by helping to make renewable energy, from solar and wind, economically competitive with fossil fuels and nuclear energy **AND to provide cleaner air**⁸.

However, through heavy lobbying and a high-dollar political/public relations campaign a "poultry-litter/manure provision" was added to NC Senate Bill 3. This provision will enable Fibrowatt to charge premium rates for electricity generated by **incinerating** poultry litter. While it is true that poultry litter is a *renewable* fuel, power production from poultry litter incineration is neither *clean* nor *green*. That distinction is essential. In fact, the environmental costs are quite high. According to studies by the State

Technical definition of Incineration: "to burn to ashes"

⁵ Economic Value of Poultry Litter Supplies in Alternative Uses (June 2007),

http://www.extension.org/pages/Value_Added_Processing_of_Manure, Lichtenberg [Economics of using poultry litter for alternative markets](#) -> see appendix

⁶ Energy Power Resources Profile which owns Fibrowatt LLC : how it uses government mandates to make money - <http://www.eprl.co.uk/profile/> accessed May 25, 2009 -> see appendix

⁷ *Insight* (2008, June) Goff&Howard's Marketing Brochure, page 2 (quotes from Fibrowatt's Lobbying, PR and Marketing firm): "We helped draft legislation, wrote handouts and testimony, and helped educate legislators and the Governor about the merits of a law change that enabled Fibrominn to move forward. Later, we successfully lobbied to help Fibrowatt secure personal property tax and sales and use tax exemptions."

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"Fibrowatt needed positive media coverage to help educate the public, so we pitched stories, coordinated media interviews, and scheduled meetings with reporters and editors across the region, from the *Star Tribune* to the *West Central Tribune*. For Fibrominn's grand opening, we coordinated site visits and interviews with media ranging from the *New York Times* to "Minnesota Bound" on KARE 11. " -> see appendix

⁸ *Senate Bill 3* (2007, August 20), North Carolina General Assembly – Legislation accessed on February 10, 2009 on <http://www.ncleg.net/Sessions/2007/Bills/Senate/HTML/S3v6.html> Quote from the bill's Declaration of Policy: "Provide improved air quality and other benefits to energy consumers and citizens of the State" -> see appendix

of North Carolina, emissions from poultry-litter incinerators can be more toxic than those from modern coal-fired plants.⁹ In other words, the higher rates that consumers are forced to pay will not subsidize a cleaner environment, but instead the profits go to an out-of-state company and its foreign investors.

B. What YOU Pay for

If the above sounds like corporate welfare to you, consider the following: in exchange for producing more expensive electricity, Fibrowatt will reportedly receive at least \$5.3 million in incentives from Surry County¹⁰. The Surry County Commissioners have also promised to give Fibrowatt more than a hundred acres of land (previously assessed at \$337,950, but purchased by the tax payers at a cost of \$776,500¹¹) as an additional incentive. And before Fibrowatt builds their plant, Surry County will provide over \$3,000,000 in project related development costs. In addition, Fibrowatt is planning to take advantage of millions of dollars in tax payer funded benefits via the newly released “Stimulus Package” (i.e. American Recovery and Reinvestment Act, FS-2009-10)¹².

C. The Bottom Line

Fibrowatt’s business model is savvy and very lucrative for its investors, but it would not be viable without huge subsidies sponsored by tax-payer money and higher electricity rates for consumers. This model relies upon a combination of federal, state and local government price controls, funding and tax incentives to turn poultry litter into corporate profits. In the end, *average citizens pay the price*, on their electric bill, in the air they breathe, and through the deferral of government funding away from projects with true, direct benefit to communities.

⁹ Comparison of Emissions from Controlled Coal and Biomass Combustion (2008, July 9), page 6 *NC Department of Environment and Natural Resources, Division of Air Quality* -> **see appendix**

¹⁰ Demand for farm litter still strong (2009, February 11) *Wilkes Journal Patriot* <http://www.journalpatriot.com/fullstory.asp?id=1094>
-> **see appendix**

¹¹ *Surry County, NC*, Surry County Tax Department Online Tax maps accessed February 2, 2009, and (2009, Feb 10) *Mount Airy News* <http://arcims.webgis.net/nc/surry/default.asp> -> **see appendix**

¹² www.irs.gov, American Recovery and Reinvestment Act, FS-2009-10, <http://www.irs.gov/newsroom/article/0,,id=208318,00.html>

II. Negative Impacts for the Environment

A. More than a Matter of Words

As more facts about Fibrowatt's impact on the environment are discovered, public opposition grows. North Carolina is now a regional leader in air-quality control, but a loophole in NC Senate Bill 3 may cause that to change. As currently defined by NC Senate Bill 3, biomass is a renewable source of energy production and can include animal byproducts, like poultry litter. Although the designation renewable is commonly limited to clean, carbon-neutral energy production from wind and solar, biomass incineration releases large quantities of carbon dioxide and other pollutants into the air over a very short time period. Furthermore, poultry-litter incineration emits additional, more toxic pollutants, such as arsenic, hydrochloric acid, nitrogen oxides, and dioxin to name just a few. If the complete Fibrowatt supply chain is considered, from the trucking of litter to the production and distribution of chemical fertilizer, the operation's status as "carbon neutral" does not stand¹³.

Fibrowatt will burn up to 350,000 tons of poultry litter and another 150,000 tons of agricultural or other waste products a year¹⁴. Although a company spokesman has stated that Fibrowatt does not intend to burn coated, treated, or painted wood, there are no regulatory restrictions on this practice in NC Senate Bill 3¹⁵. In fact, NC Senate Bill 3 is far less protective than similar regulations in Minnesota, where Fibrowatt currently runs its only US incinerator/power plant¹⁶.

Simply put, Fibrowatt would determine what goes into the incinerator and, consequently, what comes out of the smokestack. And there would be no ongoing regulatory monitoring in place at the site to inspect what indeed gets burned from the 120 truckloads delivered each day. A Fibrowatt spokesperson stated that the plan is to use a ratio of 70% poultry litter to 30% other waste products, but no independent controls are in place to ensure the content or exact mix. Although Fibrowatt currently burns a combination of poultry litter and wood waste products at its Minnesota facility, *no one can say with certainty what might go into Fibrowatt's incinerators in the future*. The recently enacted federal stimulus package funding includes \$1.6 billion as Clean Energy Renewable Bonds (CREBs) that provides financing for energy production from various "renewable" sources including "trash combustion"¹⁷. The facility constructed by Fibrowatt in Glanford England, for example, was re-commissioned in May 2000 to burn meat and bone-meal¹⁸.

As a supplement to poultry litter, Fibrowatt has indicated that it will fill some part of the demand for fuel with wood products left over from timbering operations. Even though wood biomass is a byproduct of standard forest management, these techniques are not necessarily sustainable, and wood waste is only "waste" from a purely economic point of view. A high rate of consumption of any wood biomass from sources that require more than just a few years to re-grow cannot be sustained in the long-term. Also, there are treaties in the works including one by the United Nations around carbon trading called "REDD". REDD stands for Reduction of Emissions from Deforestation and Degradation. In 2008, REDD projects

¹³ A note on "carbon-neutral": as Fibrowatt intends to use wood products in order to help incinerate poultry litter, its operation is marketed as "carbon-neutral". The logic applied is that unlike coal that would not release its carbon dioxide if left in the ground, poultry litter will decompose and trees will eventually decay over time thereby releasing embedded carbon. HOWEVER, neither poultry litter nor trees will decay in nature from 100% to 0% in a few hours and release all their carbon dioxide at once as happens during the Fibrowatt incineration process. Definitions of "carbon neutral" should consider the rate of carbon release into the atmosphere, the rates for regeneration of the fuel as well as the complete production, transportation and processing cycles. These factors are not fully accounted for in claims of carbon neutrality for power from poultry litter.

¹⁴ Fibrowatt Representative, Terence P. Walmsley, Vice President, Environmental & Public Affairs; Fibrowatt, LLC, Langhorne, PA (2009, Feb 09), *Fibrowatt Informational Meeting in Elkin, NC*

¹⁵ *Senate Bill 3* (2007, August 20), North Carolina General Assembly – Legislation accessed on February 10, 2009 on <http://www.ncleg.net/Sessions/2007/Bills/Senate/HTML/S3v6.html>

¹⁶ 216B, 2424, 2008 Minnesota Statutes 216B, 2424, *Biomass Power Mandate* accessed February 20, 2009 <https://www.revisor.leg.state.mn.us/statutes/?id=216B.2424&year=2008> -> see appendix

¹⁷ American Recovery and Reinvestment Act of 2009;

Tax Provisions at http://thomas.loc.gov/home/h1/Recovery_Bill_Div_B.pdf

Appropriation Provisions at http://thomas.loc.gov/home/h1/Recovery_Bill_Div_A.pdf

¹⁸ *Energy Power Resources, Assets, Glanford* accessed March 14, 2009 <http://www.eprl.co.uk/assets/glanford/overview.htm> -> see appendix

made up 14% of forest carbon “credits” traded on the voluntary credit market. Thus, keeping forests alive has viable carbon trading and financial rewards possibilities for our region’s future¹⁹.

Biomass facilities that burn wood often burn the waste products, such as chips or sawdust, from wood-processing industries. If such waste products are used as fuel for the Surry County facility, Fibrowatt will be in direct competition with poultry farmers, horse ranchers, and livestock farmers for needed bedding materials. In addition, demand for scrap wood products is known to create an incentive for clear-cutting in the region, including the extraction of saplings, which decreases diversity, slows the recovery of timbered forests, and increases soil erosion.

Fibrowatt’s impacts on the environment are not confined to Surry County. Fibrowatt’s primary fuel source is the poultry litter now used by local farmers to fertilize their fields. In replacing poultry litter with chemical fertilizer, the nitrogen naturally occurring in poultry litter will have to be replaced with commercial nitrogen, which is produced by burning natural gas. To replace the nitrogen found in 350,000 tons of poultry litter, about 500 million cubic feet of natural gas will be burned. Commercial nitrogen is produced in large part overseas, especially in China and Brazil. Needless to say, importing nitrogen will further increase the carbon footprint of the Fibrowatt fertilizer supply chain²⁰. This all sheds a new light upon the true net impacts of burning poultry litter on our dependence upon foreign energy and other imported commodities.

B. The Air We Breathe

Although Fibrowatt continuously attempts to refocus the debate over the negative impacts of its emissions, *the fact remains that the proposed plant would put millions of pounds of pollutants into the Yadkin Valley air each year*. After all the dispersion models are completed based upon various theories and assumptions, after Fibrowatt installs its best “available” emission controls, and after our regulators issue the air quality permits, then *Fibrowatt will still be permitted to emit millions of pounds of harmful gases and particles each year*. This is the plan and this has been the process and the outcome for every facility built by Fibrowatt to date. And, for many years to come, Fibrowatt will be left to manage the day-to-day operations, including what goes into their incinerator and therefore, what comes out of their smokestacks. This is the legacy that we would leave for our children and their children who might continue to live in Surry County.

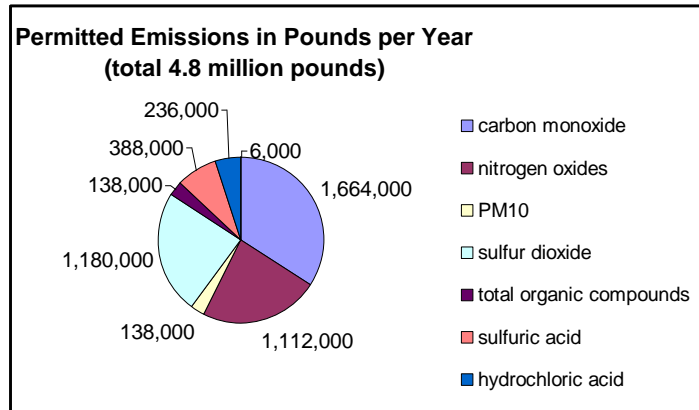
Based on the existing Minnesota facility, the Fibrowatt incinerator would be permitted to emit as much as 4.8 million pounds of “controlled pollutants” per year – excluding arsenic, dioxins, and other pollutants that are **not** accounted for in permitting data.²¹ This will make Fibrowatt the largest polluter in Surry County by a wide margin. In terms of volume, not considering toxicity, these 4.8 million pounds of emissions are roughly equivalent to the emissions of 13,000 homes continuously heated by woodstoves or 9,000 homes continuously heated by fireplaces.²² Considering that very few homes rely solely upon wood heating throughout winter, the number of homes in these calculations are grossly understated relative to the amount of wood burned by the typical home. Looked at another way, 4.8 million pounds of emissions are equivalent to about 2.5 million round-trips by car from Winston-Salem, NC to Elkin, NC (i.e., 2.5 million 80 mile round trips, or approximately 200 million vehicle miles annually!). *However, unlike a Fibrowatt*

¹⁸ Papua New Guinea and carbon trading: Money grows on trees, Jun 6th 2009 from *Economist.com* , http://www.economist.com/displayStory.cfm?story_id=13724646

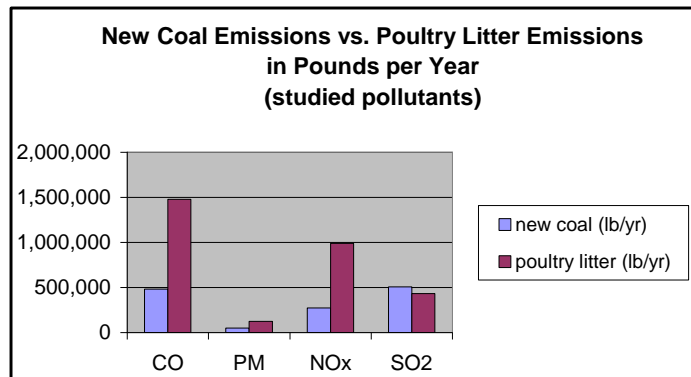
²⁰ Green Valley Chemical Corp; Explanation of Nitrogen for Chemical Fertilizer from anhydrous ammonia, accessed February 2009. <http://www.greenvalleychemical.com> Anhydrous ammonia is produced by the refinement of natural gas in the presence of steam and injected with air. It takes about 32,000 cubic feet of natural gas to produce 1 ton of NH₃.

²¹ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix

plant, fireplaces and vehicles do not emit such a variety of highly toxic, hazardous pollutants, including arsenic and dioxin. To understand the composition of the 4.8 million pounds, consider the graph below.



How do Fibrowatt’s emissions compare with those from traditional energy sources? According to assessments by the North Carolina Division of Air Quality, poultry-litter incinerators can be more polluting than new coal-fired plants²³.



It should be pointed out that these are established “allowable” pollution limits according to permitting. Fibrowatt representatives have implied that they plan to voluntarily control emissions below these levels and that periodic tests will demonstrate this control. When hearing Fibrowatt’s arguments regarding their planned control of emissions, one should consider the following:

- a. Fibrowatt is fully owned by investors who are looking to maximize profits and minimize costs within legal regulatory limits. Any controls that go beyond the letter of the law can be viewed as simply cutting into profits.
- b. Most of the testing and oversight will be planned and administered directly by internal Fibrowatt personnel, especially during the start-up phase when air permits are granted.
- c. A number of pollutants that will come from the Fibrowatt smokestack (e.g., arsenic and dioxin) are known to be toxic in extremely low amounts. There have been no safe limits

²² US EPA, AP-42 Volumes I and II. Compilation of Air Pollutant Emission Factors (1995, January)

²³ Comparison of Emissions from Controlled Coal and Biomass Combustion (2008, July 9), page 6 NC Department of Environment and Natural Resources, Division of Air Quality -> see appendix under prior Footnote 8

established for these dangerous substances and therefore their emission levels are NOT assessed for permitting²⁴.

- d. All four incinerator/ power plant operations built by Fibrowatt to-date have a record of being among the most polluting in the industry and exceeding permitted pollution levels^{25,26}.
- e. Fibrowatt spokes personnel have often stated that due to the caustic nature of poultry litter, the operation must be frequently halted for cleaning and maintenance. As the combustion process is halted – and then restarted, the burning of fuel is very inefficient. During these frequent starts and stops of the operation, **very large quantities of pollutants will be released. There are neither special controls during these periods nor does regulation or permitting account for these occasions.**

C. Our Drinking Water Supply

A Fibrowatt spokesperson stated that the Surry facility would use approximately 300,000 gallons of water per day, with a larger volume needed when the boilers are cleaned. Because Fibrowatt's turbine is run with steam, three quarters of the daily water usage, or 225,000 gallons, will evaporate and be lost from the watershed²⁷.

The town of Elkin has entered an agreement to provide the Fibrowatt plant's water consumption needs with municipal drinking water. Elkin now produces 800,000 gallons of water per day²⁸. Fibrowatt proposes to use almost half of Elkin's current daily water production or 10% of its maximum theoretical capacity. Fibrowatt's consumption will leave Elkin more susceptible to drought, to say nothing of the downstream communities and metropolitan areas that depend on the Yadkin River for their water (for instance Winston-Salem). Recent periods of drought have left little or no water flowing over the dam that is downstream from Elkin's water treatment facility located on the Big Elkin Creek (a major tributary of the Yadkin River).

Fibrominn, the company's Minnesota plant, which is roughly the size of the proposed Surry County facility, now uses 1.1 million gallons of water per day²⁹. That volume, even when adjusted for the plant's slightly larger size, casts doubt on the reliability of Fibrowatt's projections for Elkin. Given that around 75% of the water consumed by operation would be evaporated, the potential impact to the Yadkin Valley Watershed is immense. Also, the fact that site storm water runoff, potentially contaminated with material from emissions and spills, will be discharged to the Yadkin River utilizing undisclosed control practices, raises doubts about the company's future stewardship of the river.

Although Fibrowatt's extremely high water consumption rate will generate additional revenue for the Town of Elkin, it brings with it the risk of leaving residents and other businesses dry. Trading such a large volume of water to one employer, in exchange for very few jobs, will most certainly restrict future economic development from businesses that provide more jobs with magnitudes less water consumption. One major Elkin employer, fearing a lack of flow in Big Elkin Creek, has already obtained State permission to locate an emergency pumping station directly on the Yadkin River. At the same time the N.C.

²⁴ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix under prior Footnote 20

²⁵ Enforcement & Compliance History Online (2009, March 10) .U. S. Environmental Protection Agency accessed March 10, 2009 <http://www.epa-echo.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=110008734085> -> see appendix

²⁶ 100 Dirtiest Power Stations in the UK (November 2007) *Telegraph.co.uk* accessed March 3, 2009; <http://www.telegraph.co.uk/earth/3314377/100-dirtiest-power-stations-in-the-UK.html> -> see appendix

²⁷ Fibrowatt Representative, Terence P. Walmsley, Vice President, Environmental & Public Affairs; Fibrowatt, LLC, Langhorne, PA (2009, Feb 09), *Elkin Meeting*

²⁸ Water and Sewer, *Town of Elkin* accessed February 4, 2009 <http://www.elkinnc.org/elkin/Departments/PublicWorks/WaterSewer/tabid/101/Default.aspx> -> see appendix

²⁹ State of Minnesota, *Environmental Quality Board*, accessed March 21, 2009 <http://74.125.47.132/search?q=cache:0lpaYwrlOPMJ:www.bensonmn.org/fibrominn/find-fact.pdf+Application+to+Exempt+the+Fibrominn+Biomass&cd=2&hl=en&ct=clnk&gl=us> -> see appendix

Governor's office makes regular pleas for water conservation, how can a municipality near the top of a primary N.C. watershed value water solely for its selling price while defining "sales potential" only by the theoretical capacity of the treatment facility?

D. A Record We Can Trust?

Although Fibrowatt claims to obey pollution standards strictly, the company's plant in Benson, MN, is in violation of its emissions permits for three pollutants: carbon monoxide, nitrogen oxide, and sulfur dioxide (and those are among the ones that are being monitored – as you will see later a number of more toxic substances are NOT being monitored). The plant failed to pass a stack-emissions test in September 2008, just a year after opening, and was still in violation at the time this paper was compiled (March 11, 2009).³⁰ Even though the North Carolina Division of Air Quality has provided assurances to Surry County that emissions would be highly regulated, Fibrowatt's record shows its unwillingness or inability to meet emissions standards. In addition, the State of Minnesota has been unwilling to provide information about the violations publicly, and in fact has enforced silence on North Carolina regulatory agencies. If this is simply a paper problem as the company claims, where is the harm in releasing the information?

The problem is not confined to Fibrowatt's sole US plant. All three of plants built by Fibrowatt in the United Kingdom are ranked among the worst polluters in that country. In the very year the company opened its first US plant, for example, all three of Fibrowatt's UK plants were ranked among the worst 100 of some 2000 power stations³¹.

This brings us to one of the most disturbing aspects of Fibrowatt's lobbying and public-relations campaign. In order to secure the government price controls that make its electricity profitable, Fibrowatt must convince lawmakers that it provides some compensatory service. To this end, Fibrowatt claims that its incineration and power production operation is "carbon neutral". Fibrowatt promotional literature includes a diagram showing that CO₂ emitted from fossil-fueled power plants goes into the atmosphere and contributes to greenhouse gas build up and global climate change³². However, a similar diagram on the back side titled Power from Poultry Litter shows that CO₂ emitted from the Fibrowatt poultry-litter plant "cycles through the environment" and is "taken up by plants by photosynthesis."³³ How do fossil fuels create "bad" CO₂, while poultry litter creates "good" CO₂? This literature is misleading. Only a very narrowly scoped definition of the Fibrowatt operation when leaving out the impacts of trucking and fertilizer production might conclude that burning poultry litter does not result in a net CO₂ increase (since CO₂ will be released over time when poultry litter and wood products decay).

In another Fibrowatt promotional brochure, there are graphs for different pollutants³⁴. These graphs favorably compare the "Fibrowatt Predicted Impact" with levels allowed by the National Ambient Air Quality Standards (NAAQS). The brochure does not point out, however, that the NAAQS Standards apply to limits for a whole geographic region's ambient pollution level from *all* sources. Once again, it is misleading to compare the emissions of a single facility with cumulative levels allowed within an entire region. Furthermore, a small footnote on one of the graphs indicates that "the NAAQS annual standard was subsequently revoked." Why would Fibrowatt compare its performance with a revoked standard?

E. Soil and Water Quality

Fibrowatt has stated that there is an excess of phosphorus and toxic metals in the soil of Surry County due to the over-application of poultry litter as fertilizer. Furthermore, Fibrowatt claims that it would help to improve soil and water quality by removing phosphorus and toxic metals from the area since the

³⁰ Enforcement & Compliance History Online (2009, March 10). *U. S. Environmental Protection Agency* accessed March 10, 2009 <http://www.epa-echo.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=110008734085> -> see appendix footnote 24

³¹ 100 Dirtiest Power Stations in the UK (November 2007) *Telegraph.co.uk* accessed March 3, 2009; <http://www.telegraph.co.uk/earth/3314377/100-dirtiest-power-stations-in-the-UK.html> -> see appendix under Footnote 25

³² Power from Fossil Fuels, *Fibrowatt brochure* obtained at Fibrowatt Open House, March 11, 2009 -> see appendix

³³ Power from Poultry Litter, *Fibrowatt brochure* obtained at Fibrowatt Open House, March 11, 2009 -> see appendix

³⁴ Clean Baseload Renewable Energy, *Fibrowatt brochure* obtained at Fibrowatt Open House, March 11, 2009 -> see appendix

contaminating poultry litter will be taken away and burned. However, the company also stated that the leftover ashes will be resold as fertilizer within the same geographical area from which it obtained the chicken litter³⁵. Here is the obvious problem with Fibrowatt's plan to improve soil and water quality in the area by removing phosphorus and metals: phosphorus as well as toxic metals that originated from poultry feed are almost entirely retained in the ash. Therefore, fertilizer produced and distributed using the ash would contain the same quantities of phosphorus and toxic metals as poultry litter, but at higher concentrations.

Additionally, simply by entering into purchase agreements with local farmers, Fibrowatt cannot guarantee the public that over application of their chemical fertilizer will not occur. Poor agronomic practices will not be changed or regulated by Fibrowatt's presence. Therefore, *Fibrowatt's claims of soil and water quality improvement do not add up*. In fact, farmers understand that chemical fertilizer is more susceptible to run-off than correctly applied poultry litter.

The ash that Fibrowatt plans to use for fertilizer is a very hazardous material that causes caustic burns and should only be handled when wearing full-body suits and a respirator. Although Fibrophos (Fibrowatt's fertilizer division) markets this ash as "high quality agricultural fertilizer", livestock must be kept from accessing the land for at least 21 days following application³⁶. After reading the quotation in the footnote below, please ask yourself: does this sound like anything you would care to have transported and spread throughout your scenic countryside?

In summary, Fibrowatt would not be removing phosphorus or toxic metals from the region. In fact, Fibrowatt would produce, handle, store and distribute some 21,000 tons of the hazardous ash material annually on the outskirts of Elkin and on the banks of the Yadkin River.

While promoting the merits of their hazardous chemical fertilizer, Fibrowatt fails to consider the benefits of poultry litter as fertilizer. Phosphorus and potassium are fixed to minerals in the soil by chemical reactions. Through the process of spreading litter on the land, the only way that phosphorus and potassium can get into streams and waterways is through soil erosion. Poultry litter, in fact, actually adds considerable organic matter to the soil, improving soil quality and making it less likely to erode.

In addition to poultry litter, Fibrowatt intends to purchase about 150,000 tons of other biomass per year. Part of the biomass purchase will consist of crop residue, such as corn stalks and soybean vines, to burn as fuel. Currently, farmers observe the *no-till* practice, leaving the biomass on the ground to help increase infiltration of rain water. Additional advantages of no-till farming include carbon sequestration, less erosion, and fewer tractor passes across fields. Fibrowatt's plan to create a market for crop residue would undermine the benefits of no-till and promote fertile soil loss while negatively impacting surface water quality and the water table. Loss of nutrient-rich soil will in turn drive the application of more chemical fertilizer.

Fibrowatt has stated that it will use whatever biomass it can obtain to generate electricity and produce ash for fertilizer. It will use the closest materials first, but Fibrowatt has been known to truck in fuel from up to 200 miles away, including to neighboring states.³⁷ The market for poultry litter as fertilizer is very strong and is projected to remain strong for years. As you will read later in this work, there is no real incentive for farmers to sell their litter to Fibrowatt. It is predictable that Fibrowatt will turn to increasingly higher quantities of biomass as a fuel source. Therefore, the negative impacts to regional forests, soil and water will likely be even greater than currently estimated.

³⁵ Fibrowatt Representative, Terence P. Walmsley, Vice President, Environmental & Public Affairs; Fibrowatt, LLC, Langhorne, PA (February 9, 2009), *Elkin Meeting*

³⁶ Ash Handling Precautions of "Fibrophos", that markets power plant ash as "high quality agricultural fertilizer", accessed March 14, 2009 <http://www.fibrophos.co.uk/images/OCH09%20Fibrophos%20Fertiliser%20MSDS.pdf> The following is quoted: "***Do not breathe dust. Wear a suitable respirator to protect against fine dust, with a filter capable of filtering particles of 0.3 microns (Type P3). Wear goggles for eye protection, safety glasses are inadequate, Prevent material from touching skin: · Use laundrable boiler suit or disposable hooded 'crawler' suit and disposable gloves. Cuffs should prevent skin contamination. · Use barrier cream on all exposed skin (Taktosan or equivalent). · Wash off skin as soon as possible with water. If allowed to touch the skin, the material will react with sweat and can cause caustic burns. ...Farmed Animals must not be allowed access to the land for at least 21 days following application to land.***" -> see appendix

³⁷ Fibrowatt Representative, Terence P. Walmsley, Vice President, Environmental & Public Affairs; Fibrowatt, LLC, Langhorne, PA (March 11, 2009), *Open House, Dobson*

If excess poultry litter ever becomes a problem and *the actual amount of excess litter is established*, then there are effective alternatives which would not harm the air, soil, forests or water. Examples include litter exchanges, composting facilities and pelletization for fertilizer that can be readily transported outside the region. The fact is, the existence and quantify of excess poultry litter in Surry County has not been established, and effective solutions have not been evaluated.

III. Negative Impacts for the Local Economy

A. The Larger Picture

While the Fibrowatt project is touted by some as a key win for Surry County’s economic development, there is reason to believe that it will actually impede economic growth in the region. Fibrowatt will yield a relatively small number of jobs for Surry County residents and small real-estate tax revenue (for Fibrowatt incinerator/power plant in Minnesota it is \$150,000 per year³⁸). This raises questions about the millions of dollars in tax-payer investment and County incentives being offered to this out-of-state company. Just as important, current and prospective investors in Surry County’s viticulture, winemaking, hospitality, and tourist industry believe that Fibrowatt would harm the region’s appeal as a tourist destination. In fact, having an incinerator/ power plant in the County would discourage future investment from many forms of new businesses that would simply choose to avoid such a neighbor.

At best, Fibrowatt’s true economic payback to Surry County residents is unclear. A full cost/benefit analysis, along with other critical data, has been requested by Surry County citizens on multiple occasions, but such an analysis, if it exists, has never been made public³⁹.

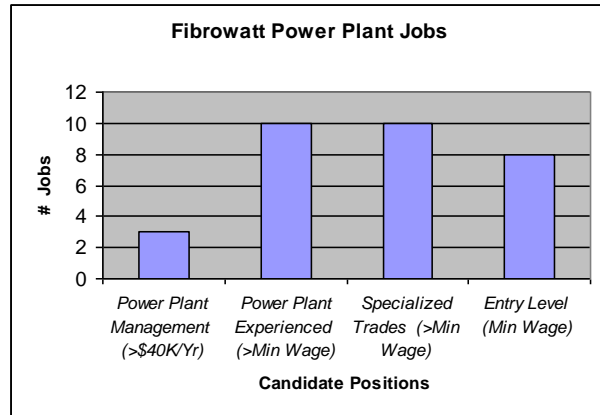
Another major concern for anyone who owns a home or land in the region is the anticipated decline in property values. **Historically speaking, property values have been proven to decrease 20% in areas with an incinerator.** This negative impact begins even BEFORE operation and continues for many years⁴⁰.

B. The Myth of Job Creation

While a Fibrowatt plant itself would employ a mix of both skilled and unskilled laborers at varying levels of pay and benefits, the original projection of 100-150 new jobs proves to have been a myth. A Fibrowatt spokesman now states that the company would employ approximately 30-35 new workers at the power plant. Eight to ten of these jobs will be entry-level positions with wages only slightly higher than minimum wage. The other 20-25 job positions at the plant will require specialized skills or power plant experience that local workers are less likely to have.⁴¹

Fibrowatt’s addition of a fertilizer plant could add up to an additional fifteen jobs. The qualifications and wages for these positions have not been specified, but there has been no commitment from the company that this facility would be built in Surry County.

Fibrowatt has also promised to provide work for up to 50 truckers to transfer litter to the Fibrowatt plant. However, the current transfer of farmer – to – farmer poultry-litter already employs these truckers. The only real change would be the truckers’ destinations and the added expense of customizing trucks to Fibrowatt requirements. In other words, the trucking jobs cannot be counted as new jobs for the county, as they would merely replace existing jobs as confirmed by a study commissioned by the State of North Carolina in 2006⁴².



³⁸ According to Fibrowatt Promotional Material obtained March 2009 -> see appendix

³⁹ Eric Harrington for local citizens (3/05/2009) Letter to County Commissioners -> see appendix footnote 2

⁴⁰

The Effect of an Incinerator Siting on Housing Appreciation Rates, published in the *Journal of Urban Economics*, accessed February 12, 2009 http://www.hseindiana.com/property_values.php -> see appendix

⁴¹Fibrowatt Representative, Terence P. Walmsley, Vice President, Environmental & Public Affairs; Fibrowatt, LLC, Langhorne, PA (Surry County Public Meeting 3/26/09)

⁴² [NCRPSReport12-06.pdf](#) page 71”biomass plants would likely offset existing jobs related to waste management and field application of poultry litter (see Appendix E). Therefore, transportation of poultry litter fuel was assumed to have no net impact on the State economy and jobs.”

While it is true that Fibrowatt's potential \$140-190 million capital investment would be the largest private investment in county history, only a small fraction of this investment would come as benefit to Surry County and its citizens. Much of the capital equipment and construction services may come from out of state, as Fibrowatt has offered no guarantee that construction would employ local companies or workers. By the way, for the construction of the plant in Minnesota, Fibrowatt utilized a Canadian Construction company .

C. Conflicts with Key Economic Development Initiatives

Building a Fibrowatt incinerator/power plant on the banks of the Yadkin River directly conflicts with numerous commitments developed and adopted by County officials in the *Land Use Plan 2015*⁴³. Many area property owners and businesses have relied on this document as a guide for investing in and siting economic enterprises such as wineries and vineyards. This document lays out a number of goals for county land use, such as:

- Stabilization and preservation of property values,
- Recognition of the paramount value of the natural environment,
- Blending industrial use harmoniously with the community,
- Ensuring compatibility of industry with surrounding land uses,
- Ensuring that industry does not interfere with residential, commercial, cultural, or leisure development of the community, and
- Making sure that development in rural areas blends well with the rural/agricultural framework.

The introduction of heavy industry, such as the Fibrowatt incinerator, on land that was until recently zoned agricultural conflicts with the County's stated goals. The few jobs that would be created do not justify ignoring a well thought-out Land Use Plan, especially when the area in question is being considered for viticulture development, recreational tourism and is located directly on the banks of an important drinking water source. A poultry-litter incinerator is incompatible with vineyards, wineries, and the tourism they attract. The 2009 8th Annual Yadkin Valley Wine Festival attracted more than 12,000 visitors. Why hinder further success of such regional attractions with a concentration of poultry litter trucks running through the community and a smokestack image? Also, it is uncertain how Surry County's investment from the NC STEP program and SCC Viticulture might be impacted by heavy industrial development.

According to the Tourism Statistics and Accomplishments Section from the *Annual Report for 2008, Surry County Board of Commissioners*, revenues generated from visitor spending in Surry County have been \$83.32 million in 2007 with 680 workers and a combined payroll of \$11.86 million. Why jeopardize these accomplishments with the addition of heavy and polluting industry?

D. Economic Impact on Viticulture, Winemaking, and Tourism

There is broad consensus regarding the negative impact of the Fibrowatt project on many important aspects of the local economy. A petition recently presented to Surry County Commissioners, included the signatures of seventy-five percent of local vineyard and winery owners who oppose the Fibrowatt project.⁴⁴ They believe, along with many others, that Fibrowatt will have a withering effect on the viticulture, winemaking, and tourism industry in our region. As citizens and elected officials have considered the region's assets and growth strategies, there has been no legitimate consideration to adding heavy industrial plants⁴⁵. To the contrary, considering the region's assets, to set a strategy on growing

⁴³ Land Use Plan 2015 (2006, October 02) *Surry County, NC Website*; accessed February 20, 2009 http://www.co.surry.nc.us/Departments/PlanningAndDevelopment/PDF/Land_Use_Plan_2015.pdf -> see appendix

⁴⁴ Petition entitled "Yadkin Valley Vineyard & Winery Industry Opposition to Fibrowatt", signed by 28 vineyard/winery owners, presented to Surry County Commissioners on March 26, 2009.

⁴⁵ Dan Parks, Blair Abee, Bill Parrish (2008, April 14) *Town of Elkin, Economic Development Plan "An Integrated Plan for Attracting and Retaining Wealth page 6* , and Land Use Plan 2015 (2006, October 02) *Surry County, NC Website*; accessed February 20, 2009

heavy industry would be squandering the unique assets built and preserved by generations of Surry County citizens.

North Carolina is the tenth largest grape and wine producing state in the nation and tied for third place in revenue from that industry. Surry County is in the heart of North Carolina's preeminent viticulture region. Although significant growth has occurred since, a report released in January 2007 reveals that⁴⁶:

- North Carolina has 350 vineyards and more than 70 wineries in over 30 counties.
- Statewide, the wine and grape industries account for more than 5,700 jobs, with an associated payroll of more than \$159 million. Or, for every vineyard and winery that is established, thirteen or more new jobs are created.
- The retail value of North Carolina wine was an estimated \$72.3 million in 2005.
- North Carolina grape, wine, and related industries generated \$38.5 million in State and local tax revenue, and an additional \$56.2 million in federal taxes.
- The estimated total economic impact of the wine and grape industry in North Carolina was some \$813 million in 2005.

And these figures are expected to grow. Unlike Fibrowatt facilities, the winemaking industry requires no direct financial incentives from the federal, state or local government. Therefore, even as this industry grows, it will leave government funds available for the infrastructure and community development efforts that benefit citizens most directly. The only requirements for continued growth in the winemaking industry are a region environmentally suited for growing grapes, an appealing environment for tourists, and the willingness of prospective vineyard and winery owners to invest an average of \$0.5M – \$3M to establish their business.

The Yadkin Valley and surrounding area is now home to 21 wineries within 35 miles of Elkin, NC. North Carolina's Outer Banks and mountains have long been tourist destinations. In the last decade, however, a new tourist Mecca has grown up around the grape and wine industry in the Yadkin Valley. The region is now being recognized and written about across the US. In the last two months, for example, articles on the Yadkin Valley have appeared in *The Salt Lake Tribune* and *The Washington Post*:

The Yadkin Valley is quickly becoming North Carolina's version of Napa Valley, a Southern "Napa" Valley. With the Blue Ridge Mountains as its backdrop, the region is anchored by Mount Airy... Head across the highway to Pilot Mountain State Park just before dusk. You can drive almost to the top, where trails lead through leafy oaks to vistas of the wineries below and the Blue Ridge Mountains to the west....

*Salt Lake Tribune*⁴⁷

... Elkin, N.C., in the foothills of the Blue Ridge Mountains. Here in Yadkin Valley Wine Country, "the Napa of North Carolina," there are two dozen wineries to choose from.

*The Washington Post*⁴⁸

There are now twenty-one wineries in Surry and Yadkin Counties in the Yadkin Valley AVA (American Viticulture Area), with three new wineries slated to open in 2009. In addition, there are three

http://www.co.surry.nc.us/Departments/PlanningAndDevelopment/PDF/Land_Use_Plan_2015.pdf. -> see appendix and for Land Use Plan footnote 42

⁴⁶ Appalachian State University Study: Vineyards & Wineries in NC, January 2007

⁴⁷ *Salt Lake City Tribune*, February 20, 2009

⁴⁸ *The Washington Post*, "Savoring the Flavors of North Carolina's 'Napa'", by Diane Daniel, February 8, 2009 -> see appendix

known prospective vineyard/winery owners who would like to establish a business in the Yadkin Valley very near the proposed Fibrowatt facility (two of whom spoke out against Fibrowatt to the Surry County Commissioners at meetings in March 2009). All of them are waiting to see whether Surry County will allow Fibrowatt to build a plant. They do not consider a poultry-litter incinerator compatible with the marketability of their product, and they fear that the presence of such a facility will deter tourists from the region's wineries. **Since each new vineyard employs about 13 people, there are now 39 potential new jobs at stake just from the three known vineyards awaiting the Fibrowatt outcome.**

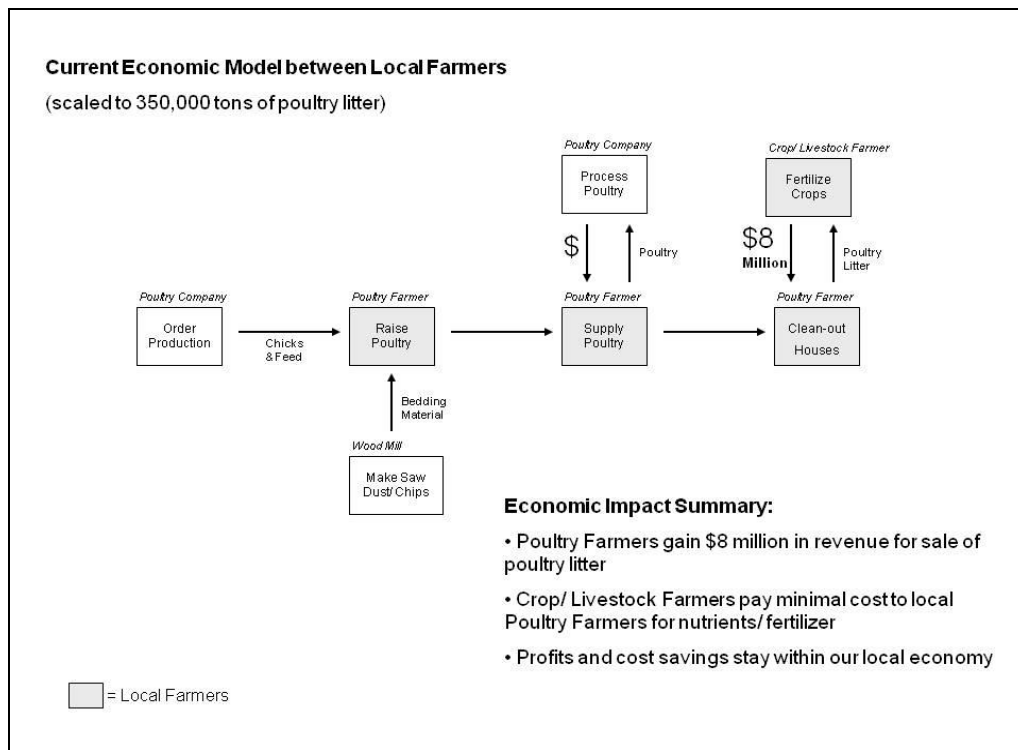
F. Negative Economic Impact on Farmers

Farmers are opposed to the Fibrowatt project because it could weaken or destroy their profits.

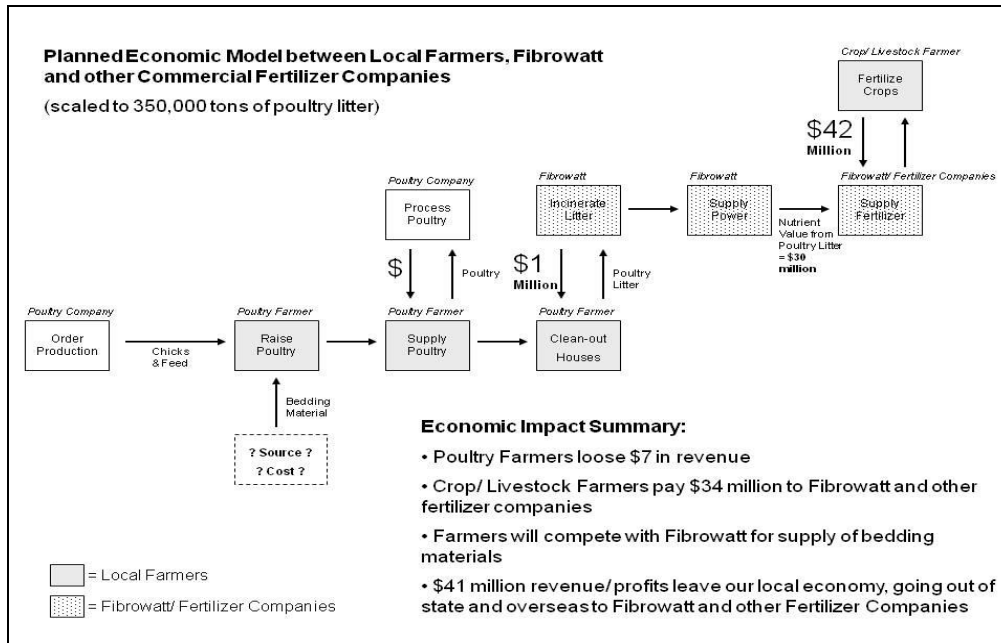
Poultry farmers currently sell litter to crop and livestock farmers for about \$25 per ton. If the farmers' price is \$25 per ton, and using the quantity of litter planned for incineration by Fibrowatt (350,000 tons), the total annual poultry farmer income from sales to other farmers is \$25 x 350,000 tons, or \$8.75 million. Fibrowatt, on the other hand, plans to offer farmers from \$2.50 - \$5.00/ton for the same litter.⁴⁹ If we assume that a farmer would receive \$3 per ton from Fibrowatt, then farmers' total annual income from selling to Fibrowatt would be \$3 x 350,000 tons, or \$1.5 million. This outcome is implied with Fibrowatt's business model.

Therefore, if Fibrowatt would be successful in obtaining long-term contracts with poultry farmers (e.g., through successful lobbying for new legislation or working deals through poultry integrators), the resultant loss in income to the area's farmers would be \$7.25 million annually. If Fibrowatt were not successful in obtaining contracts, then what would be burned in place of poultry litter?

But there is more: at current market prices, crop and livestock farmers will have to pay \$42 million for commercial fertilizer to replace the nutrient value of the incinerated poultry litter. Therefore, these farmers would have to spend an additional \$40.5 million annually. The net loss to farmers is illustrated below in a comparison of the two economic models:



⁴⁹Demand for farm litter still strong (2009, February 11) *Wilkes Journal Patriot* <http://www.journalpatriot.com/fullstory.asp?id=1094>
-> see appendix footnote 9



For farmers, opposition to Fibrowatt is a simple matter of economics. They stand to suffer a loss in income or increase in costs if the existing farmer-to-farmer economy is disrupted. In the end, Fibrowatt’s profits would come at a high cost to local farmers. In addition, Fibrowatt would own the leftover ash from the incineration process. These 21,500 tons of ash produced annually would be resold for fertilizer and additional profits. According to the economic models in England and Benson, Minnesota and the “nutrient” value of these ashes are placed at \$30 million annually.

In addition to the poultry-litter producers and users, a third segment of the agricultural economy must be factored into the analysis of Fibrowatt’s economic impact. *Custom applicators*, who now spread the poultry litter on fields and pastures, stand to lose not only their income from providing this service to other farmers, but also the earnings potential of their specialized equipment. **The loss of work for custom applicators will offset part of the job gains promised by Fibrowatt.** In addition, new technologies have been developed for the dry application of poultry litter which address odor issues and will likely work to expand the future market for custom applicators.

F. Final Economic Considerations

Tourists visiting the vineyards, Pilot Mountain, and other destinations in Surry County and surrounding area would not miss a 300-foot-tall Fibrowatt smokestack. An exhaust plume will be clearly visible, especially during humid and cooler weather. It is likely that the Fibrowatt smokestack, visible from I-77 and Highway 67, would become a landmark for Elkin and Surry County, defining travelers’ perception of the region as industrial, rather than clean, scenic and recreational.

The Mountains to Sea Trail will run along the north banks of the Yadkin River where the Fibrowatt incinerator/power plant would sit. There is currently a strong local movement to protect the Yadkin River and enhance its use for recreational purposes (e.g., The Yadkin River Trail). A poultry-litter incinerator and its associated industrial truck traffic at the count of around 240 18-wheeler truck trips per day in and around Elkin is exactly the type of scenery that tourists avoid.

Visitors to North Carolina's first certified organic vineyard, as well as the other wineries desiring to locate along Hwy 268, would have to drive past the incinerator and contend with heavy truck traffic along the way. The plant would hinder the growth of the region's tourist industry and compromise the hard-earned reputation as the "Napa of North Carolina." Fibrowatt's heavy-industrial image will discourage the creation or relocation of hospitality-related businesses in the county. This will lead to a net loss of jobs in the area and will make normal citizens' property values go down by an anticipated 20%. As noted in the petition by the existing vineyard and winery owners, the Fibrowatt project would mean a serious setback for one of the only vibrant industries that is drawing significant income to Surry County.

IV. Negative Impacts for Your Health

As noted earlier in this document, Fibrowatt's operation will shower Elkin and the surrounding communities with a host of toxic air pollutants.

The plant proposed for Elkin is modeled after Fibrowatt's plant "Fibrominn" that is in operation in Benson, Minnesota. The air quality permit in Benson states:

*"The proposed source will be a major source for hazardous air pollutants."*⁵⁰

WHY would elected and appointed officials as well as citizens agree to a bargain that swaps health (and the near certainty of increased lung, heart and neurological problems) for the promise of a few jobs, marginally increased tax base and a source of income from selling water and sewer services? There is little to no scientific controversy about the health risks of these "hazardous air pollutants." But, with an industry able to spend millions of dollars influencing the political and regulatory processes, health and safety concerns take a back seat. The history of this country's laws regulating toxic lead exposure is a case in point where industry lobbied to keep lead in gasoline despite evidence of neurological damage to children⁵¹.

Since the Elkin based Fibrowatt incinerator would essentially mimic the Benson, MN incinerator, it is known with relative certainty what would be dumped annually out of Fibrowatt's smokestack into the air everyone breathes. Please note that much of what this plant would emit will be invisible and odorless⁵² so that citizens will get no warning and be fooled into thinking that the air is clean! It is unconscionable that Fibrowatt representatives boast that their process is "odorless" and that there will be "no smoke". Such statements simply divert attention from the facts about the insidious nature of the toxins in this "colorless" and "odorless" process. Furthermore, inviting experts that Fibrowatt pays to disseminate information regarding how well Fibrowatt meets legally allowed pollution levels is another attempt at directing officials and the general public away from the broad array of negative impacts. One example of this public relations play occurred in Greensboro on June 18, 2009 through the "North Carolina Agricultural Energy Partnership" which is simply Fibrowatt representatives along with the supporting officials from counties where Fibrowatt intends to build its plants.

First off, consider the variety of *known pollutants* that get emitted from the Fibrominn smokestack at the permitted rate of at 4,800,000 pounds per year:

1. Carbon Monoxide
2. Carbon Dioxide
3. Particulate Matter (PM) 2.5
4. Particulate Matter (PM) 10
5. Sulfur Dioxides
6. Nitrogen Oxides (NOx)
7. Hydrochloric Acid
8. Sulfuric Acid
9. Volatile Organic Compounds (VOCs)
10. Dioxin
11. and other hazardous air pollutants like arsenic.

⁵⁰ Public Notice on proposed Air Emission Facility Permit to issue Air Emission Permit No. 15100038-001 to Fibrominn LLC (2002, August 2), *Minnesota Pollution Control Agency website*, accessed March 22, 2009

⁵¹ *Leaded Gas Scare of the 1920s*, from the *Natural Resource Defense Council website* accessed March 15, 2009, <http://www.nrdc.org/air/transportation/leadgas.asp> "The evidence that lead exposure from gasoline affects neurological development, growth and intelligence was brushed aside for over 35 years."

⁵² Dioxin in standard form is colorless and odorless, *Agency for Toxic Substances and Disease Registry* accessed March 15, 2009 <http://www.atsdr.cdc.gov/tfacts104.html>; Nitrogen Oxides colorless to brown, sweet smelling to harsh. *Agency for Toxic Substances and Disease Registry* accessed March 15, 2009 <http://www.atsdr.cdc.gov/tfacts175.html>; Carbon Monoxide colorless and odorless, side effects, *Agency for Toxic Substances and Disease Registry* accessed March 15, 2009 <http://www.atsdr.cdc.gov/training/toxmanual/modules/4/lecturenotes.html>

However, the Environmental Protection Agency (EPA) only requires the following to be *partially captured*:

1. Carbon Monoxide
2. Particulate Matter 2.5
3. Particulate Matter 10 – with a self-proposed limit
4. Sulfur Dioxide
5. Nitrogen Oxide
6. and Hydrochloric Acid

Furthermore, these substances are also *self-monitored* and submitted, quarterly in Minnesota, to the Air Quality Department. *All the other substances mentioned in the first list including dioxins are neither being captured nor controlled*⁵³.

The facts are clear. Following is a description of the *pollutants that the Fibrowatt plant in Surry County would be emitting*, if built, and their *known health impacts*:

A. Particulate matter

The Benson incinerator is permitted to emit 138,000 pounds per year of PM 2.5 and 138,000 tons of PM 10 per year⁵⁴. This is more than a comparable new coal-fired plant (see table in previous section of this report *II-B. The Air We Breathe*). *Science Magazine* states, “A large number of other studies have found that acute and chronic morbidity and mortality outcomes are occurring in association with PM concentrations at low and relatively common pollution levels.”⁵⁵

Translation: Small Particulate Matter is deadly.

Small particle pollution consists of especially fine particles that contain microscopic solids or liquid droplets are so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including:

- * **Respiratory diseases**, with irritation of the airways, coughing, or difficulty breathing, decreased lung function, aggravated asthma and chronic bronchitis;
- * **Irregular heartbeat**;
- * **Nonfatal heart attacks**;
- * **Premature death in people with heart or lung disease.**

People with heart or lung diseases, children and older adults are the most likely to be affected by particle pollution exposure. However, even if you are healthy, you may experience temporary symptoms from exposure to elevated levels of particle pollution⁵⁶. For more information about such impacts, visit www.epa.gov/asthma.

⁵³ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

⁵⁴ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

⁵⁵ *Science* 31 January 2003: Vol. 299, no. 5607, pp. 665 – 666 DOI: 10.1126/science.1082105

⁵⁶ Health and Environment, from the *Environmental Protection Agency* Web Site, accessed March 10, 2009 <http://www.epa.gov/particles/health.html>

As stated above, the Fibrowatt plant in Benson Minnesota is permitted to emit 138,000 pounds of particle matter ~2.5 or less micrometers in the form of fly ash. **Particles that are 2.5 micrometer and smaller are particularly dangerous to humans in that they penetrate the lung walls**⁵⁷.

* Short-term exposure to fine particulate matter (microscopic particles that pollute the air) increased hospital admissions for cardiovascular and respiratory disease among Medicare participants, according to a study of 204 U.S. urban counties conducted by researchers at the Johns Hopkins Bloomberg School of Public Health and Yale University's environment school. In 2002, for every 10- $\mu\text{g}/\text{m}^3$ increase in particulate matter, the researchers calculated 11,000 additional cardiovascular and respiratory disease hospitalizations. Increased risk for cardiovascular disease hospitalizations, as a result of increased levels of particulate matter, was highest in counties located in the eastern United States. The study is published in the March 8, 2006, edition of the Journal of the American Medical Association⁵⁸.

* A study published in 2007 in *Stroke*⁵⁹: Journal of the American Heart Association found that breathing even small amounts of fine particle pollution during warm weather months can increase stroke risk and the elderly are advise to not walk outside on high pollution days. **Who will warn the elderly of Surry County when small particle levels are high?**

* The American Heart Association states: "Epidemiological studies have demonstrated a consistent increased risk for cardiovascular events in relation to both short- and long-term exposure to present-day concentrations of ambient particulate matter."⁶⁰

Soot from diesel engine traffic generates very high quantities of dangerous fine particulate matter. As previously stated, 240 18-wheeler truck trips (120 round trips) per day will be required to feed the Fibrowatt incinerator with fuel. **Diesel soot in Surry County is already a legitimate health risk; why make it worse?** The average lifetime diesel soot cancer risk for a resident of Surry County is 1 in 5,649. This risk is 177 times greater than EPA's acceptable cancer level of 1 in a million⁶¹.

Why would we want to increase particulate matter in our air when we don't need to? There are efficient and safe ways to manage poultry litter. Burning it is arguably the most unhealthy option we could choose.

⁵⁷ More recently, considerable research attention has been devoted to ultrafine particles (UFPs) <100 nm (0.1 μm) in diameter, which result from combustion processes. UFPs tend to be short-lived, because they agglomerate and coalesce into larger particles. However, they demonstrate very high deposition in human alveoli, (27) account for a major portion of the actual numbers of particles within PM, and have a high surface area-to-mass ratio, potentially leading to enhanced biological toxicity. UFPs may even be able to pass directly into the circulatory system, which could allow them to be disseminated systemically.²⁸⁻³⁰

a. Nemmar A, Vanbilloen H, Hoylaerts MF, et al. Passage of intratracheally instilled ultrafine particles from the lung into the systemic circulation in hamster. *Am J Respir Crit Care Med.* 2001; 164: 1665-1668. [Abstract/Free Full Text]

b. Nemmar A, Hoet PH, Vanquickenborne B, et al. Passage of inhaled particles into the blood circulation in humans. *Circulation.* 2002; 105: 411-414.[Abstract/Free Full Text]

c. Oberdorster G, Sharp Z, Atudorei V, et al. Extrapulmonary translocation of ultrafine carbon particles following whole-body inhalation exposure of rats. *J Toxicol Environ Health A.* 2002; 65: 1531-1543. [CrossRef][Medline] [Order article via Infotrieve]

⁵⁸ Fine Particles Increase Hospital Admissions for Heart Failure and Cardiovascular Disease (March 7, 2006) as accessed from the John Hopkins website, March 10, 2009 http://www.jhsph.edu/publichealthnews/press_releases/2006/dominici_hospitalizations.html
-> see appendix

⁵⁹ Even low levels of fine particle pollution increase stroke risk (February 15, 2007) *Stroke Journal Report*, American Heart Association rapid access journal report, "Breathing fine particle pollution during warm weather months can increase stroke risk, researchers report in *Stroke: Journal of the American Heart Association*".

⁶⁰ Air Pollution and Cardiovascular Disease: A Statement for Healthcare Professionals From the Expert Panel on Population and Prevention Science of the American Heart Association (*Circulation.* 2004;109:2655-2671.)© 2004 American Heart Association, Inc.

⁶¹ *Diesel & Health in America: Surry County North Carolina*
<http://www.catf.us/projects/diesel/dieselhealth/county.php?c=51181&site=0> accessed February 22, 2009

B. Nitrogen Oxide

The Benson Fibrowatt plant is permitted to emit **1,112,000 pounds** of nitrogen oxide (NOx) a year⁶². Megawatt to megawatt, this is twice the amount produced by a newer coal fired plant (see table in previous section of this report *II-B. The Air We Breathe*).

* At low levels, nitrogen oxides in the air can **irritate your eyes, nose, throat, and lungs, possibly causing you to cough and experience shortness of breath, tiredness, and nausea**. Exposure to low levels can also result in **fluid build-up in the lungs** 1 or 2 days after exposure⁶³.

* Nitrogen oxides and sulfur dioxides turn to ozone when exposed to volatile organic compounds and sunlight. Nitrogen in poultry litter is not harmful until it is burned at high heat, such as in a poultry-waste incinerator, where it forms nitrogen oxides. Nitrogen oxides combine with naturally occurring and man-made volatile organic compounds (VOCs) to create ground-level ozone, which poses a number of health hazards and can be lethal. **The Fibrowatt incinerator would be a major source of ozone pollution.**

* **There is a significant increase in the risk of death from respiratory causes in association with an increase in ozone production**⁶⁴.

* Short-term exposure to current levels of ozone in many areas is likely to contribute to premature deaths, according to a new National Research Council report. The Council reports that the evidence is strong enough that the U.S. Environmental Protection Agency should include ozone-related mortality in health-benefit analyses related to future ozone standards⁶⁵.

C. Arsenic

Many agencies have shown that inhaled arsenic can cause **cancer of the liver, bladder and lungs**⁶⁶. Tests using a hypothetical facility intended to model what Fibrowatt plans to build just east of Elkin in Surry County showed toxic **arsenic emissions could be nearly three times the state standard**, said N.C.Department of Environment and Natural Resources (DENR) officials⁶⁷. Preliminary modeling by the North Carolina Department for Air Quality (N.C. DAQ) for air toxins shows **arsenic emissions would be 277% of North Carolina's health-based limits** (assuming North Carolina *House Bill H1335 does not pass the North Carolina Senate or this health-based approach would be gutted*)⁶⁸.

* Inorganic arsenic compounds are formed when arsenic combines with oxygen, chlorine, and sulfur. Arsenic is used in poultry feed to promote growth and prevent parasites. Arsenic is not destroyed through incineration and since volume is reduced when the poultry litter is burned, the arsenic occurs in the ash in concentrated amounts. There have been no measurements taken of air concentrations of arsenic at or near poultry waste incinerators, so the extent of the hazard is uncertain.

* Unprocessed poultry waste contains 18 – 22 mg/kg of arsenic⁶⁹. In 2006, the EPA lowered the

⁶² Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

⁶³ <http://www.atsdr.cdc.gov/tfacts175.html>

⁶⁴ Long-Term Ozone Exposure and Mortality (March 12, 2009) *New England Journal of Medicine*, "

⁶⁵ Asthma in exercising children exposed to ozone *The Lancet*, Volume 359, Issue 9304, Pages 386-391 <http://linkinghub.elsevier.com/retrieve/pii/S0140673602075979> -> see appendix

⁶⁶ <http://www.atsdr.cdc.gov/tfacts2.html>

⁶⁷ Wilkes Patriot Journal, <http://www.journalpatriot.com/fullstory.asp?id=1253>

⁶⁸ <http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2009&BillID=h+1335>.

⁶⁹ Nachman, Graham, Brice and Silbergeld (Sept 2005) Arsenic: A Roadblock to Potential Animal Waste Mgmt Solutions, *Environmental Health Perspectives*, Volume 113, No 9 accessed March 03, 2009 <http://www.ehponline.org/members/2005/7834/7834.html>

drinking water standard from 50 ppb to 10 ppb⁷⁰ (ppb = parts per billion, a minute amount). The Department of Health and Human Services (DHHS) and the EPA have determined that **inorganic arsenic is a known human carcinogen**. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

* Please also note that massive amounts of arsenic are found in poultry litter in Virginia's largest poultry growing region in the Shenandoah Valley⁷¹ right up Interstate Highway 77 from Elkin, NC. **How will North Carolina regulate the arsenic in poultry litter trucked in from Virginia especially with Fibrowatt asking the North Carolina Utility Commission to count out-of-state poultry litter and biomass against their in-state mandate⁷²?**

There are few regulations for arsenic in poultry feed and **all withdrawals of arsenic from poultry feed are currently totally voluntary**. Poultry integrators/farmers could voluntarily withdraw arsenic one day and put it back in the next, without notifying any agency or business. Emissions from the incineration of poultry litter containing arsenic could be coming out the Fibrowatt smokestack at any time, without anyone knowing it.

D. Carbon Monoxide

The Benson plant is permitted to emit **1,664,000 pounds** of carbon monoxide a year⁷³. Megawatt to megawatt, this would be *more than three times* the amount of a new coal fired plant⁷⁴. **Carbon monoxide (CO) is colorless and odorless.**

* Short-term (acute) exposure to CO at certain levels could cause a slight **headache and shortness of breath**. Exposure for longer periods (chronic) may cause **headache, nausea, irritability, increased respiration, chest pain, impaired judgment, and fainting⁷⁵**.

* There is an association between ambient carbon monoxide levels and **hospitalizations for congestive heart failure in the elderly⁷⁶**.

E. Volatile Organic Compounds (VOCs)

The Benson plant is permitted to emit **138,000 pounds** a year of VOCs⁷⁷.

* Also see effects in section B. above "Nitrogen Oxides" regarding ozone creation since **ozone formation is driven by the presence of VOCs**, in conjunction with other factors.

* Measurements of total VOCs may underestimate the risks associated with individual compounds.

⁷⁰ Arsenic in Drinking Water, EPA, accessed March 10, 2009 <http://www.epa.gov/OGWDW/arsenic.html> -> see appendix

⁷¹ (<http://www.vapoultry.com/facts.asp>) - accessed March 23, 2009 -> see appendix.

⁷² <http://ncuc.commerce.state.nc.us/cgi-bin/webview/senddoc.pgm?dispfmt=&ittype=Q&authorization=&parm2=PA72090B&parm3=000127195> page 7 -> see appendix

⁷³ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

⁷⁴ Comparison of Emissions from Controlled Coal and Biomass Combustion (2008, July 9) *NC Department of Environment and Natural Resources, Division of Air Quality* - page 6 -> see appendix footnote 8

⁷⁵ <http://www.atsdr.cdc.gov/training/toxmanual/modules/4/lecturenotes.html>, "Carbon Monoxide colorless and odorless, side effects"

⁷⁶ Association between Ambient Carbon Monoxide Levels and Hospitalizations for Congestive Heart Failure in the Elderly in 10 Canadian Cities (Mar., 1997) *Epidemiology, Vol. 8, No. 2, pp. 162-167*.

⁷⁷ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

F. Sulfur Dioxide

Fibrowatt in Benson is permitted to emit **1,180,000 pounds** of sulfur dioxide per year⁷⁸. Sulfur dioxide is a colorless gas and **irritant** to the human body. Sulfur dioxide **affects the eyes and the skin as well as the upper respiratory system**, and *is able to penetrate the lungs*.

* Children who live in or near heavily industrialized areas where sulfur dioxide is being emitted may experience **difficulty breathing, changes in the ability to breathe deeply, and burning of the nose and throat**. It is not known whether children are more vulnerable to these effects than adults. However, children may be exposed to more sulfur dioxide than adults because they breathe more air for their body weight than adults do.

* Long-term studies surveying large numbers of children indicate that **children who have breathed sulfur dioxide pollution may develop more breathing problems as they get older**, may make more emergency room visits for treatment of **wheezing fits**, and may get more **respiratory illnesses** than other children. **Children with asthma may be especially sensitive even to low concentrations of sulfur dioxide**, but it is not known whether asthmatic children are more sensitive than asthmatic adults⁷⁹.

G. Acid Gases

The Benson plant is permitted to emit **236,000 pounds** per year of **Hydrogen Chloride alone**⁸⁰. According to the Agency for Toxic Substances hydrogen chloride is responsible for the following⁸¹:

* Hydrogen chloride is **irritating and corrosive to any tissue it contacts**. Brief exposure to low levels causes **throat irritation**.

* Depending on the concentration, hydrogen chloride can produce anything from mild irritation to **severe burns of the eyes and skin**.

* Long-term exposure to low levels can cause **respiratory problems, eye and skin irritation**.

H. Dioxin

* Dioxin is **colorless and odorless**⁸².

* Dioxin is formed by combustion of chlorinated compounds with hydrocarbons and **it would be emitted from the Fibrowatt incinerator smokestack**⁸³.

* **Dioxins are toxic substances harmful even at very low levels and are a human carcinogen**. When ingested or inhaled, these persistent organic pollutants cause **liver and nerve damage**⁸⁴

* The biggest current contributors of dioxins are combustion and incineration sources that cause widespread **distribution through the air and by runoff into rivers, streams and estuaries**.

* Poultry litter (hydrocarbon) is laced with chlorine at 11,639 parts per million⁸⁵.

⁷⁸ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html> -> see appendix footnote 20

⁷⁹ <http://www.atsdr.cdc.gov/tfacts116.html>

⁸⁰ Air Emission Permit No 15100038-001, page 29, Fibrominn Biomass Power Plant Benson, Swift County *Air Permits Issued in Minnesota for Facilities C – G*, accessed February 12, 2009, <http://www.pca.state.mn.us/air/permits/issued/permits-cg.html>

⁸¹ <http://www.atsdr.cdc.gov/tfacts173.html>, Hydrogen Chloride Agency for Toxic Substances and Disease Registry.

⁸² Agency for Toxic Substances, <http://atsdr.cdc.gov/tfacts104.html> “

⁸³ *Environmental Health Perspective*, Vol 116, Number 11, November 2008.

⁸⁴ *Health Risks from Dioxin and Related Compounds*, National Academy of Science, accessed March 12, 2009 http://dels.nas.edu/dels/rpt_briefs/dioxin_brief_final.pdf

⁸⁵ Energy & Fuels, Vol. 22, No. 4, 2008, page 2237, table 2 Characteristics of Fuel Used

* **One of the three incineration plants in England that had been built by Fibrowatt, Thetford, (smaller than the proposed Fibrowatt plant in Elkin) generated in 2004 maximum doses of dioxin for over 256 million 110-pound humans DAILY**⁸⁶.

* **Dioxin emission levels are extremely difficult to measure on an ongoing basis**, easily manipulated, and stack emissions are only less than 0.1 to 1 percent of total dioxin output. The margin for error in measurement is 50%. Delayed release from ducts and the stack make true assessment very difficult⁸⁷. In addition, spot testing by Fre and Wever found a 30 to 50 times lower average dioxin test for announced spot testing compared to continuous monitoring⁸⁸. Fibrowatt conducted spot testing in Benson, Minnesota.

* Humans breathe dioxins emitted from incineration processes and also consume it in concentrated form in meat from grazing animals, in milk and in fish contaminated by air emission that fall into water, into sediment, onto soil and onto leaves eaten by animals and fish. Animals act as concentrators.

* Cows milk and chickens produced closer to an incineration plant have higher dioxin levels⁸⁹.

* Dioxin goes readily and preferentially from the mother to the breast-fed baby⁹⁰.

* Dioxin levels in pre-term and low-birth-weight babies is correlated with low thyroid hormone, increased risk of neurological disorders and need for special education at age nine⁹¹.

* Dioxins are bioaccumulative and even low levels of exposure can create high body levels. That means dioxins accumulate over time in the body, unlike most other pollutants.

* **Dioxin accumulates in the body for thirty years before reaching equilibrium**⁹² (i.e. dioxins do not readily break down in the body or lose the toxicity over time).

* **Dioxin is a carcinogen and has been linked to birth defects, hormone disruption, diabetes, learning disorders, behavioral problems, reproductive difficulties, diabetes, cardiovascular disease, and problems of the immune, nervous and gastrointestinal systems.**

How much dioxin is dangerous and what does it cause?

* **Dioxins are extremely toxic chemicals that cause a range of health effects at levels hundreds or thousands of times lower than most chemicals**⁹³.

* Dioxin has biological activity at extraordinarily low levels.

* The National Academies 5th review, July 11, 2006, of the long delayed EPA study on dioxin finds that

⁸⁶ UK Environmental Agency Data Source, http://maps.environment-agency.co.uk/wiby/queryController?topic=pollution&ep=2ndtierquery&language=e&layerGroups=1&x=5852.0&y=286800.0&extraClause=AUTHORIZATION_ID~'APO844'&extraClause=YEAR~'2004

⁸⁷ United Kingdom, APARG, (1995) <http://74.125.47.132/search?q=cache:O5CS8r62DYoj:archive.greenpeace.org/toxics/reports/chlorineindioxinout.pdf+greenpeace+dioxin+difficulties+in+studies+of+full-scale&cd=1&hl=en&ct=clnk&gl=us&client=firefox-a> -> see appendix

⁸⁸ UK Without Incineration Network, De Free and Wevers (1998) found a 30 to 50 times lower average dioxin test for spot testing compared to continuous monitoring.

⁸⁹ Center for Emerging Issues, Centers for Epidemiology and Animal Health, Animal and Plant Health Inspection Service, USDA, and FDA. http://www.aphis.usda.gov/vs/ceah/cei/taf/emerginganimalhealthissues_files/dioxins.htm -> see appendix

⁹⁰ Infant Exposure to dioxin-like compounds in breast milk, Matthew Lorber and Linda Phillips, Environmental Health Perspective, 2002, June; 110(6):A325-A332 National Center for Environmental Assessment, Office of Research and Development, US EPA

⁹¹ Effects of dioxins and biphenyls on thyroid hormone status of pregnant women and their infants. *Pediatric Research*: 368-473, -> see appendix

⁹² The National Academies, July 1, 2003, Recommends Steps to Reduce Dietary Dioxin Exposure.

⁹³ Washington State Department of Ecology, Focus Sheet: Hazards of Dioxin, 2001

dioxin can at levels close to those currently found in the general population cause cancer, developmental and immune effects⁹⁴.

- * There is mounting evidence that dioxin causes developmental neurotoxicity⁹⁵.

- * Dioxin causes subtle changes in the developing infant as well as general population⁹⁶.

What amount of dioxin is safe?

- * **There is no safe level of dioxin**⁹⁷.

- * Since there are no safe dioxin levels, the World Health Organization's goal is to reduce dioxin at its source⁹⁸.

Not creating dioxin is the best way to lower dioxin levels.

Fibrowatt dismisses the risk of dioxin.

- * **The Fibrominn Air Quality permit does not limit the amount of dioxin Fibrominn may emit.**

- * There is no evidence to suggest that Fibrowatt has done any testing of either human or animal body levels although there is evidence that dioxin can cause cancer⁹⁹.

- * The National Academies recommended reducing exposure by girls and women in the years before childbearing so they will not accumulate dioxin that would be passed to the fetus and breastfed infant¹⁰⁰.

- * Every North American eats dioxin when they consume fatty foods, and nearly every citizen has measurable levels of this chemical. However, **“dioxin contamination is particularly high in areas with dioxin sources like incinerators . . . “**¹⁰¹

There will be no “bad air day alert” to warn citizens because
dioxin is an unregulated substance.

I. Final Health Considerations

North Carolina has worked hard to improve air quality. **The emissions from any Fibrowatt plant would be diametrically opposed to the spirit of the Clean Smokestack Legislation¹⁰². The toxic pollutants from Fibrowatt would blow all across Surry County¹⁰³ causing pollution and health risk as noted for each of the toxic chemicals and pollutants as noted above FOR ALL residents.**

⁹⁴ The National Academies 5th review, July 11, 2006, of the long delayed EPA study on dioxin finds that dioxin at levels close to those currently found in the general population can cause cancer, developmental problems, birth defects and immune effects.

⁹⁵ *World Health Organization: Biomonitoring of Persistent Organic Pollutants*, Dioxins cause health effects at extremely low levels. WHO emphasizes reducing dioxins at their source.

⁹⁶ The Mechanism of Dioxin Toxicity: relationship to risk assessment, *Birnbaum, Research Triangle Park* “Dioxin is the most toxic member of a class. Sensitivity of humans appears to be similar to experimental animals. “

⁹⁷ *Scientific Review Panel, California Air Board*, 1986, “no safe threshold of dioxin, they recommended monitoring dioxin levels before any waste to energy facility went on line”.

⁹⁸ The World Health Organization, *Dioxins and Their Effect on Human Health*, and the “Stockholm Convention” hope to reduce the production of dioxin at the source, incineration. The developing fetus is the most sensitive. Dioxin belongs to the ‘Dirty Dozen’ persistent organic pollutants (POP) that are absorbed by fat, persist for a long time, and accumulate in the food chain.

⁹⁹ The International Agency for Research on Cancer [IARC] --part of the World Health Organization --announced February 14, 1997, that the most potent dioxin, 2,3,7,8-TCDD, is now considered a Class 1 carcinogen, meaning a “known human carcinogen.

¹⁰⁰ The National Academies, July 1, 2003 -> **see appendix**

¹⁰¹ US National Academies New Study, July 11, 2006, Confirms Dioxin is Toxic and that Every North American eats dioxin when they consume fatty foods, and nearly every citizen has measurable levels of this chemical. However, “dioxin contamination is particularly high in areas with dioxin sources like incinerators . . . “

¹⁰² [NCRPSReport12-06.pdf](#) page 78 -> **see appendix**

¹⁰³ State of North Carolina Climate Control, Raleigh, NC states wind will blow from east of Elkin in a northeasterly direction nine out of twelve months per year at approximately eight miles per hour.

The **schools directly in the air path of the pollutants from Fibrowatt** already rank at the bottom in terms of Air Toxins. Surry Central in Dobson ranks at the 7th percentile nationally for worst air pollution. Of the 127,809 schools in the nation only 7,328 of have worse air quality than Surry Central. Dobson Elementary ranks 17th and Central Middle 32nd percentile from the bottom. Copeland School on 268 ranks in the 24th percentile from the bottom nationally¹⁰⁴. Imagine what adding the largest polluter in Surry County will do to the air quality at these schools? **Do we want to expose our school children to dioxin that is linked to developmental neurotoxicity¹⁰⁵?**

Decisions regarding the Fibrowatt project in Surry County have clearly been made without due consideration of the public health impacts presented above. There has been a lack of independent research on the part of decision makers and the citizens of Surry County remain in the dark regarding the consequences of the Fibrowatt project. Based upon costly lessons of the past, many governments across the world are now heading what is known as *The Precautionary Principle*. It serve our region well if Surry County officials and decision makers would consider it as well. We would all respect them for it and future generations of Surry citizens would be thankful.

“The Precautionary Principle states that when harm is plausible but uncertain from human activities, action shall be taken to prevent that harm when it threatens life or health, is serious and effectively irreversible or is imposed without adequate consideration of the human rights of those effected. Stakeholders must be invited and enabled to participate in the evaluation process in a manner that is fair to all. The process should be transparent and accountable¹⁰⁶.”

Most of the decisions regarding Fibrowatt seem to have been made in closed sessions of the Surry County Commissioners or the Surry County Economic Development Public-Private Partnership and not open to the media or citizen inquiry or scrutiny. The attitude seems to be much like that story of lead from 1925 to the 1970s when evidence that lead exposure from gasoline affected the neurological development, growth and intelligence of children was brushed aside for over 35 years¹⁰⁷.

Lastly, a recent poll demonstrated that the majority of citizens polled in Surry and Yadkin County are against the County Commissioners' actions in regard to Fibrowatt¹⁰⁸. There seems to be no attempt on the part of either Surry County Commissioners or Fibrowatt personnel to educate the public on the health risks that would come hand in hand with a Fibrowatt incinerator operating in Surry County. Citizens have not been given a voice in the bargain struck by Fibrowatt with the elected County Commissioners that swap clean air and good health for the promise of a few jobs and a questionable increase in the tax base.

¹⁰⁴ USA Today, Special Report: The Smokestack Effect, Toxi Air and America's Schools, accessed 5/26/2009: <http://content.usatoday.com/news/nation/environment/smokestack/search/NC/~dobson/Surry+Central/name/~1/>

¹⁰⁵ *World Health Organization* Principles for Evaluating Health Risks in Children, mounting evidence for developmental neurotoxicity in children.

¹⁰⁶ The World Commission on the Ethics of Scientific Knowledge and Technology and the Precautionary Principle. UNESCO

¹⁰⁷ Leaded Gas Scare of the 1920s *Natural Resource Defense Council*, <http://www.nrdc.org/air/transportation/leadgas.asp> “The evidence that lead exposure from gasoline affects neurological development, growth and intelligence was brushed aside for over 35 years”.

¹⁰⁸ New Poll Indicates Strong Opposition To Proposed \$140 Million Fibrowatt Power Plant In Surry County (2009, March 27) *Carolina News Wire*, accessed March 28, 2009 <http://carolinanewswire.com/news/News.cgi?database=0001news.db&command=viewone&id=2064&op=t>

V. Fibrowatt: The deal is not done. What YOU can do NOW.

Please inform your friends and family of the costs and risks associated with incineration energy and the proposed Fibrowatt project. You can download this document “Facts about Fibrowatt” and its appendix from the website: www.yadkinriverkeeper.org/fibrowatt. In addition, you will find other resources at this site, including the a two-page briefing document titled “Fibrowatt Incinerator Facts Sheet” and pre-drafted letters to key NC decision makers. These documents were originally created to be specific to Surry County, but nearly all facts and references apply to any of the counties targeted for a Fibrowatt incinerator.

If you are ready to take action, then please leverage the pre-drafted letters available at the website listed above. Here you will find drafts of letters to decision-makers that you can either print, sign and mail, or copy, paste and email. **The time to act is now.** Plans are being made, permits are being applied for and the parties targeted by these letters need to hear from you and your friends, neighbors and family. **This is NOT a county specific issue.** While polluted air affects the local area most dramatically, emission and water impacts reach far beyond the smokestack to neighboring counties and states. Communities across the state and the greater region will be impacted. **Your actions matter** and will make the difference in sustaining North Carolina’s economic, environmental and public well-being.

For more information, contact us via riverkeeper@yadkinriverkeeper.org and put “Fibrowatt Question” in the subject line.

Please sign up for our email notifications at riverkeeper@yadkinriverkeeper.org and put “Fibrowatt List Serve” in the Subject line.

If you are interested in a “Stop Fibrowatt” yard sign or car magnet, send an email to riverkeeper@yadkinriverkeeper.org and put “Fibrowatt Yard Sign or Car Magnet” in the subject line.

Thank you for your interest and concern. More importantly, thank you in advance for being a part of the solution by taking action today! Public response will make the difference.

“Unless someone like you cares a whole awful lot, nothing is going to get better. It’s not.”

Dr. Seuss