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SECOND OPINION: THE MEDICAL PROFESSION DIAGNOSES  
BIOMASS INCINERATION©

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BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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*Therese Vick*

*September 6, 2011*

## PREFACE

This report is a compilation of statements from medical professionals and organizations throughout the United States expressing their concern about biomass incineration. National, state, and local organizations, as well as individual physicians and nurses have delivered statements to elected officials, the media and regulatory agencies expressing their concern for public health, as well as warning of exploding health care costs due to the proliferation of biomass incinerators across the country. Many of those who will be the most adversely affected are medically underserved and already suffer disproportionately from health problems.<sup>1, 2</sup>

Biomass proponents are misleading the public by defining their dirty process as clean, green and renewable. Federal and state governments are abdicating their responsibility to protect public health by providing financial incentives and regulatory relief to this industry. Biomass, depending on each state's interpretation, can mean tires, wood waste, sewage sludge, poultry manure, industrial sludges, medical wastes, municipal solid waste, and food wastes. The list gets longer every day as some company proposes a novel new way to define "renewable." Nothing is further than the truth. Biomass incineration uses the same dirty technology and inadequate pollution control as any other combustion process, and emits the same poisons.

Incineration of any description is detrimental to public health and the environment. Incinerators release many pollutants into the air such as nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), polycyclic aromatic hydrocarbons (PAHs), heavy metals like lead (Pb), mercury (Hg), arsenic, and particulate matter (PM, PM<sub>10</sub>, and PM<sub>2.5</sub>).<sup>3,4</sup>

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<sup>1</sup> [Addressing Racial and Ethnic Disparities in Healthcare](#)

<sup>2</sup> [New Childhood Asthma Statistics](#)

<sup>3</sup> Particles less than 2.5 micrometers in diameter are called "fine" particles. These particles are so small they can be detected only with an electron microscope. Sources of fine particles include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Fine particles can become lodged deep in the lungs, not only causing new disease, also exacerbating existing health problems. Particulate matter is composed of microscopic solids and liquid droplets present in the emissions from various industrial processes, including biomass incineration. Fine particles can contain heavy metals, hazardous organic chemicals, dust and acids. [Particle Pollution: PM10 and PM2.5](#)

<sup>4</sup> Lou Zeller "Poultry Waste Gasification: Impacts on the Environment and Public Health" Blue Ridge Environmental Defense League June 2011

Incineration also creates conditions that contribute to substances recombining into a toxic cocktail, and the formation of extremely persistent dioxins and furans– the most toxic substances known to man.<sup>5,6</sup>

The risk factors are clear and well documented. The symptoms are being experienced in communities around the country. It is time that policy makers listen to their doctors–and stop the pandemic of biomass incineration.

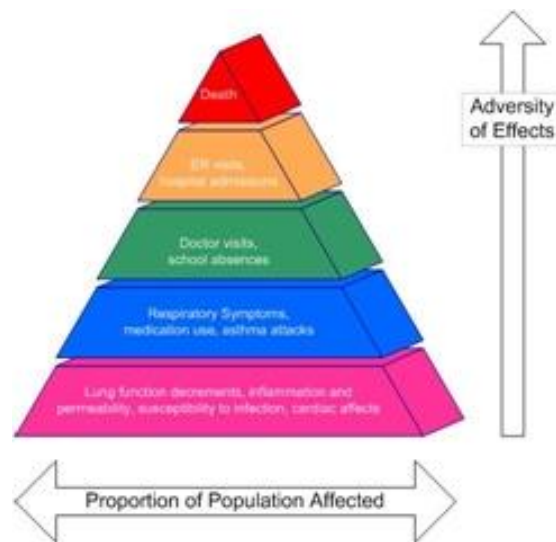


Diagram From “Wood Smoke”: <http://www.baaqmd.gov/Divisions/Compliance-and-Enforcement/Wood-Smoke/Wood-Smoke.aspx>

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<sup>5</sup> ["Wasted Opportunity"](#)

<sup>6</sup> [Dioxins and Their Effects on Human Health–World Health Organization](#)

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THE DIAGNOSIS: STATEMENTS FROM MEDICAL PROFESSIONALS CONCERNING BIOMASS  
INCINERATION

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***American Academy of Family Physicians***

*"We believe that the proposed biomass burning facilities pose a serious risk to the health of patients. Current research, as cited in the NCAFP's letter, indicates that the burning of poultry litter and wood wastes, as will be done in the proposed facilities, leads to increased risk of premature death and serious chronic illnesses. The plants additionally will have a negative impact on the health of our patients through emissions of nitrogen oxides, sulfur dioxides, arsenic, mercury and dioxins, all of which link directly to respiratory, brain, kidney and thyroid diseases; cancer; diabetes mellitus; neurotoxicity, developmental delays in children and disruptions in fetal development. These emissions will have an adverse effect on the health of the most vulnerable North Carolinians: developing fetuses, newborns, children, those with chronic illness and the elderly. The result of bringing these biomass burning facilities will be increased disability and disease, which will lead to increased medical costs."*

[http://www.stopfibrowatt.com/images/American\\_AFP\\_Letter\\_4-23-10.pdf](http://www.stopfibrowatt.com/images/American_AFP_Letter_4-23-10.pdf)

***American Heart Association***

*"It's possible that certain very small particles, or chemicals that travel with them, may reach the circulation and cause direct harm,"*

*"The lung nerve-fiber irritation can also disrupt the balance of the nervous system throughout the body. These responses can increase blood clotting and thrombosis, impair vascular function and blood flow, elevate blood pressure, and disrupt proper cardiac electrical activity which may ultimately provoke heart attacks, strokes, or even death. These studies also indicate that there is no 'safe' level of PM2.5 exposure."*

<http://www.prnewswire.com/news-releases/american-heart-association-scientific-statement-evidence-growing-of-air-pollutions-link-to-heart-disease-death-93328699.html>

### **American Lung Association**

*“The Lung Association urges that the legislation not promote the burning of biomass. Burning biomass could lead to significant increases in emissions of nitrogen oxides, particulate matter and sulfur dioxide and have severe impacts on the health of children, older adults, and people with lung diseases.”*

[http://www.nobiomass.org/Documents/ALA\\_national\\_letter.pdf](http://www.nobiomass.org/Documents/ALA_national_letter.pdf)

*“The American Lung Association does not support biomass combustion for electricity production, a category that includes wood, wood products, agricultural residues or forest wastes, and potentially highly toxic feedstocks, such as construction and demolition waste.”*

*“The combustion of fossil fuels and biomass in the residential, commercial and industrial sectors in the United States generates a significant share of the nation’s air pollution, threatening the health and lives of millions of people, including those who are most vulnerable to harm.”*

*“The American Lung Association strongly opposes the combustion of wood and other biomass sources at schools and institutions with vulnerable populations.”*

<http://www.pfpi.net/american-lung-association-energy-policy-opposes-biomass-combustion-for-heat-and-power>

### **American Lung Association Georgia**

*“The American Lung Association has significant concerns regarding the proposed biomass plant and the potential effects the pollution it generates could pose for children, older adults and at-risk groups, like those suffering from lung diseases such as emphysema and asthma, as well as people with diabetes and heart disease. Burning wood, or burning any substance, releases toxic chemicals and particles into the air which affect both the environment and respiratory health. Biomass, even biomass comprised of wood, sounds benign, but it is not. “*

*“A recent review of available research in Inhalation Toxicology summarized some of the reasons why it is not:*

*Wood–smoke contains thousands of chemicals, many of which have well–documented adverse human health effects, including such commonly regulated pollutants as fine particles, CO, and nitrogen oxides as well as ciliotoxic respiratory irritants such as phenols, cresols, acrolein, and acetaldehyde; carcinogenic organic compounds such as benzenes, formaldehyde, and 1,3, butadiene and carcinogenic cyclic compounds such as PAHs. Wood–smoke contains at least five chemical groups classified as known human carcinogens by the International Agency for Research on Cancer,<sup>1</sup> others categorized by IARC as probably or possible human carcinogens, and at least 26 chemicals listed by the U.S. EPA as hazardous air pollutants.<sup>2</sup>”*

*“Particulate matter (PM) emissions are the most significant health threat from biomass power plants. Without proper controls, combustion of wood and wood wastes for power production can result in PM emissions that are more than 20 percent higher than emissions from a coal plant. Emissions of carbon monoxide and volatile organic compounds (VOCs) can be more than 400 percent and 2,000 percent higher than emissions from a coal plant, respectively.<sup>3</sup>”*

[http://wiregrass-ace.org/images/Lowndes\\_Biomass.pdf](http://wiregrass-ace.org/images/Lowndes_Biomass.pdf)

***Capital Medical Society  
Tallahassee Florida***

*“We are concerned that the proposed biomass electric plant will emit soot, known as particle pollution. Tallahassee’s particle pollution level exceeds the annual threshold recommended by the American Medical Association. Many view particle pollution as the most dangerous form of pollution and a health risk. We are concerned that pollutants from the plant will adversely affect our patients with respiratory and cardiac conditions and will increase the incidence of respiratory conditions in children.”*

<http://gretnaflorida.biomess.us/2009/12/21/capital-medical-society-voices-concerns/>

***Erie County Medical Society  
Pennsylvania***

*“Long term exposure to combustion related fine particulate air pollution is considered an important environmental risk factor contributing [to] cardiopulmonary and lung cancer mortality. There is a linear relationship between the air concentration of PM<sub>2.5</sub> and percent increase in deaths. There is no threshold below which exposure to these particles would not increase deaths.”*

<http://www.energyjustice.net/files/biomass/pa-erie-medsoc.pdf>

***Florida Medical Association***

*“The Florida Medical Association urges state government to adopt policies to minimize the approval and construction of new incinerators including mass-burn, gasification, plasma, pyrolysis, biomass, refuse-derived fuel and other incinerator technologies, and to develop a plan to retire existing outdated incinerators.”*

<http://www.floridiansagainstincineratorsindisguise.com/2009/12/21/58/>

***Lane County Health Advisory Committee  
Oregon***

*“Biomass plants would add to our already overburdened air pollution problem in Eugene.”*

*“Their [Seneca’s] application proposes adding over 500 tons of airborne pollutants to the airshed including 26 tons of specifically hazardous compounds such as benzene, dioxin, furans, mercury, styrene and lead.”*

*[People with asthma and chronic pulmonary diseases are] “particularly vulnerable to micro-pollutants. Micro-particles less than 2.5 microns are known to be particularly hazardous to health because they lodge deep in the lungs.”*

<http://www.eugeneweekly.com/2009/08/20/news.html>

**Massachusetts Breast Cancer Coalition**

*“Massachusetts has the 4<sup>th</sup> highest breast cancer rate in the country. Of particular concern to the breast cancer community about this [Springfield] plant is the release of toxic chemicals like dioxin and polycyclic aromatic hydrocarbons (PAH’s) into the air in communities already experiencing needlessly high rates of breast cancer.”*

[http://www.springfieldincinerator.info/content\\_downloads/Mass%20Breast%20Cancer%20Coalition.doc](http://www.springfieldincinerator.info/content_downloads/Mass%20Breast%20Cancer%20Coalition.doc)

**Massachusetts Medical Society**

*“Biomass power plants pose an unacceptable risk to the public’s health by increasing air pollution...The burning of biomass releases small particles into the air creating particulate air pollution. Epidemiological studies have demonstrated an association between elevated particulate air pollution levels and adverse health effects and death. Particulate air pollution is associated with increased cardiopulmonary symptoms, asthma attacks, days lost from work due to respiratory disease, emergency room visits, hospitalization rates, and mortality.”*

*“Biomass combustion also releases nitrogen oxides, which help create ozone, a highly reactive oxidant gas. Ozone reacts in the pulmonary airways causing symptoms of chest pain, shortness of breath, cough, wheeze, increased susceptibility to infection, declines in lung function, increases in asthma attacks, increases in asthma medication use, [and] increased rates of emergency room visits for respiratory disease.”*

<http://www.massmed.org/AM/Template.cfm?Section=Search&&Template=/CM/HTMLDisplay.cfm&ContentID=33653>

**North Carolina Academy of Family Physicians**

*“Biomass burning of poultry litter and wood wastes creates emissions of particulate matter that research has shown increase the risk of premature death, asthma, chronic bronchitis, and heart disease. This burning process also creates numerous byproducts, including nitrogen oxides and volatile organic compounds that increase smog and ozone, which are known to increase lung disease and mortality; sulfur dioxides which also contribute to respiratory disease, arsenic which can increase the risk of cancer; mercury which can increase the risk of brain and kidney disease and affect the*



*developing fetus; and dioxins which may increase the risk of cancer, heart disease, diabetes mellitus, developmental delays in children, neurotoxicity, and thyroid disease.”*

*“These health effects would increase disability and death in all age groups, but particularly in the most vulnerable—developing fetuses, newborns, children, those with chronic illness, and the elderly. As a result of this increased disability and disease, medical costs in the state will increase.”*

<http://www.stopfibrowatt.com/doctorsagainstfibrowatt.html>

### ***Physicians for Social Responsibility***

*“The biomass power plants being proposed for several Pioneer Valley locations would contribute to particulate air pollution emissions in a region that already has pollution problems, and therefore we oppose the construction and operation of such plants.”*

<http://www.energyjustice.net/biomass>

### ***William J. Blackley, MD—Fellow, American Academy of Family Practice North Carolina***

*“Multiple scientific studies document adverse health impacts from emissions such as nanoparticles, particulate matter, nitrogen oxide, volatile organic compounds, sulfur dioxides (these leading to ozone and smog), carbon monoxide, dioxins, arsenic, etc. that are released or created by burning biomass. These increased health risks include, but are not limited to, asthma, cancer, heart disease, stroke, chronic bronchitis, premature birth, neurologic problems, immune deficiency, thyroid disease, endometriosis, polycystic ovary disease, etc. all leading to increased morbidity and mortality. Increase in greenhouse gases from burning biomass would also lead to climate change that the Union of Concern Scientists recently linked to increased health risks.*

*The North Carolina and American Academy of Family Practice last year wrote letters of concern about burning biomass because of increased health risks to citizens caused by increased air pollution. The North Carolina Institute of Medicine has identified ‘poultry waste incineration’ as a ‘new and growing source(s) of air pollution’ [and] point out*

*that emissions from “poultry litter incineration’ could be worse than coal-fired power plants.”*

**Stephen O’Connor, MD–Emergency Medicine**  
**Jasper, Indiana**

*“We as physicians take seriously the health, safety, and overall well-being of our patients and community. We are on the front line of treating respiratory illnesses such as asthma, and we are very concerned. There is simply not enough information to justify supporting the proposed biomass power plant.”*

**Kathleen Helming, RN, BSN**  
**Jasper, Indiana**

*“I am a registered nurse and recently quit working in Memorial’s emergency room after almost 22 years. I have seen the devastating effects of chemicals and what families have to deal with due to this exposure. Please add my name to the others who protest this potential disaster. Continued health and growth of our community and future generations vs money generated from biomass incineration. Should the choice be so difficult to make?”*

<http://healthyduboiscounty.org/local-doctors-speak-up/>

**Karen Kain–President, Asthma Coalition of Northwest Michigan**

*“Particulate matter can impair the lung’s defenses and increase inflammation in the airways...”*

*“We have seen that it’s the particulate matter that is the culprit, and we’ve seen increased use of asthmatic medication in children because with increase particulate matter levels (there is a) decline in respiratory function”*

<http://burningissues.org/bi/forum/phpBB2/viewtopic.php?f=11&t=3694&start=0>

**Deborah Kornegay, RN, FNP (ret), MSN**  
**Duplin County North Carolina**

*"It's time for the leadership in Sampson County to 'step up to the plate,' demonstrate it can be a good neighbor, and say "NO" to biomass incineration. In spite of the current recession, the tax revenues and the few jobs generated by such an industry are simply not worth the danger to human health."*

[http://www.clintonnc.com/pages/full\\_story/push?article-Sampson+needs+to+step+up+to+plate%20&id=14705539](http://www.clintonnc.com/pages/full_story/push?article-Sampson+needs+to+step+up+to+plate%20&id=14705539)

**Ron Saff, MD–Asthma and Allergy Specialist**

**Florida**

*"Clean and green? It's anything but that, it's dirty."*

<http://suwanneedemocrat.com/jasper/x174258834/Hamilton-biomass-plant-brings-jobs-controversy>

**Bill Sammons, MD–Pediatrician**  
**Massachusetts**

*"The current lack of appropriate regulations for particulates smaller than 2.5 microns represents a health risk to communities which is increased by the exposure to dioxin produced by biomass combustion."*



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**THANK YOU**

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Blue Ridge Environmental Defense League would like to thank those that provided information that contributed to this report:

William Blackley, MD

Mary S. Booth, PhD– Partnership for Policy Integrity

<http://www.pfpi.net/>

Rev. Dr. Christopher Breedlove–Jasper, Indiana

<http://healthyduboiscounty.org/>

Ruth Duemler

Karen Noll– Wiregrass Activists for Clean Energy

<http://wiregrass-ace.org/>

Karen Orr–Chairwoman, Energy Justice Network

<http://energyjustice.net/>

Bill Sammons, MD– Massachusetts Pediatrician

Josh Schlossberg–Editor “Biomass Buster” Newsletter

<http://content.newsletteronline.com/20757/46793.html>

Janet Sinclair– Concerned Citizens of Franklin County–Massachusetts

<http://www.greenfieldbiomass.info/>



–End–