

Medical Doctors Brief Congress on Biomass Energy Health Hazards [The Biomass Monitor]

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Energy Justice Network - by Josh Schlossberg, The Biomass Monitor

Three medical doctors and a scientist presented the first-ever Congressional briefing on the health hazards of biomass incineration in the U.S. Congress in Washington, D.C. on September 25, 2012. The briefing was arranged and sponsored by Save America's Forests and the [presentations can be viewed online here](#).

Pediatricians **William Sammons, M.D.**, of Massachusetts and **Norma Kreilein, M.D.**, of Indiana, **William Blackley, M.D.** of North Carolina, and **Rachel Smolker, Ph.D.**, co-director of Biofuelwatch, educated the attending staff of the **U.S. Senate** and **House of Representatives** on the toxic air pollutants emitted from biomass incinerator smokestacks and their impacts on human health.



[Left to right]: Dr. Rachel Smolker, Carl Ross, Dr. William Blackley, Dr. Norma Kreilein

A flag has been planted,” said **Carl Ross**, who moderated the briefing and is executive director of [Save America’s Forests](#), based in Washington, D.C. Until now, Ross explained, the only Congressional briefings on biomass incinerator energy had been given by members of the biomass industry itself. The briefing had a powerful impact on those present, according to Ross, some “gasping” at slides demonstrating that biomass incinerators emit air pollution similar to—and in many ways worse than—coal facilities, and can cause health problems that would increase with a national expansion of biomass energy.

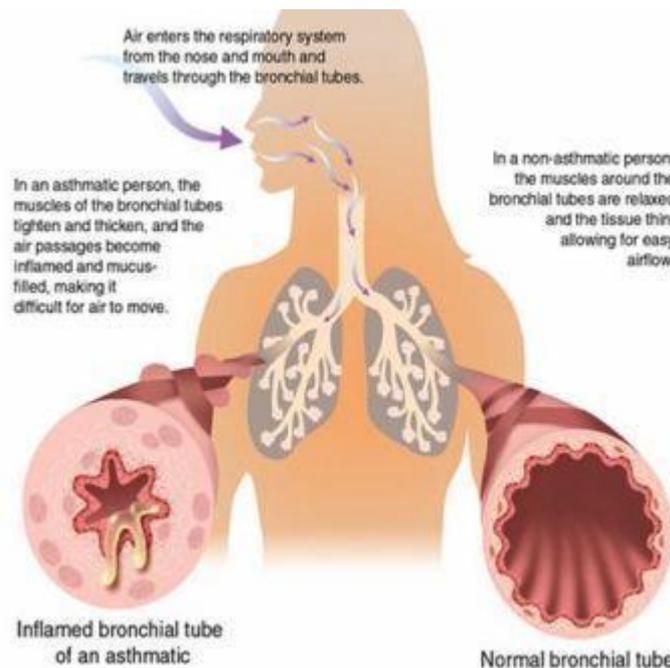
The four presenters used the most recent science to demonstrate that biomass incinerators cannot produce “clean” energy, and their main recommendation to Congress was that the federal government stop subsidizing biomass incinerators.

Health Impacts of Pollution from Biomass Incinerators

In her presentation, [*Health Impacts of Pollution From Biomass Incinerators: Dirty Energy Comes From Smoke Stacks*](#), Dr. Rachel Smolker of [*Biofuelwatch*](#), an international organization based in the U.S. and U.K., gave an overview of the problems with biomass energy, explaining how dirty incineration competes with genuinely clean energy sources, such as solar power, under the guise of “green” energy. Unlike solar panels, Smolker explained, biomass incinerators “require ongoing fuel inputs and result in ongoing pollution outputs, that causes diseases, pain and suffering and raises health care costs.”

Smolker listed the air pollutants emitted from biomass incinerators, including particulate matter (PM), Nitrogen oxides (Nox), Sulfur dioxide (SO₂), heavy metals (i.e. mercury and lead), Volatile Organic Compounds (VOCs), Carbon monoxide (CO), Hazardous Air Pollutants, and dioxins. Smolker provided data showing how biomass is not only the dirtiest form of so-called “renewable” energy, but can actually emit higher levels of particulate matter, Volatile Organic Compounds, and ammonia than a coal-fired plant, the dirtiest of fossil fuels.

Smolker informed the group that 80% of biomass incinerators in the U.S. have been cited for violations of air pollution laws. She also discussed how facilities produce wood ash at varying levels of toxicity, harboring such contaminants as dioxins, lead, zinc, cadmium and radioactive Cesium-137, with this ash often sold to farmers as a soil amendment.



Human Health Effects of Biomass Incinerators: Ultrafine Particles

Bill Sammons, MD, a pediatrician based in Williamstown, Massachusetts, presented [*Human Health Effects of Biomass Incinerators: Ultrafine Particles*](#). Dr. Sammons has been traveling the country talking to communities, elected officials, and the media about the health hazards from burning biomass, while encouraging other health care professionals to join him in publicly voicing their concerns.

Dr. Sammons discussed the size differences of particulate matter (PM), including ultrafine PM 10—which are 10,000 times smaller than a millimeter—and PM 2.5 nanoparticles, which are 100,000 times smaller than a millimeter—and their formation. Sammons determined that existing PM regulations are “ineffective” and that biomass incineration “produces a higher number of particles emitted than any other fuel, including coal.”

Sammons insisted that “until the permitting process sets limits based on number of particles emitted, the population will continue to be at increased risk,” citing a 2010 study finding PM to be responsible for up to 17% of the decrease in U.S. life expectancy over the past twenty years.

The pediatrician revealed the limited effectiveness of incinerator pollution controls, such as electrostatic precipitators (ESPs), referring to studies demonstrating a “penetration window” for very small particles “where the collection efficiency can be as low as 70-80%.” Sammons referred to a compilation of North American data which showed a lack of a “discernible threshold below which PM post no health risk to the general population,” meaning any exposure to PM can be harmful.

Sammons referenced a **U.S. Environmental Protection Agency (EPA)** report stating that “the overall evidence is consistent with a causal relationship between PM 2.5 exposure and cardiovascular morbidity and mortality,” or heart attacks. Dr. Sammons warned that PM 2.5 and smaller are “not specifically regulated or accounted for in the permitting process,” citing a study demonstrating that short term increases in PM 2.5 levels kill tens of thousands of people in the U.S. every year.

Sammons concluded his presentation by listing the human health impacts of particulate exposure, including “lower birth weight and increased incidence of premature delivery,” a 300% increase in asthma, and a 20% decrease in lung function, similar to the effects of smoking.

A Pediatrician’s Perspective on Air Pollution and Children

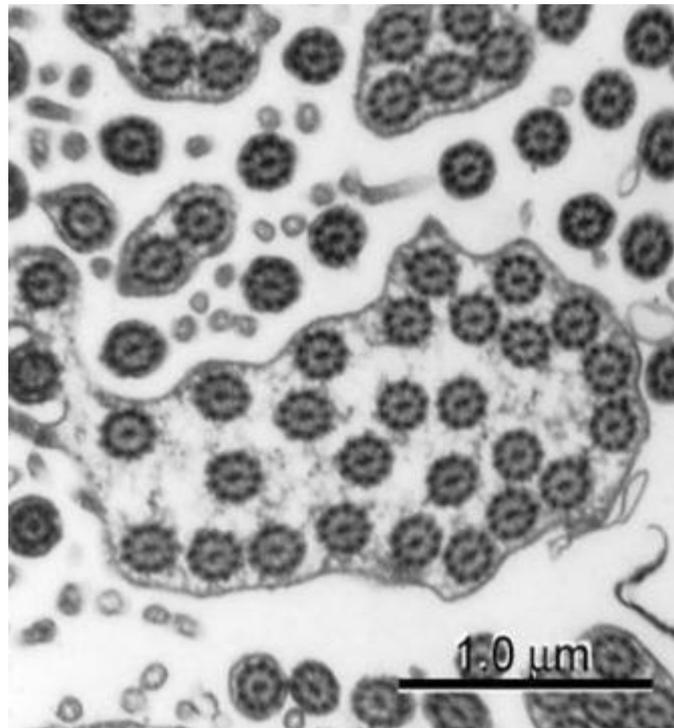
Norma Kreilein, MD, Fellow of the **American Academy of Pediatrics**, from Jasper, Indiana, presented [*A Pediatrician’s Perspective on Air Pollution and Children, with a Focus on Inflammation.*](#)

Dr. Kreilein related her experience working with children and infants suffering from lung disease, reminding those present that “each patient is a real person in a real family, not just a diagnosis, statistic, or cost liability.” Biomass incineration produces air pollution that “triggers inflammation,” explained Kreilein, and it is this inflammation that is “responsible for disease.”

In the case of asthma, inflammation causes “airway swelling and more mucus, limiting air flow and clearance.” Kreilein identified particulate matter as a “potent inflammatory trigger,” posing a greater risk to children who spend more time outside than adults and who “breathe in more air pollutants per pound of body weight.”

Exposure to pollution over the long term can harm a “child’s developing body, especially lungs, brain, and immune system,” warned the pediatrician. Further, a child’s smaller size means inflammation of the lungs is “more significant to airflow and clearance.”

Dr. Kreilein discussed other conditions that could result from the inhalation of biomass incineration byproducts, including Squamous Metaplasia, which can be cured “only if trigger (pollution) is removed.” If not, she cautioned, the “next step is cancer.”



Inflammation

Dioxins Damage Children and Adults

William Blackley, MD, Fellow in the **American Academy of Family Practice** out of Piedmont, North Carolina concluded the briefing with his presentation, [*Dioxins Damage Children and Adults*](#).

Dr. Blackley recounted how when a biomass incinerator was proposed for his town in 2008, developers promised “clean energy,” but a closer investigation revealed significant air pollution concerns. As soon as “physicians, citizens and leaders confronted this company about their toxic emissions and health risks,” said Blackley, “the company quietly slipped out of town.”

Dioxins, a byproduct of biomass incineration and other forms of combustion, are classified as Persistent Organic Pollutants and are one of the “most toxic chemicals known to man.” Dr. Blackley noted “international concern” with dioxin and cited a 2012 EPA report showing a “56% increase in dioxins from wood burning from 1987 to 2010.” Dioxins are problematic because they are “invisible and odorless,” they trigger “no warning signs of exposure or damage” to the human body, and “there’s no medical treatment to remove dioxins.” “

Almost all biomass contains chlorine,” explained Blackley, so when “hydrocarbons like trees, railroad ties, tires, poultry litter, grass, trash, garbage, etc. are burned in the presence of chlorine, dioxins are created.” Dioxins “exit the smokestack and settle on soil, in water and on leaves” and collect in biomass ash, which is often spread on agricultural fields as a soil amendment. Dioxins bio-accumulate, or increase in potency, in humans after consuming animal products laced with the toxic substance, such as beef, poultry, fish, eggs and dairy products.

“Biomass electricity is expensive, especially when health care costs from resulting diseases are taken into consideration,” said Blackley, warning that “any level of dioxins increases the risk of cancer.” “The most toxic effect of dioxins is on the developing fetus, newborn and child,” according to Dr. Blackley, and that “a few parts per trillion of dioxin exposure can be enough to cause abnormal development.”

Health effects of dioxin exposure include, but are not limited to “premature delivery, reduced response to vaccinations, immune system suppression, reduced IQ, decrease[d] sperm quality and quantity, type II Diabetes,” hypertension, heart disease, atherosclerosis (hardening of the arteries), and cancer. Blackley was skeptical about the effectiveness of smokestack pollution control devices, explaining that “the primary way to reduce dioxins is to not create any more of them.”

“Incentivizing biomass burning,” concluded the North Carolina physician, “is like paying businesses to build and light 300 foot cigarettes in American communities and to force everyone, including children, to breathe the secondhand smoke. “

Carl Ross said Save America’s Forests is planning to arrange future Congressional briefings on other harmful impacts of biomass incineration, in conjunction with grassroots allies around the country, including the [Anti-Biomass Incineration Campaign](#). Topics may include exacerbation of climate change, cost of subsidies to the U.S. taxpayers, intensive use of limited freshwater reserves, U.S. and global deforestation and forest degradation, and environmental justice issues.