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Environmental Management Commission
Attention: Renewable Energy Scoping Process
1617 Mail Service Center
Raleigh, NC 27699-1617

Commissioners:

On behalf of the Blue Ridge Environmental Defense League (BREDL), I write to provide comments on the Commission's development of environmental standards for renewable energy facilities in North Carolina. The Blue Ridge Environmental Defense League is a regional, community-based, non-profit environmental organization with active chapters throughout North Carolina, South Carolina, Virginia and Tennessee. The League and its chapters are committed to the protection of public health and the environment in North Carolina. Comprehensive regulations are critical to the sustainable development of renewable energy resources across the state. We welcome the Commission's commitment in establishing the necessary rules and evaluating the state's capabilities to provide oversight of facilities.

Background

Senate Bill 3, "**An Act to: (1) promote the development of renewable energy and energy efficiency in the state through implementation of a renewable energy and energy efficiency portfolio standard (REPS)**", amends North Carolina's energy policy to include the following:

To promote the development of renewable energy and energy efficiency through the implementation of a Renewable Energy and Energy Efficiency Portfolio Standard (REPS) that will do all of the following:

- a. Diversify the resources used to reliably meet the energy needs of consumers in the State.
- b. Provide greater energy security through the use of indigenous energy resources available within the State.
- c. Encourage private investment in renewable energy and energy efficiency.
- d. **Provide improved air quality and other benefits to energy consumers and citizens of the State.** (emphasis added)

In addition, Section 2 of the bill defines a renewable energy resource as:

“Renewable energy resource' means a solar electric, solar thermal, wind, hydropower, geothermal, or ocean current or wave energy resource; a biomass resource, including agricultural waste, animal waste, wood waste, spent pulping liquors, combustible residues, combustible liquids, combustible gases, energy crops, or landfill methane; waste heat derived from a renewable energy resource and used to produce electricity or useful, measurable thermal energy at a retail electric customer's facility; or hydrogen derived from a renewable energy resource. 'Renewable energy resource' does not include peat, a fossil fuel, or nuclear energy resource. “ (emphasis added)

a renewable energy facility is:

“Renewable energy facility' means a facility, other than a hydroelectric power facility with a generation capacity of more than 10 megawatts, that either:

- a. Generates electric power by the use of a renewable energy resource.
- b. Generates useful, measurable combined heat and power derived from a renewable energy resource.

Is a solar thermal energy facility.

a ***new*** renewable energy facility is:

“New renewable energy facility' means a renewable energy facility that either:

- a. Was placed into service on or after 1 January 2007.
 - b. Delivers or has delivered electric power to an electric power supplier pursuant to a contract with NC GreenPower Corporation that was entered into prior to 1 January 2007.
- Is a hydroelectric power facility with a generation capacity of 10 megawatts or less that delivers electric power to an electric power supplier.

and finally, control of emissions using Best Available Control Technology is explained as follows:

(g) Control of Emissions. – As used in this subsection, Best Available Control Technology (BACT) means an emissions limitation based on the maximum degree a reduction in the emission of air pollutants that is achievable for a facility, taking into account energy, environmental, and economic impacts and other costs. A biomass combustion process at any new renewable energy facility that delivers electric power to an electric power supplier shall meet BACT. The Environmental Management Commission shall determine on a case-by-case basis the BACT for a facility that would not otherwise be required to comply with BACT pursuant to the Prevention of Significant Deterioration (PSD) emissions program. The Environmental Management Commission may adopt rules to implement this subsection. In adopting rules, the Environmental Management Commission shall take into account cumulative and secondary impacts associated with the concentration of biomass facilities in close proximity to one another. In adopting rules the Environmental Management Commission shall provide for the

manner in which a facility that would not otherwise be required to comply with BACT pursuant to the PSD emissions programs shall meet the BACT requirement.

It is obvious that the potential air emissions from the various biomass resources is much larger than emissions from the equivalent solar, wind, water and geothermal resources. It is also obvious that **“providing improved air quality”** will require emissions standards for renewable energy facilities that meet or exceed the standards for new conventional fossil fuel power plants. BREDL describes this minimum standard as “cleaner than coal.” The Blue Ridge Environmental Defense League believes that establishing those standards for all new renewable energy facilities is critical to the success of North Carolina’s Renewable Energy and Energy Efficiency Portfolio Standard.

Current Status of Renewable Energy in North Carolina

Renewable energy in North Carolina is still in its infancy. As a prelude to the possibility of a renewable portfolio for the state, the North Carolina General Assembly’s Environmental Review Commission (ERC) requested the NC Utility Commission to study the issue and prepare a report. The Utility Commission subsequently hired a team of consultants and their final report, *“Analysis of a Renewable Portfolio Standard for the State of North Carolina”*, can be found at:
http://www.lacapra.com/downloads/NC_RPS_Report.pdf

This report found 600 MW of existing non-utility owned renewable energy capacity in North Carolina. Hydroelectric made up one third of the total with most of the balance from biomass co-generation and a very small amount from landfill gas and municipal solid waste incineration. The biomass facilities primarily produce electricity for industrial uses, but the 50 MW Craven County Wood Energy Plant in Craven County provides electricity to the grid and is a NC GreenPower provider. As of the summer of 2006, the report notes that NC GreenPower, a voluntary donation program with approximately 8000 subscribers, was responsible for about one tenth of one percent of the state’s 15,000,000 MWh of electricity consumption.

Human Health, Environmental, And Community Impacts-Emissions Matter

The Blue Ridge Environmental Defense League has a long history of supporting the right to clean air. Emissions from biomass facilities, including those fueled by poultry litter and swine waste, threaten the health not only of people living near the incinerators, but also those further downwind and across the state. Toxic air pollutants, such as dioxin and heavy metals, soot, ozone and even greenhouse gases will all have their effects.

Models

As BREDL noted in our March 12, 2008, letter to the Air Quality Committee, “human exposure to air pollutants occurs via multiple pathways: water, soil and ingestion as well as inhalation.” Models based on inhalation alone put communities at risk. The EMC should require comprehensive modeling that considers all possible exposures and minimizes risks accordingly. People are not guinea pigs.

Dioxin

Using animal waste as a renewable energy resource presents a range of problems relative to dioxin. There is no “safe” level of emissions for this carcinogen. Poultry litter in particular can be contaminated with metals that contribute to dioxin formation. Given that Senate Bill 3 requires the use of poultry litter for energy production, strict emissions limits and fuel analysis will be required.

Ozone

Ozone is still a problem in North Carolina. A 2004 page on the Division of Air Quality’s website found that:

- Ozone can aggravate asthma, causing more attacks, increased use of medication, more medical treatment, and more visits to hospital emergency clinics
- 1.6 million emergency room visits are due to asthma in the US, 17 percent of all pediatric emergency room visits are for asthma
- 40 percent of the asthmatic population are children
- Asthma accounts for \$9.8 billion in direct health care costs
- 14 Americans die each day from asthma, 3 times the rate 20 years ago
- Based on 1993 population data, approximately 231,000 adults and 123,000 children suffer from asthma in North Carolina
- Even moderately exercising healthy adults can experience a 15-20 percent reduction in lung function from exposure to low levels of ozone over several hours

<http://daq.state.nc.us/airaware/coalition/o3health.shtml>

The Clean Smokestacks Act committed the state’s utilities to clean up the emissions from their coal-fired power plants. Senate Bill 3 seeks “improved air quality and other benefits to energy consumers and citizens of the State.” The Blue Ridge Environmental Defense League opposes any renewable energy emissions standards that represent a step backwards and allow increased ozone pollution in North Carolina.

Greenhouse Gases and Global Warming

North Carolina needs “carbon negative” renewable energy. Proponents of biomass incineration refer to their technology as “carbon neutral” and claim that they are only releasing greenhouse gases that would be released anyway. This contention ignores other technologies, such as anaerobic digestion, that avoid such uncontrolled emissions. It also fails to account for the emissions from the transportation, processing and distribution of animal feed and products associated with factory farms. Landfill methane presents similar problems in the difficulty of controlling methane emissions over the entire life of landfills from construction through the post-closure period and beyond.

It is ironic that in this period of skyrocketing fertilizer prices, poultry litter, a source for nitrogen fertilizer, has been mandated as a renewable energy resource. Greenhouse gas emissions to replace the nitrogen and other nutrients emitted to the atmosphere far exceed that of any reduction in fossil fuel use. Even as global warming impacts everyone in North Carolina with everything from hurricanes to drought, special interest provisions in Senate Bill 3 handicap our renewable energy choices.

The Blue Ridge Environmental Defense League recommends the adoption of standards and limitations on greenhouse gas emissions from renewable energy facilities.

Existing Regulations And Best Practices

While all state renewable portfolio standards include biomass as an eligible energy resource, not all define biomass in the same way. Washington State, for example, categorizes acceptable biomass energy resources as:

“biomass energy based on animal waste or solid organic fuels from wood, forest, or field residues, or dedicated energy crops.

Specifically excluded from the definition are wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper-chrome arsenic; black liquor byproduct from paper production; wood from old growth forests; and municipal solid waste.”

In contrast, North Carolina legislation specifically allows “spent pulping liquors”, fails to define acceptable “wood wastes” and makes no exclusion for municipal solid waste. In fact, no other state RPS includes set-asides for swine waste and poultry litter. This provision alone in Senate Bill 3 made North Carolina a “guinea pig” in regulating renewable energy from animal wastes. Because of the shortcoming in the current statute, BREDL has characterized North Carolina’s RPS as the “dirtiest in the nation”.

Biomass proponents have gone even further in their definitions. The NC Biomass Council, for instance, says that biomass should include:

“any organic matter that is available on a renewing or recurring basis, including agricultural crops and trees, wood and wood wastes and residues, plants, (including aquatic plants), grasses, residues, fibers, animal wastes, and segregated municipal waste...Processing and conversion derivatives of organic matter are also biomass.”

“Originally the definition *excluded* “unsegregated wastes; painted, treated, or pressurized wood; wood contaminated with plastic or metals; and tires.” It was determined by the North Carolina Biomass Council that the definition of biomass should be *as inclusive as possible*, and one should allow *permit conditions and sampling requirements* to ensure the necessary environmental protection.” (Emphasis added)

The NC Biomass Roadmap May 2007

The Blue Ridge Environmental Defense League urges the adoption of standards for renewable energy from biomass that *do not* rely on “permit conditions and sampling requirements” to protect communities.

In Massachusetts the RPS statute, which passed in 1997, requires that biomass facilities must be “low emission” and left it to the Division of Energy Resources (DOER) to define “low emission”. Guidance <http://www.mass.gov/doer/rps/guideline-low-emission.pdf> published in November 2007 covers only “wood-fired and other solid-fueled steam boilers”. The Guideline goes on to say, “Given the range of eligible biomass fuels and

power conversion technologies, the Guideline is unable to provide “low emissions” specifications for all Units that potentially may seek RPS qualification.” The Environmental Management Commission finds itself dealing with the same dilemma as it develops emissions standards for unknown fuels and untried technologies.

For wood-fired boilers, DOER and the Massachusetts Department of Environmental Protection (MassDEP) reduced the number of pollutants to two: nitrogen oxide (NO_x) and particulate matter (PM) and assumes that other pollutants are regulated through state permits (see guidance issued April 7, 2007 at: <http://www.mass.gov/dep/air/laws/biombact.pdf>)

Based on several existing boilers in New Hampshire, Maine, Vermont and Massachusetts, the emissions limit for new facilities of 25 MW or greater are set at 0.075 lbs/MMBtu for NO_x and 0.012 lbs/MMBtu for PM. By comparison, in North Carolina the 50 MW Craven County Wood Energy Plant’s Title V Permit allows 0.8 lbs/MMBtu for NO_x and 0.15 lbs/MMBtu for PM. When BREDL looked at the permitted emissions for Duke Energy’s coal-fired Cliffside Unit 6, we found that PM, NO_x, carbon monoxide and acid gases were all lower than a Fibrowatt poultry litter plant in Minnesota (see chart attached). While we do not approve of any new coal plants in North Carolina, we also do not approve of “dirtier than coal” renewable energy facilities.

In Massachusetts the emissions for other biomass fuels are evaluated by a “Biomass Review Team” (BRT) and recommendations made to the Division of Energy Resources.

BREDL believes that North Carolina should adopt regulations that cover *all* biomass energy resources and imposes strict emission limits for *all* renewable energy facilities before processing any new permits or renewing existing permits for burning biomass.

Conclusions and Recommendations

The Blue Ridge Environmental Defense League wants North Carolina to lead the country in the development of *clean* renewable energy. Senate Bill 3 provisions that included waste products as renewable energy resources and the mandate to generate electricity from swine and poultry waste compromised the state’s opportunity to be that leader. As long as waste and waste incineration remain a part of North Carolina’s renewable portfolio standard, the responsibility for minimizing the harm to the environment and public health lies with DENR and the Environmental Management Commission.

We recommend that the EMC evaluate measures that will:

- Minimize emissions by requiring *all* new renewable energy facilities to meet a low emissions standard for *all* renewable energy resources (no exemptions);
- Apply North Carolina’s toxic air pollution rules to all existing and proposed energy facilities;
- Expedite rulemaking for the adoption of acceptable ambient levels (AALs) for toxic air pollutants after recommendations from the Science Advisory Board;

- Produce guidance documents and require testing of renewable energy resources prior to their use as fuels;
- Adopt strict definitions of qualifying biomass fuels that specifically exclude municipal solid waste and contaminated wood waste;
- Encourage alternative uses of organic energy resources that minimize emissions and encourage their highest and best use;
- Require multiple pathway modeling of human exposure to toxics that includes all possible pathways and potential risks to human health;
- Account for the full range of greenhouse gas emissions associated with renewable energy.

The Blue Ridge Environmental Defense League supports the development of clean, non-polluting renewable energy. The Alternative Energy Committee's scoping process is a first step toward establishing the necessary regulatory tools and standards that will protect North Carolina communities as these new resources replace our existing fossil fuel power plants. We look forward to working with the Commission as this process moves forward.

Sincerely,

David Mickey
Blue Ridge Environmental Defense League

Attachment