

TESTIMONY OF LOUIS A. ZELLER ON BEHALF OF
THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE
AND THE COMMUNITY GROUPS

1 PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND JOB TITLE.

2 My name is Louis A. Zeller and my business address is Post Office Box 88,
3 Glendale Springs, North Carolina 28629. I am the Executive Director of the Blue
4 Ridge Environmental Defense League (“BREDL”).

5

6 PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL
7 EXPERIENCE.

8 I have an Associate Degree in Allied Health Professions from Emory University
9 in Atlanta, Georgia. I have served on the staff of the BREDL since 1986 as
10 community organizer, campaign coordinator, administrator, science director and
11 executive director. Prior to joining BREDL, I was a physician assistant for the
12 Hot Springs Health Program in Madison County, North Carolina.

13

14 PLEASE DESCRIBE YOUR RESPONSIBILITIES WITH THE BREDL.

15 BREDL is a non-profit educational organization serving communities in seven
16 states: Georgia, Alabama, Tennessee, South Carolina, North Carolina, Virginia
17 and Maryland. As Executive Director, I have oversight of four community
18 organizers, 52 chapters and thousands of volunteers. During the last two decades
19 I have gained a detailed knowledge of Federal and state environmental permitting
20 and regulation, public health impacts of pollution, environmental testing and
21 computerized air modeling, energy supply and public policy. I have worked

1 directly with our chapter members in the North Carolina counties of Surry,
2 Sampson and Duplin to organize educational campaigns centering on the energy,
3 environment and public health issues of poultry waste-fueled power plants. Our
4 chapters in these counties are the Community Groups intervening in this
5 proceeding: Citizens for a Safe Environment, Citizens Alliance for a Clean Health
6 Economy and Sampson Citizens for a Safe Environment. I have worked on these
7 issues with our chapter members and allied groups in other states from
8 Shenandoah, Virginia to Valdosta, Georgia.

9 I was the principal author of a BREDL publication entitled *Smoke and*
10 *Mirrors: A Report on Biomass, Bio-energy and Global Warming*. In preparing
11 this report, I studied poultry waste power plants.¹ In 2007 my analysis of state
12 permits demonstrated the negative air pollution effect of poultry waste power
13 plants compared to the new Cliffside coal-fired power plant based on heat input;
14 this finding was later verified by the NC Department of Environment and Natural
15 Resources. Also, on July 16, 2007 I provided testimony on Senate Bill 3, Session
16 Law 2007-397, to the NC House of Representatives Standing Committee on
17 Energy and Energy Efficiency.

18 I routinely speak on behalf of the BREDL, the Community Groups and
19 other BREDL chapters in North Carolina, Virginia, South Carolina and Georgia
20 which have been proposed as sites for biomass-fueled thermoelectric power
21 plants.

22

23 HAVE YOU TESTIFIED BEFORE THE COMMISSION PREVIOUSLY?

¹ http://www.bredl.org/pdf3/BIOMASS_REPORT-SMOKE_and_MIRRORS.pdf

1 I have appeared before the Commission in the Matter of Request for Declaratory
2 Ruling by ReVenture Park Investments, LLC, Docket No. AP-100, Sub 28,
3 regarding a proposal to burn wood scraps, garbage and sewage sludge in a 50
4 megawatt waste-to-energy plant.

5

6 WHAT IS THE PURPOSE OF YOUR TESTIMONY?

7 The Commission has posed a series of questions for the electric suppliers in this
8 matter. My testimony addresses questions (4) technical challenges, financial
9 hurdles, and regulatory uncertainties; (8) compliance with REPS requirement GS
10 62-133.8(f); and (10) a reasonable timeframe for poultry waste.

11

12 PLEASE DESCRIBE YOUR CONCERNS ABOUT BIOMASS POWER
13 PLANTS.

14 My concerns center on three issues: public health, global warming and financial
15 matters. In essence, the provisions of the REPS regarding waste fuel have not
16 materialized, nor will they nor should they. The present proposal before the
17 Commission for mere delay of the set-aside does not go far enough in addressing
18 the concerns of BREDL and the community groups..

19 As Science Director for the BREDL, I have been investigating biomass-
20 fueled electric power plants for over a decade. It is part of my job to determine
21 the benefits and liabilities of various energy options, their effects on the
22 environment, energy supply, public health and financial status. In 2006 we
23 attended some of the first public forums in North Carolina on poultry waste-
24 fueled power plants in Wilkes County. In 2008 we began organizing a new

1 community group in Surry County. In 2008 our long-standing chapter in Duplin
2 brought a legal challenge to the proposed poultry waste power plant site on I-40.
3 Citizens for a Safe Environment v. Sampson County and Fibrocoast LLC,
4 Sampson County Superior Court, 08 CVS 1590. In 2009 we organized another
5 citizens group in Sampson County and contacted residents in Montgomery
6 County. Other proposals were brought to our attention in Biscoe and Candor,
7 North Carolina; Richburg, South Carolina; Elberton, Lithonia, Hart County,
8 Wadley and Valdosta, Georgia; and Page County, Virginia. The more people we
9 spoke to and the more we learned about waste-burning plants, the greater our
10 concern became.

11 Poultry Manure Power Pollutes More Than Coal. My initial
12 investigations centered on the air pollution impacts and the trade-offs with soil
13 and water pollution caused by agricultural use of manure as fertilizer. After
14 discussions with farmers, we looked into NC Department of Agriculture data to
15 determine if there was a problem which would warrant a statewide diversion of
16 poultry litter from fertilizer to fuel. We found no such problem, only scattered
17 anecdotal information and broad pronouncements without foundation from
18 promoters who had a financial stake in the outcome.

19 I continued by investigating pollution impacts from poultry waste
20 incineration. The evidence is substantial and the negatives are too large to be
21 ignored. For example, I compared an operating coal-fired power plant (the Buck
22 Steam Station located in Spencer, NC) to Fibrowatt's poultry-waste power plant
23 in England. I determined that, per megawatt of electricity, Fibrowatt's poultry
24 litter fueled plant emitted 150% more total air pollution than the coal-fired electric

1 plant. This 2006 study was based on actual emissions reported by the plant's
2 operators. Dioxin emissions from the poultry waste fuel were double those of
3 coal, and carbon dioxide and nitrogen oxide emissions were triple.

4 Next, in 2007 I compared pollution rates in the permit issued by the
5 Minnesota Pollution Control Agency for FibroMinn's poultry waste power plant
6 in Benson, MN to the new NC Division of Air Quality ("NC DAQ") permit for
7 the new units at Duke Energy's Cliffside coal-fired power plant. Here I compared
8 pollution rates according to the amount of heat produced, a common method used
9 in state air quality permits. One of the major pollutants of concern, nitrogen
10 oxide, was twice as high for the poultry manure-powered plant. Carbon
11 monoxide, particulates and acid gases were also higher. Our report was later
12 verified NC DAQ.

13 In Sampson County we organized Citizens For A Safe Environment as a
14 chapter of BREDL because of community concerns about toxic air pollution and
15 impacts to the local economy from a proposed poultry-waste power plant. The
16 group publicly stated its reasons for opposition: "Sampson County farmers are
17 stewards of the land. The Fibrowatt poultry manure incinerator threatens our
18 produce industry and the farm families who depend on it. We just want to leave
19 the land to our children and future generations in as good or better condition than
20 we received it" and "Protecting children's health is our main goal. We have a
21 vision of a healthy community for everyone here in Sampson County." See "New
22 group challenges Fibrowatt in Sampson," *Sampson Independent* (July 24, 2009).

23 In Surry County we organized the Citizen's Alliance for a Clean, Healthy
24 Economy as a chapter of the BREDL. In support of its chapter, BREDL

1 published an air pollution report based on a US Environmental Protection Agency
2 (“EPA”) computer model which looked at site-specific impacts of a 50 megawatt
3 poultry waste power plant in Surry County. The report employed computer
4 modeling techniques used by air quality engineers and regulatory agencies,
5 including an EPA-developed worst-case scenario model which predicts ambient
6 levels of air toxins from industrial facilities. The report predicted disturbingly
7 high levels of air toxics and indicated problems with arsenic, cadmium,
8 chromium, hydrochloric acid and sulfuric acid emissions up to six miles from the
9 plant site. Our analysis indicated that chromium levels would be 265% of the
10 state limit at a distance of six-tenths of a mile from the smokestack, well outside
11 the property boundary of the proposed site on the Yadkin River. The NC DAQ
12 has also predicted excessively high arsenic emissions from poultry waste fueled
13 power plants.

14 High levels of nitrogen oxides and arsenic are not surprising if one
15 considers the composition of the fuel. Poultry manure is an excellent fertilizer
16 because of its high nitrogen content. Arsenic in chicken feed to combat parasites
17 contributes to excessive air toxic emissions. Combustion releases these pollutants
18 into the air.

19 Biomass Power Plants Are No Solution to Global Warming. Biomass
20 energy systems release global warming gases including carbon dioxide. What is
21 problematic is the assumption that biomass energy technologies are carbon
22 neutral. Bio-energy proponents often draw an analogy to the plant–animal carbon
23 cycle to explain how biomass energy facilities mimic biological processes.
24 However, in order to make their carbon footprint appear smaller, biomass power

1 plant advocates rely on credits to offset their intrinsic pollution. I have explored
2 this issue extensively in BREDL's report *Smoke and Mirrors*, described above.

3 Biomass power is not carbon neutral. Substituting biomass for fossil fuels
4 does not reduce carbon emissions, because the CO₂ released to the air is roughly
5 the same per unit of energy regardless of the source. The combustion of fuel
6 made from biomass is a physical-chemical process; it has no biological
7 foundation. Obviously, a wood-fueled power plant is not part of the natural
8 world, it is an industrial process. Both wood and coal come from the natural
9 world, but when burned neither one is carbon neutral. There is no "closed-loop"
10 carbon cycle which would encompass electric power plant emissions.

11 Moreover, the burning of poultry litter eliminates a valuable organic
12 fertilizer. Replacing this organic material with mineral fertilizer results in the use
13 of fossil fuel, creating additional air pollution and greenhouse gas emissions.
14 Nearly 36 thousand BTUs are needed to produce a pound of the nitrogen,
15 phosphorus and potassium (NPK) in mineral fertilizers.² I have calculated the
16 energy impact of substituting mineral fertilizer for the approximately three million
17 tons of poultry litter produced annually in North Carolina. If instead three million
18 tons of poultry litter were burned to produce electric power, I estimate that it
19 would take 1.2 million barrels of diesel fuel per year to replace this organic
20 fertilizer with chemical fertilizers.³

21 Biomass Power Plants Pose Financial Jeopardy for Municipal
22 Government.

² Fluck, R.C. (ed.) Energy in Farm Production. vol.6 in Energy in World Agriculture. Elsevier, New York. pp.177-201.1992

³ "Electric Power from Poultry Waste is Not Green," monograph, Zeller L, July 20, 2007, available at: www.bredl.org/pdf2/ElectricPowerfromPoultryWasteNotGreen070720.pdf

1 Proposals for waste-fuel power plants should be considered venture capital
2 investments. When approached by energy entrepreneurs, most rural county
3 economic development boards and local governments have neither the experience
4 nor the ability for the due diligence required to protect the economic interests of
5 taxpayers.

6 For example, Fibrowatt LLC would have established new limited liability
7 companies in each of the counties selected for its plants. First, local start-up
8 companies were to have entered into lease or sale agreements with secondary
9 LLCs which would operate the plants. The electricity from such plants was to be
10 sold to the major utilities at above-normal rates as required by ratified Senate Bill
11 3. Yet another group of LLCs would have been created to purchase the residual
12 ash from the power plants for sale as fertilizer. Financial factors to be considered
13 in this scenario included federal stimulus funds, tax credits, infrastructure support
14 and property tax reductions by municipal governments, lease/purchase payments
15 from plant operators, and revenue from sale of the fertilizer. When these
16 complexities have come to light, it is no wonder that boards of commissioners
17 and chambers of commerce in poultry producing counties have reconsidered their
18 approval of these proposals and withdrawn their support.

19 The situation in North Carolina is not unique. A 24 megawatt waste-to-
20 energy proposal in St. Lucie, Florida, which would have been the first large-scale
21 plasma arc facility in the United States to use municipal solid waste to generate
22 electrical power, fell through following a unanimous decision by the county
23 commissioners to terminate the contract with Georgia-based Geoplasma, citing
24 economic concerns.

1 Jefferson County, Georgia, is now considering a biomass power plant
2 burning wood and used tires. The county has proposed issuance of an industrial
3 revenue bond of up to \$53 million for the purpose of financing the 24 megawatt
4 Jefferson North Star electric power plant. The repayment of this bond by
5 Jefferson County depends on the potential income from electric power sales. In
6 this case, the facility is exempt from property taxes. If the company were to go
7 bankrupt and the debt obligation is not met, the municipality could be in default.
8 A revenue bond in default may not be repaid from taxes but can result in a
9 downgrade of the county's bond rating and of course, legal actions.

10

11 **WHY IS IT IN THE PUBLIC INTEREST FOR THE COMMISSION TO**
12 **ELIMINATE THE SET-ASIDE AT THIS TIME?**

13 The request by the electric power suppliers for delay of the set-aside provisions
14 for poultry waste power will not alter the facts on the ground. First, the
15 communities targeted by companies such as Fibrowatt and Poultry Power USA
16 have had enough time to consider whether they want power plants fueled by
17 manure. Second, rural communities near poultry waste incinerators would bear
18 an unfair and disproportionate share of the pollution burden. Finally, many
19 county governments with sites proposed for poultry waste power plants have
20 taken strong positions against the facilities and even the business community has
21 withdrawn its support.

22 A prominent example is in Surry County, where local government initially
23 supported Fibrowatt with zoning changes and incentives, but now opposes it. The
24 Yadkin Valley Chamber of Commerce, consisting of 322 businesses, also initially

1 backed the proposed poultry-waste power plant in Elkin but reversed itself
2 because it said the plant would have harmed Surry County’s residents,
3 environment and tourism.

4 The dubious track record of manure-fueled power plants continues to the
5 present time with other commercial ventures. A 36 megawatt poultry waste-
6 fueled power plant is no longer being considered for Biscoe, North Carolina.
7 Poultry Power USA, a subsidiary of the Florida-based Green Frontier, cited the
8 costs of hauling manure to the Montgomery County location as the major
9 impediment to construction. Yet this site is in the middle of the largest poultry
10 producing areas of the state.

11 In Virginia, Fibrowatt unsuccessfully targeted Page County. In Georgia,
12 Fibrowatt failed to obtain the industrial park in Lavonia for a poultry waste-fueled
13 plant. In Valdosta, Wiregrass Power planned a 45 megawatt wood and sewage
14 sludge powered plant. Even with an air permit approved by the Georgia
15 Environmental Protection Division, the Valdosta plant was never built. In South
16 Carolina, Covanta abandoned its plan to build a 50 megawatt municipal solid
17 waste-fueled power plant near Richburg. Other recent examples of failed
18 prospects for wood and/or waste burning power plants are found in St. Lucie,
19 Florida; Elberton, Georgia; and Charlotte, North Carolina.

20

21 WHAT ACTION WOULD YOU HAVE THE COMMISSION TAKE
22 REGARDING THE HOG AND POULTRY WASTE SET-ASIDE
23 REQUIREMENTS?

1 The BREDL supports renewable energy that is clean, affordable and fair. As of
2 now, poultry waste power plants promise to be none of these. Instead it is dirty,
3 expensive, and likely to impact those who can least afford the consequences of
4 more pollution. The Commission has the authority to alter the poultry waste set-
5 aside requirements when it is in the public interest.

6 The Commission is required by law to perform its duties and
7 responsibilities in securing for the people of the state an efficient and economic
8 system of public utilities. Further, the Act requires *inter alia* that the
9 Commission, “provide improved air quality and other benefits to energy
10 consumers and citizens of the State.” GS § 62-2(a)(10)(d). This is in direct
11 conflict with the REPS requirement that at least 900,000 megawatt-hours of
12 electricity sold to retail customers by 2014 come from poultry litter. The
13 Commission cannot and should not implement § 62-133.8 (f) in contravention of
14 § 62-2(a)(10)(d).

15 In my opinion, very little public debate took place in 2007 when the
16 General Assembly adopted renewable energy legislation. The provision requiring
17 the use of poultry litter to generate electricity was included without adequate
18 discussion. Certainly, the communities in which we work were unaware of the
19 provisions for this form of energy production until well after Senate Bill 3 was
20 ratified.

21 And the prospects for obtaining renewable energy credits from other states
22 are no better than the current outlook in North Carolina. As I have presented
23 above, communities across the Southeast are experiencing the same sales pitch
24 from energy entrepreneurs with outcomes similar to those in Surry, Montgomery

1 and Sampson counties. Moreover, I believe it would be unethical to saddle
2 communities in other states with the negative impacts of pollution in order to
3 meet a North Carolina energy target.

4 Therefore, I recommend that the Joint Motion to Modify and Delay Swine
5 and Poultry Waste Set-Aside Obligations filed by the electric power suppliers on
6 June 1, 2012 should itself be set aside and the Commission should report to the
7 General Assembly that the provisions of § 62-133.8 (f) of the REPS are a dead
8 letter and will never be met.

9

10 DOES THIS CONCLUDE YOUR TESTIMONY?

11 Yes.