STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of BNE Energy Inc. for a Declaratory Ruling for the Location, Construction and Operation of a 4.8 MW Wind Renewable Generating Project "Wind Colebrook North" in Colebrook, Connecticut

Docket/Petition No. 984

March 15, 2011

Pre-filed Testimony of John B. Stamberg, P.E.

Q. What is your name and place of employment?

A. My name is John B. Stamberg PE; I am vice president in the consulting firm of Energy Ventures Analysis, Inc. My business address is 1901 N. Moore Street 1200 Arlington, VA 22209-1706.

Q. Please provide a brief description of your education and experience.

A. I have a Bachelor of Science in Civil Engineering from the University of Maryland and a Master of Science Degree in Civil Engineering from Stanford University. I have been a licensed professional engineer since the mid-1970's. My resume is attached at Exhibit ___ (JBS-1).

Q. On whose behalf have you prepared this testimony?

A. The town of Colebrook, Connecticut.

Q. What is the purpose of your testimony?

A. BNE Energy, Inc. has proposed to build a 4.8 MW Wind Renewable Generating Projects in Colebrook, Connecticut; "Wind Colebrook North". Should this project be approved, the town of Colebrook wants the Connecticut Siting Council to protect the town against inheriting the future cost of decommissioning these wind projects if BNE Energy, Inc. or any subsequent owner or operator abandons these projects because of uneconomical operating cost, unrepaired or damaged wind turbines, lack of electrical sales contracts, lack of tax incentives, changes in Connecticut's renewable portfolio standards, or the units become obsolete. Also, the town wants the Council to minimize the visual impact, noise impact and flicker impact of these wind turbines to minimize the impact on its residents, to their real estate values and to not adversely reduce future development opportunities.

My testimony on decommissioning includes:

- Proposed decommissioning specifications on wind turbine dismantling, transformer removal, underground and above ground transmission line removal, foundation removal, optional removal of access roads (if desired), removal of buildings/equipment, remediation of any spilled oils or machinery cleaning solvents, etc. and relandscaping of the site.
- Describe the processing needs to be able to scrap the wind turbine components. The steel towers need to be torched or cut to scrap saleable sizes; degreasing or paint removal of equipment; removal of and stripping of wire insulation on copper wiring, in the generator, in the controls and in the transmission lines; and grinding or size reduce of blades for disposal. Too often wind developers use end users commodity value of the scrap of steel, copper, aluminum to imply a higher value of scrap without subtracting the cost to convert the materials to saleable scrap and transport them to metal recyclers for further processing and finally to the end user who does pay the commodity value of the recycled metal.
- Describe the volatility of the project's scrap value. This volatility poses a risk that the decommissioning cost will vary widely over a short period of time, making accurate cost estimate impossible. The town would like the Council to adopt an approach that shifts this cost risk to the developer – not to the town.

- Propose an annually renewed performance bond, not for a certain value but for the full completion of work specified. This is to protect the citizens, town, State of Connecticut or Federal government from any cost to decommission the private enterprise built wind turbine site.
- Propose alternate height, location, size, and operating conditions for the wind turbines to reduce visual, noise and shadow flicker impacts to minimize impact to citizens, real estate values and future growth opportunities.

Q. What are some of the reasons a wind tower or project would be abandoned and need to be decommissioned?

A. There are numerous circumstances that a wind turbine or project could be abandoned and need to be decommissioned as listed below:

- Unrepaired or damaged wind turbine nacelle or blades that are too costly to repair caused by lightening, mechanical failure or electrical fire or failure. It can cost up to $250,000 or so to bring a crane into the site and replace or remove a damaged nacelle for repair or to replace major components. The cost to bring in and rent a crane for this type of nacelle failure is more costly to the operator with two or three wind turbines than projects with dozens of wind turbines. The cost of bringing in the crane can be spread over multiple nacelle repairs in a large wind farm rather than this initial crane location cost being only for one or two units. The "Wind Colebrook South" and "Wind Colebrook North" are small wind turbine sites and may be sold separately to subsequent independent owners and operators who might not share the cost of a large crane for repair.
- The tower foundation may fail either because of poor design or unexpected extreme weather. Also, in the future the foundation may be unsuitable for larger future more efficient wind turbines equipment and become uneconomical to update them to be competitive.

- The current wind turbines can become obsolete and are no longer able to operate economically as compared to other newer wind turbines or other renewable energy projects.
- The renewable portfolio standard may be legislatively changed or modified.
- Lack of tax or financial incentives may render these wind turbine projects to be uneconomical to BNE Energy, Inc. or any subsequent owner.
- Citizen litigation associated with noise or shadow flicker could require wind turbines to be shutdown.
- The project is unable to meet all the Council's conditions.

Q. When should a wind turbine be considered abandoned and require decommissioning?

A. A wind turbine that is not functioning up to its specified performance or idle for a year should be considered abandoned and should be decommissioned.

Q. Has BNE Energy, Inc. prepared or submitted any studies or methodology on decommissioning?

A. No.

Q. Why are decommissioning specifications required?

A. Like any engineering project, the decommissioning specifications need to be defined in sufficient detail that a contractor is able to bid the decommissioning work and a bonding company can estimate, at least annually, the cost of the decommissioning work and the risk.

Q. Have you proposed decommissioning specifications for BNE Energy, Inc.'s "Wind Colebrook North" wind turbine project?

A. Yes, the proposed "Decommissioning Specifications for Wind Colebrook South and Wind Colebrook North" are contained in Exhibit ___ (JBS-2).

Q. What is the goal of the proposed "Decommissioning Specifications for Wind Colebrook South and Wind Colebrook North"?

A. The goal is to return both sites to essentially pre-development conditions and for future uses consistent with R-2 zoning. There are two items that would not require return to original conditions. One is the complete removal of the foundation that supports the wind turbine tower would not be required in the specification. The foundation removal requirement would be for the removal of the foundation to be the basement depth at 10 feet below the lowest original or remaining contour. The second allowable item is that all or a portion of the roadway and office building may remain upon written declaration of the current owner of the property.

Q. Have decommissioning studies prepared by or for wind turbine developers incorrectly used higher scrap values than those that will actually be received?

A. Yes. Metal recyclers sell scrap metals such as steel, aluminum and copper that meet certain metal purity, cleanliness, and sizing specifications. The metal recyclers purchase scrap material that does not meet the saleable specifications. The metal recycler must disassemble mixed material components such as generators or control systems, sort, degrease, remove paint and plastic material and remove wire insulation. The metal recycler must use processes that are in accordance with the air and water permits and in accordance with OSHA and fire code requirements. They must also properly dispose of residual plastic, non-metallic components, insulation, paint residual, etc. The sorted metal may have to be further reduced in size by torching, grinding, breaking, or shredding.

The point is the value of scrap is not what the recycler sells the purified, sorted, cleaned and sized recycled metals for but what the metal recycler is willing to pay for the "as received" scrap prior to his cost to sort and process the as received scrape for commercial sale.

Q. Are there on-site cost and activities to dismantle a wind turbine for scrap value?

A. Yes. The nacelle and wind turbine tower need to be de-erected. The cost will be comparable to erection.

Q. What is the cheapest way to de-erect a wind tower?

A. Torching the bolts on the tower sections and torching the tower section (10 to 12 feet in diameter with 1 to 1.5 inch thick walls) into sizes that can be transported to a metal recycler in conventional dump trucks as opposed to the use of higher cost specialty vehicles that brought these components to the site.

Q. Is torching the wind tower and equipment apart at the "Wind Colebrook North" site prudent?

A. No. The project is in forested areas and torching bolts or tower components at hundreds of feet aboveground and within a heavily forested area should not be allowed to prevent forest fires. Torching can be more safely done in a cleared area or cropped field.

Q. Is there a cost to transport de-erected components to metal recyclers?

A. Yes. In the case of "Wind Colebrook North" there will be a higher than normal transportation cost especially since on-site torching should be disallowed and whole segments need to be transported to the metal recycler or to a safe location for torching to reduce scrap to the required size.

Q. Are scrap metal prices stable or volatile?

A. The scrap metal prices are highly volatile, depending on external economic and metal recycle demand per Exhibit ___ (JBS-3).

Q. Is it credible to assume the project's scrap value will cover the decommissioning cost?

A. No. Some wind developers plans have concluded this and this conclusion is often flawed. The cost to de-erect, size/reduce, and transport scrap to a metal recycler erodes the netback value of the scrap delivered to a metal recycler. Further the market recycler pays less for the scrap as the metal recycler must further process the "as delivered" wind project scrap into a saleable product that then is shipped to the end scrap user who purchases the recycled material at commodity prices.

The netback value of scrap is reduced by the de-erection, in-situ size reduction, transportation to a metal recycler, recycler processing cost and processed metal transportation to the end user. The use of the end user value of scrap multiplied by the weight is a flawed and misleading method of valuing wind project scrap value. Further, scrap value is volatile.

Q. Do you have an example of where the value of scrap in decommissioning a wind project was misleading?

A. Yes. Per Exhibit ___ (JBS-4) in Table 4, I found that the developers engineer estimate of salvage value was $12,641,056 and my estimate using quotes from actual metal recyclers was $2,628,262. In reality the value of scrap was likely 20% of that projected by the developer or $10,012,794 difference.

Q. What is the best method of protecting the citizens, the town of Colebrook, the State of Connecticut or the Federal government from encountering any decommissioning cost of the private enterprise of "Wind Colebrook North"?

A. The best method is to require BNE Energy, Inc. or any subsequent owners or operator to annually update and provide a decommissioning performance bond pursuant to the proposed Decommissioning Specification in Exhibit ___ (JBS-2) or the adaptation of similar specifications. As scrap value, labor, transportation cost vary from year-to-year, a performance bond in which completion of decommissioning work is guaranteed should be pursued. In this case the bonding company and the bond purchaser can assess the risk and the associated cost of the bond associated with the risk. In this approach the owner/operator and the experts at the bonding company can come to the appropriate bond cost. This eliminates government officials or others who are not in the business to assess risk. Bonding for a pre-determined amount could leave others with the cost and administration/legal liability if the amount is insufficient.

Q. What would you recommend to mitigate visual impacts, noise and flicker on nearby residences?

A. There are several approaches:

(1) Reduce the number of turbines or relocate the turbines specifically:

- Eliminate western most wind turbine on the Wind Colebrook North site or alternatively relocate this turbine more to the east to reduce the visual and noise impact at residences R1, R2,R3 and R4 and morning flicker at R1 and R2.

(2) Alternatively restrict the use of the wind turbines at night between 10 p.m. and 7 a.m. specifically:

- The western most wind turbine on the Wind Colebrook North site.

(3) Alternatively restrict the use of wind turbines as below:

- Dawn to noon use of the most western turbine on the Wind Colebrook North site and clear days to abate flicker at R1 and R2.

(4) Reduce the tower height to 60-80 M to reduce both the visibility and shadow flicker impact.

Q. Does this conclude your testimony?

A. Yes.

The statements above are true and accurate to the best of my knowledge.

______________________________ March 14, 2011__________

John B. Stamberg, P.E.

RESUME OF

JOHN B. STAMBERG, P.E.

EDUCATIONAL BACKGROUND

1967	M.S. (Sanitary Civil Engineering), Stanford University
1966	B.S. (Civil Engineering), University of Maryland

PROFESSIONAL EXPERIENCE

1981-Present **Energy Ventures Analysis, Inc.**
Vice President and Principal

Mr. Stamberg is responsible for directing Energy Ventures Analysis, Inc. (EVA) engineering studies with respect to air and water pollution control, mine engineering control, decommissioning studies, building inspection for environmental hazards such as asbestos and lead associated with full or partial demolition of buildings or other facilities, clean up or removal of contaminated soils, and other civil and energy engineering activities.

Mr. Stamberg is responsible for all technical and economic feasibility studies, engineering designs and environmental control evaluations. Recognized expert on wastewater treatment, solid waste sewage sludge and hazardous waste disposal and air pollution control technologies. Has developed innovative wastewater treatment designs for industrial facilities and municipalities. Directing studies examining potential hazard waste handling technology alternatives to landfilling for hazardous wastes generated and land application of sewage sludge.

Mr. Stamberg has directed the firm's decommissioning studies of wind and fossil-fired generation facilities. He has helped develop production cost models for renewable power alternatives.

Mr. Stamberg has conducted research, pilot scale demonstration and was the process designer for a 10 MGD wastewater to EPA drinking water standard recycle plant using DAF and activated carbon in Louisiana to treated and recycle wastewater to a major paper mill to stop the declining levels in the Sparta Aquifer. Also, Mr. Stamberg has developed and was the process engineer to treat groundwater with tanin and lignin to meet color standards and reduce tri halo methane and halo acetic acids.

Mr. Stamberg is responsible for all asbestos and lead control analyses since mid-1970's. Has conducted numerous inspections on commercial properties, industrial facilities and mining operations and provided full range of asbestos and lead control services associated with facility demolition or reconstruction. These services include: onsite sampling and analysis for asbestos materials; development of engineering plans, specification, criteria and corporate policies for asbestos enclosure/encapsulation/removal; acted as a government liaison to present plans for asbestos/lead control, to apply for all required government permits, and to obtain approval for all plans; conducted asbestos/lead control training courses for employees; and acted as owners representative in all phases of asbestos/lead removal projects from bidder qualification/selection to assurance of full OSHA compliance on time completion.

Mr. Stamberg has developed capital and O&M cost for a variety of natural gas compression options for LDC's, utilities and EPRI, including fixed speed and variable speed electrical compression, combustion turbine compression, and reciprocating compression, as well as conversion of existing reciprocating units to electric drive. He has performed numerous studies on the pipeline delivery capacity and cost of looping or adding compression to existing interstate and intrastate pipelines. He has prepared feasibility studies of routes, compression needs, and cost of supplying electric utilities and industry switching to natural gas. He has performed on-site evaluations of booster compression needed to supply new combustion turbines with the higher pressure demands of these units. He has engineered energy recovery systems for greenhouse heating using natural gas compressor drive exhaust, and evaluated compressed air energy storage and recovery to generate electricity.

Mr. Stamberg has also conducted a variety of studies of utility and industrial boiler and combustor facilities for fuel choice, efficiency, and environmental control. He has assessed a broad range of combustion, cogeneration, and environmental control systems. He recently completed work for EPRI on utility derating caused by switching pulverized coal boilers from Illinois Basin coal to various types of low-sulfur coals. He has prepared the industrial coal demand analysis for COALCAST reporting service using his knowledge of boiler engineering, boiler capital cost, and boiler operating cost.

Mr. Stamberg has prepared feasibility studies, design cost evaluations, labor productivity studies and equipment inspection for the coal mining industry. His experience with underground mining covers conventional sections, continuous miners, mixed sections, and longwall having a variety of seam and roof conditions. His surface mining experience covers contour, open pit and mountaintop surface mining with large capacity draglines, shovels, or conventional truck/loader equipment. He has prepared feasibility studies, designed and inspected coal preparation facilities from those with simple coarse circuit technology to those with complex multi-circuited systems. He has conducted a variety of site investigations and sampling programs and prepared a variety of environmental assessments, reclamation studies and permit applications for the mining industry. He has used his knowledge to provide capital and operating costs for use in EVA's economic and financial analysis of mining and reclamation plans, coal price analyses, coal competition evaluation studies, and coal company acquisition studies.

1974-81 **Energy and Environmental Analysis, Inc.**
Director

In addition to his responsibilities for water pollution control, Mr. Stamberg managed both the reactivation and the conversion from natural gas or coal of industrial boilers. This work included design specifications and purchase of coal unloading, storage, ash handling, and reclaiming equipment. He was responsible for structural inspections and analysis of the boiler buildings, coal silos, and duct and stack supports. He has evaluated a second generation fluidized bed combustor (FBC) using petroleum coke as a fuel to support process steam and electricity to a petrochemical process.

Mr. Stamberg has designed a mineral processing system for Virginia Vermiculite, Ltd. which utilizes an integrated series of hydraulic sizers, classifiers, screenings, cyclones, rock floatation, vermiculite floatation, tables, vacuum filtration, and drying. He has also performed engineering and economic feasibility studies on five locations for a centralized coal cleaning and unit-train tipple in West Virginia. He has performed various coal cleaning studies for DOE, and reviewed technological developments at various DOE labs/facilities involving conventional cleaning to solvent refined coal (SRC).

Mr. Stamberg has directed and participated in a variety of environmental and permit studies for coal and mineral mining activities. He has conducted numerous site visits, prepared permit applications and prepared environmental impact statements or assessments on a variety of coal mines in most major coal producing states of Northern, Central and Southern Appalachia as well as in the western states of Colorado and Wyoming. He has done similar studies for phosphate rock, sand and gravel, limestone, and vermiculite mining industries.

1972-74 **U.S. Environmental Protection Agency**
Office of Air and Water Programs
Chief, Municipal Technology Branch

Formulated policies and regulations required to implement PL92-500. Responsible for area-wide planning, facilities planning, effluent guidelines for municipal pollution control, operation and maintenance of advanced waste treatment facilities, combined sewer control, urban run-off, and cost-effectiveness analysis.

1967-71 **U.S. Environmental Protection Agency**
Office of Research and Development
National Environmental Research Center
Chief, Biological Treatment

Developed research objectives; designed and operated pilot- to full-scale plants to achieve various effluent objectives using a variety of biological or biological/chemical treatment techniques. Did engineering development work which was the basis for design for the District of Columbia's 309 MGD advanced waste treatment at Blue Plains and numerous other advanced waste treatment plants.

HONORS

Chi Epsilon National Civil Engineering Honor Fraternity
Pi Mu Epsilon Honorary Mathematical Fraternity
Phi Kappa Phi Honor Society
Phi Theta Kappa National Honorary Scholastic Society
U.S. EPA Bronze Medal for Commendable Service

PROFESSIONAL REGISTRATION AND MEMBERSHIPS

Registered Professional Engineer, Louisiana
Water Pollution Control Federation
Federal Water Quality Association

PATENTS AND PUBLICATIONS

Holder of Wastewater Treatment Systems and Mineral Processing Patents Pending and has 17 technical publications.

Proposed Decommissioning Specifications For Wind Colebrook South And Wind Colebrook North

Section 1

Location: Wind Colebrook South
17329 Flagg Hill Road
Colebrook, CT
79.44 acres
3-1.6 MW wind turbine for 4.8 MW rated capacity

Wind Colebrook North
Winsted-Norfolk Road and Rock Hall Road
Colebrook, CT
124.9 aacres
3-1.6 MW wind turbines for 4.8 MW total rated capacity

Section 2

ELECTRICAL TRANSMISSION LINES AND CONNECTION

- All electrical connections, underground and above ground transmission lines, electrical controls and electrical equipment shall be deactivated prior to any decommissioning occurs.
- Electrical wiring in the wind turbine tower shall be removed prior to blade, nacelle and tower de-erection.

Section 3

FLUID REMOVAL

- All fluids, except the transformer, shall be completedly drained prior to de-erection.
- Drained fluids shall be legally disposed.
- Any hazardous or toxic fluids shall be identified and double barreled for removal and disposal.
- Spill prevention and clean up materials and equipment shall be available.

Section 4

BUILDING STRUCTURE ON WIND COLEBROOK SOUTH

- Building structure on Colebrook South Site to remain if maintained in occupiable condition.
- If the structure is not in occupiable condition, the building will be demolished.
    - Asbestos inspection and abatement to be conducted.
    - Well closure required.
    - Electrical service lines and electrical post to be removed.
    - Septic tank to be removed.
    - Drainage field to remain.

Section 5

BLADE, NACELLE, AND TOWER REMOVAL

- The blades are to be disconnected and removed without torching or welding or any method that may result in fires.
- The blades may be reduced on site by sawing or breaking or by hauling off site to be reduced to size and rent to a suitable disposal site or sold as a whole unit.
- The nacelle, less the blades, are to be disconnected without torching or welding or any method that may result in fires.
- Tower components shall be unbolted and lowered to the ground and removed from the site without torching or welding or any method that may result in fires.

Section 6

BLADE LAYDOWN AND ASSEMBLY AREAS, TOWER SECTION LAYDOWN AREA, CRANE PADS AND CRANE ASSEMBLY AREA

- These areas shall be removed entirely and restored to the original grade with at least 9 inches of top soil.

Section 7

ELECTRICAL COLLECTOR YARD

- The electrical collector yard shall be tested for spilled fluids and removed entirely and restored to the original grade with at least 9 inches of top soil.

Section 8

FACILITY SUPPORT BUILDING, MAINTENANCE OFFICE AND EDUCATIONAL SPACE

- This building may remain if the current property owner request in writing that the building remain.

- If not so requested, the entire building, foundation, electrical connection, water supply, septic tank shall be removed and restored to the original grade with at least 9 inches of top soil.

Section 9

TOWER FOUNDATION

- The tower foundation shall be removed to a depth of 10 feet below the original or the existing contour, whichever is lower.

Section 10

ROADS

- Roads may remain if the current owners request in writing that the main roads remain (less areas identified in Section 4, 6, 7 and 8 which must be removed).

- If not so requested, the roads not requested to remain shall be removed and restored to original grade with at least 9 inches of top soil.

Section 11

DEBRIS REMOVAL

- All materials, equipment will be removed from the site and none of these materials will be disposed of on site.

Section 12

- Temporary erosion and sediment control per the 2002 Conecticut Guidelines for Soil and Erosion Sediment Control.

- The required top soil will be imported to the site as no top soil storage area was identified on site. The top soil will be placed during the growing season of April to May.

- Once the top soil is placed on the exposed disturbed areas, rye grass will be planted within a week by hydroseeding techniques.

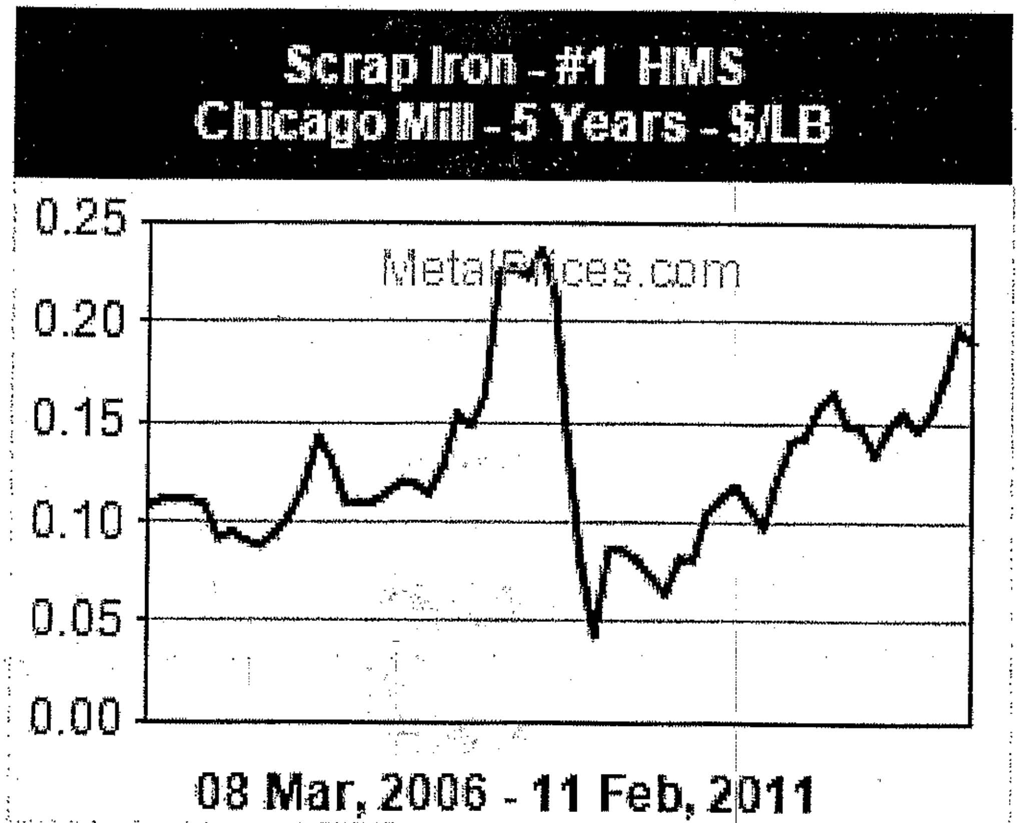
- Finally, birch trees of 4 to 5 feet height will be planted, fertilized and watered at approximately 12 foot spacing and maintained for 3 years.

Section 13

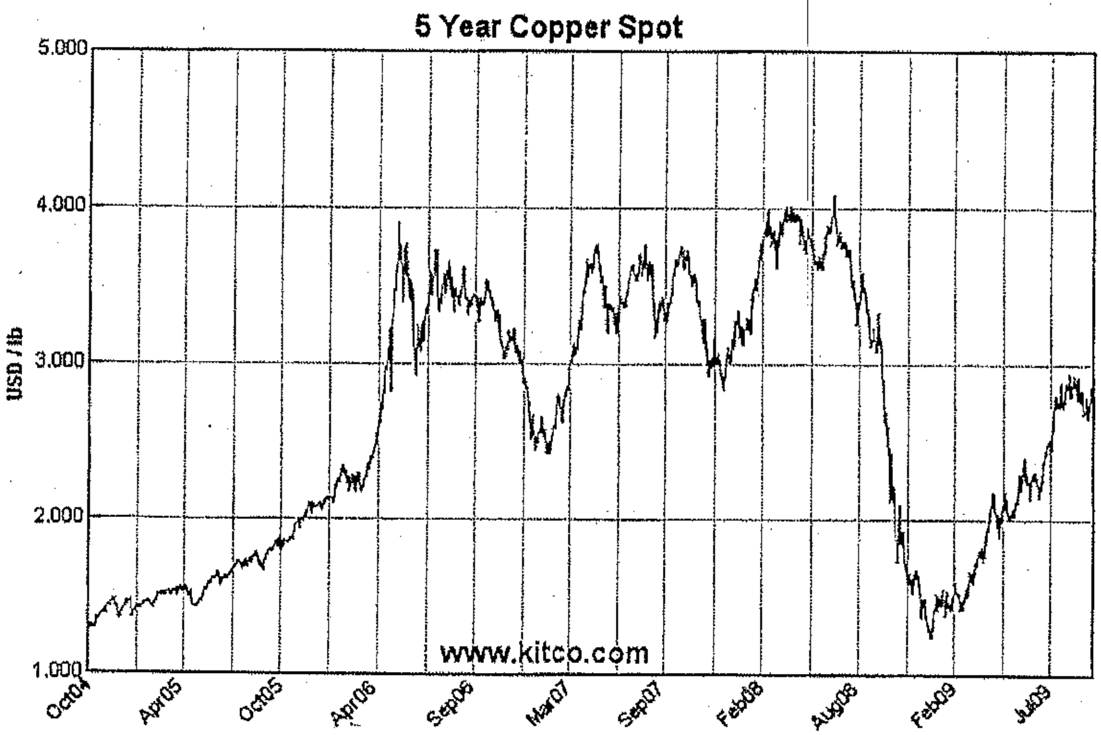
- The transformer is to be removed as a whole unit for resale or disposal.

Scrap Metal Volatility

#1 Quality Clean Iron Scrap



Clean Stripped Copper Scrap



Energy Ventures Analysis, Inc.
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COALCAST

FUELCAST

October 7, 2008

MEMORANDUM:

TO: John Stroud
Mountain Communities for Responsible Energy

FROM: Thomas A. Hewson, Jr.
John B. Stamberg, P.E.

SUBJECT: Beech Ridge Energy LLC Financial Assurance Needs

I. Background

EVA was asked by the Mountain Communities for Responsible Energy (MCRE) to provide an independent review of the HDR Engineering report on Beech Ridge decommissioning costs and to determine if this report and their proposed bonding level were sufficient to meet Condition 16 of the August 2006 Commission Order. Condition 16 of the Commission Order states:

(16) Beech Ridge must have a decommissioning fund in place prior to commencement of operation. The fund will cover dismantling of the turbines and towers, as well as land reclamation. The fund should be an escrow account, or a bond or a surety that is held by an independent party, such as the County Commission. This fund shall not be a part of Beech Ridge's assets. Beech Ridge must hire an expert to assess, from time to time, the size of the fund that would be needed, taking into consideration resale or salvage value. Beech Ridge must obtain the Commission's approval of the evaluative expert, as well as Commission approval of the periodic reports. The Commission reserves the right to also hire its own evaluative expert to evaluate any of the periodic reports.

To comply with this condition, the applicant filed a June 2008 Report entitled *Breech Ridge Energy Decommissioning Report- Greenbrier and Nicholas Counties* by HDR Engineering. HDR estimated that the decommissioning cost for Invenergy's Beech Ridge Energy LLC's project would be $10,825,102 exclusive of salvage value. These costs were less than their estimated salvage value of $12,641,056 leading HDR to conclude that the decommissioning costs would likely be covered by the project scrap salvage value alone. HDR therefore recommended that the bonding amount be initially set at $310,000 for the 1st five years of Beech Ridge Energy's operation ($2,500/turbine) and subsequently slowly escalated to $2.48 million by year 16 ($25,000/turbine).

II. Findings

EVA concludes that the proposed $310,000 bonding amount is insufficient to meet the Commission condition that the bond cover the "*costs of dismantling of the turbines and towers as well as land reclamation.*" The bond amount should be raised to a minimum of $10.8 million to shift the scrap value and decommissioning cost risk away from the community and directly onto the bonding company and developer. The bonding company will set its rates based upon its own internal risk analysis of scrap markets and costs. If the company agrees with HDR cost and scrap estimates, the developer should be able to obtain a very low bond rate.

One key element in HDR proposing such a low bonding value is the recognition of the high scrap value that could offset future decommissioning costs. To check HDR estimates, EVA collected current salvage price quotes from major area scrap yards on October 2, 2008. Transportation costs were estimated using EVA's transportation rate database and distance to major area scrap yards. Based upon these price quotes, EVA found that the salvage value of the Beech Ridge project would total only $2,628,262 that is $10,012,794 less than the HDR June 2008 scrap value estimate.

The difference in estimated salvage value between HDR and EVA estimates are attributable to three factors:

1. Steel scrap and copper scrap are highly volatile commodities. Between December 2007 (cost basis for June 2008 HDR report) and October 2, 2008, scrap market prices have dropped significantly that are not reflected in the HDR report.

2. Steel scrap and copper scrap prices do vary widely depending on the size and purity of the scrap. To qualify for the highest scrap prices, such as assumed in the HDR report, steel must be separated and broken down into smaller sizes. Copper must be stripped of insulation and separated from other impurities. Therefore motors, generators, transformers and electrical wire would have to be dismantled, and the steel or copper components separated. The tower and nacelle would need to be broken down into smaller, easier to handle sizes. Otherwise, their scrap value "as is" would be far less. HDR assumed scrap would receive the highest premium prices but their report was silent on if scrap separation and sizing costs were included in their decommissioning cost estimate.

3. Posted scrap prices assume that the steel scrap and copper scrap are delivered to the scrap yard or recycler. While the HDR unit scrap price assumption is a delivered price, the HDR analysis provided no transportation costs in their decommissioning analysis. No detailed cost breakdowns were provided to determine if these transportation costs included in the decommissioning cost estimate.

In addition to overestimating current scrap values, the HDR report contains insufficient detail on its decommissioning cost estimate to determine if it properly reflects escalating capital costs or if it includes work to process/size recycled material needed to gain premium scrap prices as discussed above. HDR has provided little documentation for the $70,000/turbine dismantling/disposal cost estimate that accounts for 80 percent of the total estimated decommissioning costs. The only insight on these costs was their statement, "*... there would be no more than a 10 percent differential in the cost of erecting or dismantling the turbines.*" The $45,000 dismantling subcost component that HDR did use appears to be based upon dated information and is several times less than confidential installation/erection cost estimates EVA has reviewed from two other Northeastern wind projects along Appalachian Mountain ridges. Given the rapid escalation in wind project construction costs over the past few years, dismantling costs will have also escalated. These cost escalations appear not to be fully reflected in HDR cost estimates.

III. Recommendations

Given these findings, EVA recommends to the Commission that:

1. Commission should reiterate that the local communities should not be held financially responsible for any future decommissioning costs of the Beech Ridge Energy project.

2. Commission set the proposed bond to reflect the full decommissioning costs (excluding salvage value). HDR has initially estimated this cost to be $10,825,102. Under the HDR proposal that limited the bond value to $310,000 (years 1-5) to $2.48

million (year 16->). Under the HDR proposal, the Commission would place the community (not the bonding company or developer) responsible for any future drop in scrap market values from December 2007 levels. However, if the Commission sets the bond value at the full decommissioning cost, they would transfer the entire risk of future scrap price volatility from the local community to the bonding company and developer. As is shown in market changes between December 2007 and October 2008, these scrap market price risks are significant.

3. Commission should adjust the bond amount annually based on a suitable index such as the "RS Means Heavy Construction Cost Data" index unless Beech Ridge supplies convincing evidence that market conditions have changed. This adjustment would protect the community from any future escalations in project dismantling costs. For example, if dismantling costs were to escalate at 2.5% per year, dismantling costs in 2028 would be 64 percent higher ($6,913,088 more) than today.

4. By fully discounting the scrap value in setting a higher bond amount to protect the local community, the Commission will not proportionately increase the developer's bonding cost. The bonding company will recognize future salvage values and project dismantling escalation rates in calculating its future exposure for establishing its bond rate for the initial $10.8 million bond to the developer. The developer can collect numerous bids to assure it obtains the lowest rate from a qualified bonding company. However, the bond cost will reflect the bonding company's scrap market and decommission cost risk that HDR has asked the community to assume in their proposal.

5. Given recent financial turmoil and some insurance company difficulties, the bond amount should be insured in case of any future bonding company problems.

IV. EVA's Salvage Value Estimate

The scrap prices are volatile and are heavily dependent on its location, purity, size and condition. The prices paid for the scrap are quoted on a delivered to the yard basis. EVA called and obtained salvage prices for steel scrap and copper scrap on October 2, 2008 from major area salvage firms that could be accessed from the Rupert, West Virginia area.

The collected price data is contained in Table 1 and Table 2. Steel scrap and copper scrap have different salvage value depending on the purity, size and quality of the scrap. Once the steel is separated, steel size becomes the single most important salvage value criterion. Transportation to the salvage yard is second most important price net-back factor.

Table 1 shows the net salvage value to the contractor on October 2, 2008. On this day, steel scrap would net back about $63.40/ton to $94.20/ton (qualified price) for whole pole sections. The qualified price at Recycle West Virginia recognizes torching 3/4 to 1 inch thick pole segments into 4 feet pieces may be more costly than torching ½ inch or thinner steel plate. If the pole is reduced to 3 or 4 foot pieces, the net salvage value is between $45.40/ton to $74.20/ton. As shown, the salvage value can vary with the market and the need to prepare, load, and ship the scrap. The net salvage value on this date was substantially less than in the HDR Engineering estimate based upon a December 2007 published prices for high quality scrap products.

In the applicant's plan, the underground electrical transmission wire was to be abandoned in place, leaving only the nacelle and tower as having scrap cooper containing materials. Copper scrap is less sensitive to shipping but is sensitive to the form that copper is in when received. Bare raw copper receives the highest scrap price and was the assumed price basis in HDR report. However, insulated wire has one third of this value as the insulation has to be removed properly. Mixed steel and copper is worth much less than either pure steel scrap or pure copper scrap since it costs time and effort to dismantle and separate the steel from the copper. The copper scrap price quotes are contained in Table 2.

EVA estimated the net salvage value of the Beech Ridge Energy, LLC based on October 2, 2008 prices as shown in Table 3. The net salvage value for the pole, hub and bolts was estimated to be about $75/ton, the nacelle which is a mixture of steel and copper at $34.40/ton and the transformers at $2,500/each. Based upon the scrap tonnage estimates provided in the HDR report, the calculated salvage value would be $2,628,262.

The difference in salvage value estimates between HDR Engineering and EVA per Table 4 is $10,012,794. Again, this salvage value risk should not be placed onto the community. Instead the financial assurance should be provided Beech Ridge Energy in a bond for the full project decommissioning costs and adjusted annually.

V. EVA's Decommissioning Cost Review

In addition to overestimating current scrap values, the HDR report contains insufficient detail on its decommissioning cost estimate to determine if it properly reflects escalating capital costs or if it includes work to process/size recycled material to gain premium scrap prices as discussed above. HDR provided little documentation for the $70,000/turbine dismantling/disposal cost estimate that accounts for 80 percent of the total estimated decommissioning costs. The only insight on these costs was their statement, "*... there would be no more than a 10 percent differential in the cost of erecting or dismantling the turbines.*" The $45,000 dismantling subcost component that HDR assumes appears to be based upon either dated information and/or assumed more accessible site. This cost is several times less than the confidential installation/erection cost estimates that EVA has reviewed from two other Northeastern wind projects. Given the rapid escalation in wind project construction costs over the past few years, dismantling costs have also likely escalated and may not be fully reflected in HDR cost estimates. There is a significant risk that decommissioning costs have been underestimated by HDR. Unfortunately, to develop an independent cost estimate would require additional information that is not contained in the HDR report or in files reviewed by EVA.

VI. Inappropriateness of HDR's Financial Assurance Proposal

HDR Engineering proposed the financial assurance for the Beech Ridge Energy, LLC project as follows:

1-5 years at $2,500/turbine or $310,000
6-10 years at $5,000/turbine or $620,000
11-15 years at $10,000/turbine or $1,240,000
16-20 years at $20,000/turbine or $2,480,000
(Calculated total bond amount assumes 124 turbine project)

The above offer is inadequate to protect the community (Greenbrier County). The financial assurance should reflect the full decommissioning costs (Estimated by HDR to be $10,825,102) to shift the scrap market price risk to the bonding company and developer. While the Commission order states this amount should be evaluated from time to time, the Commission should consider adjusting the amount annually using a recognized construction cost index (RS Means) to reflect changes in decommissioning costs unless the developer can supply convincing material that market conditions have materially changed. Given the recent problems in the financial markets, the bonds should be purchased from only a highly rated insured/certified bonding firm. Increasing the amount to discount salvage costs, does not proportionately increase the developers cost. Beech Ridge Energy, LLC can make its case to the bonding company(s) over what the true cost exposure is in negotiation of what an appropriate bond rate should be.

Table 1
Estimated Net Salvage Value Of Steel Wind Components From Rupert, WV

Company	Delivered Salvage 10/2/08 Value	$/Ton	Load and Preparation Cost ($/Ton)	Shipping Cost ($/Ton)	Net Salvage Value ($/Ton)
1. Recycle West Virginia (Princeton, WV) 60 miles one-way	(a) Whole Pieces** (Perimeter cut only)	$120/ton	$15/ton	$10.80/ton	$94.20/ton
	(b) 4ft pieces or less	$140/ton	$55/ton	$10.80/ton	$74.20/ton
2. Berry Iron and Metal Chilhowe, VA 120 miles one-way	(a) Whole Pieces (Perimeter cut)	$100/ton	$15/ton	$21.60/ton	$63.40/ton
	(b) 3 ft or less pieces	$160/ton	$60/ton	$21.60/ton	$78.40/ton
3. Elizabeth Herb and Metal Elizabethton, TN 170 miles one-way	(a) Whole Pieces (Perimeter cut)	$125/ton	$15.00/ton	$30.60/ton	$79.40/ton
	(b) 3 ft or less pieces	$136/ton	$60/ton	$30.60/ton	$45.40/ton

* $1.80/ton for trucking and 20 tons per truck load.
** Must see for custom price (3/4" to 1" thick steel is costly to torch apart).

Table 2
Estimated Net Salvage Value Of Copper Components From Rupert, WV

Company	Delivered Salvage 10/2/08 Value	$/Ton	Load and Preparation Cost ($/Ton)	Shipping Cost ($/Ton)	Net Salvage Value ($/Ton)
1. Johnson City Iron and Metal Johnson City, TN 170 miles one-way	a. Bare Raw Copper	$2.10/# ($4,200/ton)	?	$30.60/ton	$4,169.40/ton
	b. Insulated Wire	$0.70/# ($1,400/ton)	-	$30.60/ton	$1,369.40/ton
	c. Generators or Motors with Cooper Internals (Reflect equipment dismalting)	$3.25/# (65/ton)	-	$30.60/ton	$34.40/ton

* $1.80/mile for trucking and 10 tons per truck load.

Table 3
Estimated Net Salvage Value Of All Copper Material From Rupert, WV

Nacelle with Steel Shell and Gearbox and Copper Generator Internals	$34.40/ton(1)	x	51.4 tons(2) / nacelle	x	124	= $219,252
Steel Tower/Hub/Bolts	$75.00/ton(3)	x	225.7 tons(4) / tower	x	124	= $2,099,010
Transformers	1		$2,500 / unit	x	124	= $310,000
Total						**$2,628,262**

(1) See Table 2(1c).

(2) 41.4 tons steel / tower + 10.0 tons copper / tower per HDR: Not copper insulated and is internal to th generator an a steel shaft, not bare raw copper.

(3) See Table 1.

(4) 138 tons/tower + 84.7 tons/Hub and Plate + 3 tons/bolts = 2225.7 tons/tower per HDR.

Table 4
Comparison Of Area Delivered Net Salvage Value For Beech Ridge Energy Decommissioning Report Values

	Salvage Value
HDR Engineering, Inc. Estimate for:[1] Invenergy's Beech Ridge Energy, LLC	$12,641,056
EVA Estimate[2]	$2,628,262
Difference	**$10,012,794**

(1) Page 4 of 5.
(2) Table 3.