



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 1<sup>st</sup> 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 foot pieces may be more costly than torching 1/2 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 copper 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 Chillhowe, 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 dismantling)	\$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 <sup>(1)</sup> x	<u>51.4 tons</u> <sup>(2)</sup> nacelle	x 124 =	\$219,252
Steel Tower/Hub/Bolts	\$75.00/ton <sup>(3)</sup> x	<u>225.7 tons</u> <sup>(4)</sup> tower	x 124 =	\$2,099,010
Transformers	1	<u>\$2,500</u> unit	x 124 =	\$310,000
<b>Total</b>				<b>\$2,628,262</b>

(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 the generator on 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**

	<b>Salvage Value</b>
HDR Engineering, Inc. Estimate for: <sup>(1)</sup> Invenergy's Beech Ridge Energy, LLC EVA Estimate <sup>(2)</sup>	\$12,641,056
<b>Difference</b>	<b>\$2,628,262</b>
	<b>\$10,012,794</b>

(1) Page 4 of 5.

(2) Table 3.