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Ohio | Power Siting Board

John R. Kasich, Governor
Todd A. Snitchler, Chairman

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March 5, 2014

Ms. Brenda L. Johnson
2717 Edgewater Bay
Woodbury, Minnesota 55125

Re: Biers Run – Hopetown – Delano 138 kV Transmission Line Project; Biers Run Substation
Case Nos. 13-0429-EL-BTX and 12-1361-EL-BTX

Ms. Johnson,

Thank you for contacting the Ohio Power Siting Board (OPSB) regarding American Electric Power Transmission Company's (AEP Transco) proposed Biers Run – Hopetown – Delano 138 kV Transmission Line Project. Your correspondence in regards to the project has been docketed in case number 13-0429-EL-BTX.

AEP Transco submitted their application for this project on January 8, 2014. Pursuant to Ohio Administrative Code 4906-5-07, the OPSB Staff is currently reviewing the application to ensure that it is complete. Each application is required to contain specific descriptions, summaries, and statements, as outlined in Ohio Revised Code 4906.06.

Once the application is deemed to be complete, the Board will schedule a local public hearing near the project area to provide the public with an opportunity to testify about the proposed project. I have attached a fact sheet that further explains how the public can participate in Board proceedings as well as a flow chart that describes the OPSB process.

If you have any additional questions or concerns, please contact the OPSB at (866) 270-6772. Again, thank you for your continued interest in this case.

Sincerely,

Todd A. Snitchler, Chairman
Ohio Power Siting Board

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Technician _____ Date Processed 3/5/14

180 East Broad Street
Columbus, Ohio 43215-3793

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BRENDA L. JOHNSON

2717 EDGEWATER BAY, WOODBURY, MN 55125 (651) 578-7490
bmm.johnson@msn.com

February 24, 2014

Ohio Power Siting Board
Attn: Chairman Todd Snitchler
180 East Broad St.
Columbus, OH 43215-3793

Re: Biers Run – Hopetown – Delano Transmission Line Project, 13-0429-EL-BTX

Dear Chairman Snitchler,

I am writing to ask that the Ohio Power Siting Board ***not certify*** AEP's application for the Biers Run – Hopetown – Delano Transmission Line Project on the basis that it is incomplete, misleading, and wrongfully did not evaluate all practicable sites, routes and route segments according to Ohio 4905-15-03. It should be sent back to AEP for further work.

Incomplete Analysis of Potential Alternatives

Ohio 4905-15-03 states the routing study "shall be designed to evaluate *all* practicable sites, routes, and route segments for the proposed facility." This was not done.

In its application, AEP notes a variety of alternatives but does not specify why these alternatives were eliminated from consideration. This is important because many of the alternatives would have resulted in less land, cultural, and economic/financial impacts. These alternatives include:

- Rebuilding or paralleling existing facilities and/or utility corridors. This would be a "green" approach for AEP – better utilizing existing resources and limiting their impact on the environment. AEP notes "the most suitable areas for siting an overhead electric transmission line are often along or adjacent to existing linear infrastructure (transmission lines, roads, railroads)".

- Paralleling existing roads or railroads (transportation) rights-of-way. AEP noted they considered the Interstate 35 right-of-way but were constrained by Ohio Dept. of Natural Resources' (ODNR) objection to the transmission line and refusal to consider the line on their Wildlife Area property.

- Where existing distribution lines are in close proximity, overbuild the new transmission line and the existing distribution line *on the same poles.* This single pole approach would minimize the impact on land use and cultural sites as well as be more "green" and aesthetically acceptable.

AEP did not analyze one of the most direct and least impactful route alternatives – through the Pleasant Valley Wildlife Area. This will be discussed below.

AEP also dismissed the option of rebuilding the Circleville-Harrison 138kV line and upgrading facilities at each terminal station, suggesting this solution showed promise "on paper" but "would not provide the robust solution the system requires in the long term". There is no indication why this alternative could not be made more "robust" to eliminate the detrimental impacts of the additional transmission lines.

In reviewing the application, it also becomes apparent there are unspecified assumptions and/or decisions that underlie the recommendations. An example is the assumption that the proposed Hopetown transmission station must be located near the site of the old Camp Sherman station that drove route siting decisions. This ***would be the ideal time to move a major power station away from three schools and associated public facilities, two prisons, and an important National Park.***

Inappropriate Elimination of the Most Direct and Least Impactful Route

AEP and URS identified a corridor that was relatively direct from Biers Run Station east toward Delano Station. Approximately 2.2 miles of this corridor would cross the ODNR'S Pleasant Valley Wildlife Area (PVWA), a tax payer supported public hunting ground with limited access.

ODNR advised AEP of opposition to the transmission line and their refusal to apply to the GSA for approval for the line to cross the property, **suggesting that AEP abandon plans through the PVWA and instead pursue other, less environmentally sensitive route options**.

The sign reads: "This area closed to all activity other than hunting, fishing, and trapping from 8:00 p.m. to 6:00 a.m., September 1 – May 1, and 10:00 p.m. to 6:00 a.m. May 2 – August 31."

Several things should be noted: 1) there are already utility rights-of-way on PVWA property including a radio tower (see the photo above), 2) PVWA doesn't corner the market on habitat –agricultural land has been shown to provide habitat for 75% of the nation's wildlife, and 3) several other wildlife areas were to be crossed by AEP's route alternatives and apparently didn't protest.

ODNR's refusal prevented AEP from analyzing routes that might minimize any impacts to the hunting ground. The refusal also led to elimination of other routes that

appear to have less socio and economic impact on houses, schools, cultural sites, and prime agricultural land. As a voting member of the Power Siting Board, ODNR's refusal to allow the transmission line on public property raises many questions:

- Can they effectively say "not in our backyard" while forcing the line on others?
- *Shouldn't they consider what's in the overall best interest of all Ohioans, not* just some hunters? Do they value seasonal hunting of wild game over Ross County's children, 227+ homes, many farms, and unique cultural treasures?

Using AEP's own criteria, the attached matrix, comparing and contrasting the routes, demonstrates that the route with the *least* overall impacts is the route through the Pleasant Valley Wildlife Area.

Incomplete Information/Analysis

The route siting process appears to be driven by factors decided before Power Siting Board consideration – namely AEP's decisions about where to site transmission stations and distribution lines that do not require your approval. This means AEP is able to limit the information the Power Siting Board considers in making key decisions – choices that may ultimately not be in the best interest of Ohio's citizens.

Socio, economic impacts

Section 4905-15-06 calls for AEP to "provide the socioeconomic impact of the proposed facility on each land use". There is no information provided on the socioeconomic impacts on the homes, schools, or cultural sites in the proposed lines' right-of-way.

The selection of the "Blue Route" impacts ***almost 200%*** more homes than does the "Red Route"; even fewer homes would be impacted by the route through the Wildlife area.

An analysis done by Appraisal Group One concluded "it can be stated with a high degree of certainty that there is a significant negative effect ranging from -10% to -30% of property value due to the presence of the high voltage electric transmission line (HVTL). In other studies the negative property value impacts were even larger. **This translates to a multi-million dollar reduction in property values for homes along the "Blue Route". This does not reflect the loss in value for farm land.** *This impact is not addressed in AEP's application.*

Concerns have been expressed that the proximity of the 138kV line on the "Blue Route" will lead to reduced enrollment at Unioto Schools. *The economic impact of this is not contemplated in AEP's application.*

I understand Hopewell Culture National Historical Park is applying for World Heritage status. Achieving World Heritage status can significantly increase the number of visitors bringing more dollars to the local economy. I have also heard they are concerned that the presence of the power lines will negatively impact the ability to

achieve this prestigious and financially important designation. *This impact is also not reflected in AEP's application.*

To make the best decision possible for the State of Ohio, it is important that AEP present to you a complete and accurate analysis of the land use and socio and economic impacts of its proposed transmission line project.

Agriculture

With regard to agriculture, Section 4905-15-06 calls for not only providing the socioeconomic impact of the proposed facility on the farms, it also requires including the acreage impacted and the applicant's *evaluation* of impacts to cultivated land, permanent pasture land, etc". *This was not done.*

There was no summary of the total acreage impacted, no evaluation of the impacts of the 138 kV or 69 kV lines on farm uses, and no analysis of the economic impact on the targeted farm properties. How one or more transmission or distribution lines are sited can effectively render a productive field useless and valueless. *The economic impact to agricultural land is an important and missing part of the application.*

Appendix 6 of the application includes an email related to agricultural district land but does not indicate if this information is even used in the route selection process.

Misleading Information

AEP's application includes an analysis in which they, not an independent party, establish the factors and associated weights that drive the outcome of the study – a ***fox in the henhouse effect***.

Per AEP, the Route Selection Study is designed to meet regulatory standards and to identify the route alternatives that present the minimal adverse environmental and social impacts from the Projects, taking into account the relevant and measurable factors such as wetlands, residences, archeological sites, and several other features within certain distances from the project.

The weights AEP placed on the ecological, land use, cultural, and engineering attributes emphasize the existence/count of these factors, but not their impact. For example, AEP states there is no construction or long term impact to the ecological features it uses in its quantitative analysis. Nevertheless, these factors often score higher than the number of homes, schools, businesses, and farms and cultural treasures permanently impacted by the transmission lines.

Is one road to be spanned equal to the effect on one house, one school, or one cultural site within 100 or 1,000 feet of the transmission line? No, the long term impact on these factors is what is important. **The effect of AEP's selection of weights is to skew the results toward what is easiest and most cost effective for AEP to build.**

The analysis also tries to show that rebuilding or paralleling existing transmission lines and/or existing roads or railroads would be *significantly worse* for agriculture than siting a line across the middle of a productive field. This doesn't make sense.

Unioto Schools

AEP's application notes that the Biers Run-Hopetown-Delano 138 kV Project is "proposed in locations that would not place them in close proximity to existing residential area and, therefore, **will not significantly increase EMF exposure of the public.**" This indicates that AEP has concern about EMF exposure.

The application also notes it is "avoiding Union Scioto Schools", yet **all three Unioto schools are less than 1,000 feet from AEP's preferred "Blue Route"** (see attachment I), along with 227+ homes.

Studies on the effects of HVTLs have variously resulted in there being harmful effects from their presence to suggesting no potentially harmful effects. **Given the number of people impacted by the "Blue Route", it is in the best interest of AEP and the Power Siting Board to err on the side of caution and choose another route.**

Hopewell Site

AEP's application suggests that "major known cultural resource areas were avoided during the selection of the candidate segments." However, AEP's "Blue Route" is slated to go right through Anderson Works, a unstudied Hopewell Indian earthworks. AEP shifted the "Blue Route' to the south in an attempt to avoid the earthworks, but did so based on assumption rather than study. Their new siting of the line is *even more detrimental* to the earthworks (and our farm) than the original siting was.

An archaeologist has advised that "since next to nothing is known about this site except for generally where the embankment walls are located, and given that most other earthworks are surrounded by ancillary features within and outside the enclosures but on the same landforms, it should assumed that the terrace surrounding the Anderson Works might also contain such ancillary features (burials, public buildings, post circles, ceremonial burning features, pits for communal cooking, etc.). Therefore, to adequately protect the earthworks, the landform should be avoided entirely."

AEP is willing to rely on a limited number of shovel tests to determine the presence of artifacts. As a result, I have had to personally commission additional archaeological studies in an effort to ensure this site is adequately understood and protected.

With the National Park Service seeking World Heritage designation of its sister sites, it is important that Anderson Works be protected. The only way to do that is further study to understand the true nature of this large Hopewell site is to avoid it in siting the 138 kV and 69 kV lines.

Other

AEP's application states the "Preferred Route has fewer difficult construction spots...and reduces overall impacts to wetlands, streams, and cultural resources." This is not accurate.

Per the attached matrix comparing and contrasting the routes, **the route with the *least* overall impact is the route through the Pleasant Valley Wildlife Area. The route with the *greatest* overall impact is the "Blue Route" – *the opposite of AEP's assertion***.

Need for Better Oversight/Coordinated Approach

It has become apparent, with multiple power companies operating in the same areas, there is a need for better oversight, planning and coordination, much like establishing zoning laws.

AEP, even after surveying our property, was unaware of a South Central Power line already in the field they were targeting for the 138kV line *and* the associated 69 kV line. When asked about it, AEP's engineer and siting staff indicated they don't deal with lower voltage lines. Hence it doesn't show up in the maps presented to the Power Siting Board for decisions.

Knowing where all power lines are located is important – it eliminates "over population" of lines in an area. With one of our fields, the combination of the 138kV line with its 100 foot right-or-way ***plus*** the 69kV line with its 50 foot right-of-way ***plus*** SCP's smaller distribution line with its unknown right-of-way, each with their own poles and differing distance between poles, ***effectively renders this field useless*** - it can't be farmed, it can't be sold for development. *This type of situation too is not reflected in AEP's application or analysis of land use or economic impacts.*

Since farm land is only as valuable as its ability to yield good crops, rural property values suffer *in perpetuity* from the limitations and presence of power lines and farmers lose financially in perpetuity from the reduction in amount of crop. *This is not reflected in AEP's socioeconomic analysis.*

AEP's staff has told us that they're "just renting" our farm, that the poles have no long term impact - that we can "just farm around them" or "change the direction we plow". Anyone who knows farming knows those comments demonstrate a significant lack of understanding.

Should the "Blue Route" be approved, coupled with the new associated 69kV line, there will be only a few of our many fields left that remain unaffected by power lines. ***The "Blue Route" 138 kV and 69kV lines will impact 8 or more additional fields on our farm.*** *The impact is significant and not reflected in AEP's analysis.*

The "undeveloped land" that AEP has targeted is really land cleared, developed and nurtured over many, many years (in our case 6 generations) for a specific and valuable purpose - food production. ***Our farm is one of Ohio's food factories*** -part

of Ohio's largest industry, an industry that contributes $107 billion to the state's economy. ***No farms, no food.***

Ohio is blessed with prime farmland soils that are the envy of the world. Ohio is one of only five states consisting of nearly 50% prime farmland. Yet:

- Between 1950 and 2000, Ohio lost more than 6.9 million acres of farmland, representing nearly one-fourth of Ohio's land. This translates to an area roughly equivalent to 23 Ohio counties.
- In 2004, an average of 394 acres of farmland disappeared every day in Ohio.[1]
- *Ohio has lost more high-quality acres of farmland than any other state than Texas. It is losing farmland at a much faster rate than other states.*
- Ohio ranks second in the nation for prime agricultural land converted to developed land but only 31st in the nation for population growth.[2]

At the national level, America loses two acres of farmland *every minute* - this is 3,000 acres per day gone forever. From 1992-1997, more than six million acres of agricultural land was converted to developed uses – an area the size of Maryland.

An acre here and an acre there quickly adds up. Once taken, farmland never returns.

Farmland also means much more than food. Well-managed farmland shelters wildlife, supplies scenic open space, and helps filter impurities from our air and water. It makes no sense to develop our best farmland. Instead, we have a responsibility to protect this most valuable resource for future generations.

It is time for AEP and the Ohio Power Siting Board to recognize that farmland isn't "undeveloped land". Time for you to become "green" and identify ways to grow and bolster the electric transmission system in a manner that is more efficient and less land intensive. If the State of Ohio really values its largest economic driver, agriculture, then **you have a responsibility to work to protect it, instead taking more and more land to plant poles**.

Conclusion

To determine the best route in the eyes of the people of Ohio, the Power Siting Board must ensure that AEP's analysis, approach, and application meet not only the letter of the law but the spirit as well. The law was established to ensure that the best, least impactful route, from a land use, cultural, economic, and ecological standpoint be identified.

There are a number of factors why AEP's application should be deemed incomplete and sent back for completion of appropriate study and analyses:

- AEP, without appropriate consideration, accepted ODNR's opposition to the line and refusal to work with them and file the appropriate applications. Its

[1] Western Reserve Land Conservancy
[2] 7-22-2013 Ohio Department of Agriculture Fact Sheet

unclear whether ODNR's decision was unilateral or considered the best interests of the people of the State of Ohio. Are they legally able to simply refuse to consider it?

- Inadequate analysis of route alternatives, especially those that would truly limit the impact on Ohio's land use, cultural sites, environment and economy.
- The preferred "Blue Route" has demonstrably greater impact than the routes through the Pleasant Valley Wildlife Area or the alternate "Red Route".
- The study design is biased in favor of AEP and not the factors identified in 4905-15-06.
- The application is missing key socio and economic impact analysis specified by 4905-15-06.

Due to the issues with AEP's application identified herein, the Power Siting Board should not certify AEP's application for the Biers Run-Hopetown-Delano 138 KV Transmission Line Project and should instead demand that AEP come back with full and complete studies including *all* possible routes - including the one through the Pleasant Valley hunting area - the economic impacts on all land uses, and ensure the analysis is objective –rather than subjective - and clearly represents the best interests of the people of Ohio.

Respectfully,

Brenda L. Johnson

CC:

Ohio Power Siting Board
Attn: Kim Wissman, Executive Director
180 East Broad St.
Columbus, OH 43215-3793

American Electric Power
Attn: Shawn Malone, AEP Transmission Project Manager
700 Morrison Road
Gahanna, OH 43220

Ohio Department of Agriculture
Attn: Mr. David T. Daniels
8995 E. Main St.
Reynoldsburg, OH 43068

Mr. Bob Peterson, State Senator for Senate District 17
Senate Building
1 Capitol Square, Ground Floor
Columbus, Ohio 43215

Mr. Cliff Rosenberger, State Representative for District 91
77 S. High Street, 13th Floor
Columbus, OH 43215

Mr. Gary Scherer, State Representative for District 92
77 S. High Street, 13th Floor
Columbus, OH 43215

Mr. Jim Caldwell, President, Ross County Commissioner
306 Fairway Ave.
Chillicothe, OH 45601

Mr., Steve Neal, Ross County Commissioner
72 Sharon Road
Chillicothe, OH 45601

Mr. Doug Corcoran, Vice President, Ross County Commissioner
271 Granite Cliff Drive
Chillicothe, OH 45601

Mr. Donald W. Arledge, Union Township Trustee
210 Yellowbud Road
Chillicothe, OH 45601

Mr. Robert L. Whitten, Union Township Trustee
144 Andersonville Rd.
Chillicothe, OH 45601

Mr. Harold W. Bennett, Union Township Trustee
379 Shiloh Rd.
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Superior, WI 54880

Pudge Campbell
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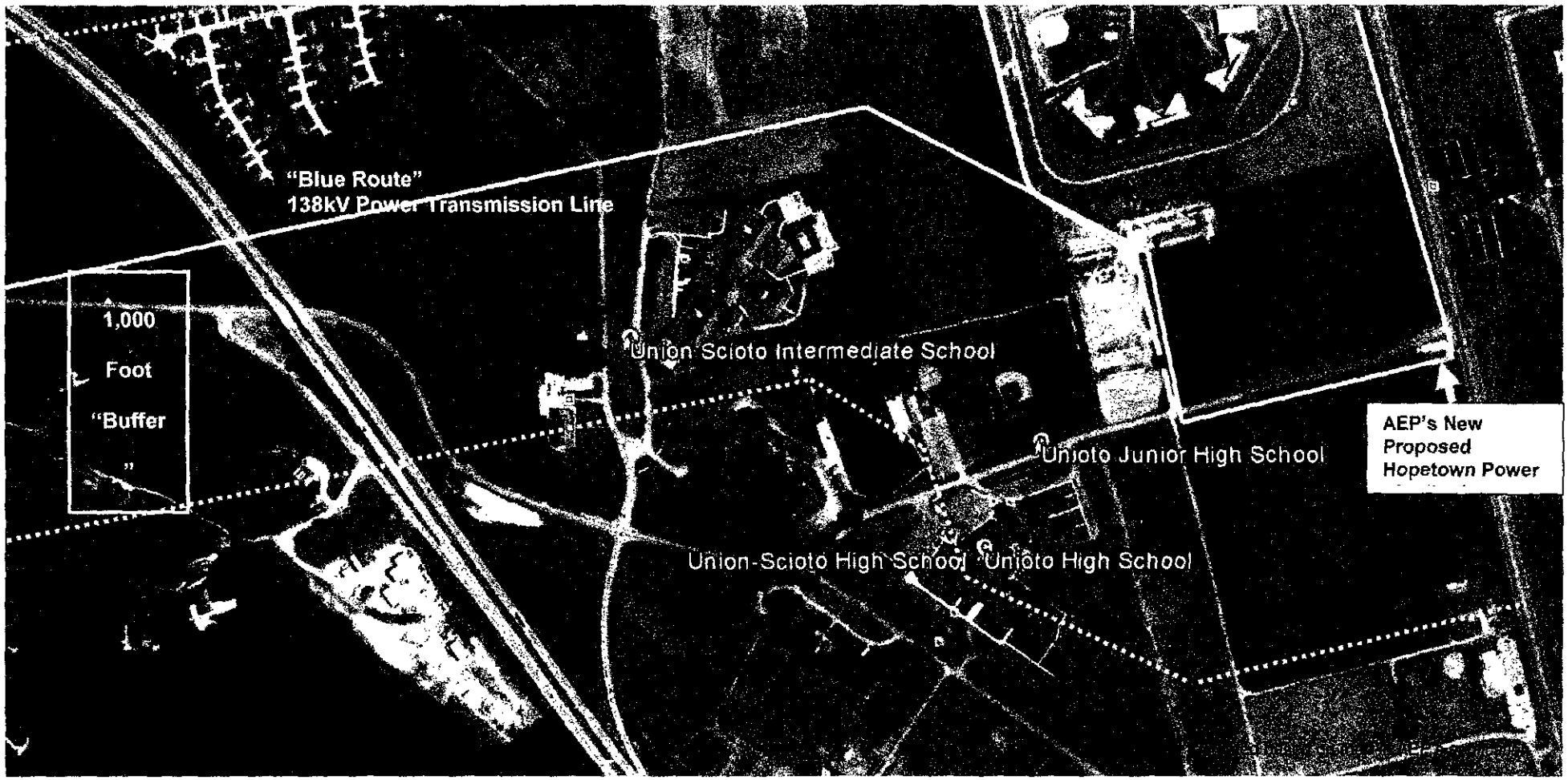
Exhibit I


"Blue Route"
138kV Power Transmission Line
1,000
Foot
"Buffer
"
Union Scioto Intermediate School
Unioto Junior High School
AEP's New
Proposed
Hopetown Power
Union-Scioto High School
Unioto High School

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

According to 4905-15-03 "***The study shall be designed to evaluate all practicable sites, routes, and route segments for the proposed facility*** identified within the project area. AEP's application notes the "***the goal of the Route Selection Study was to identify viable routes*** where structures could be physically located, while avoiding or limiting impacts to sensitive land uses, ecological, and cultural features in the project vicinity."

AEP and URS identified potential route corridors. A preliminary corridor was relatively direct from Biers Run Station east toward Delano Station. Approximately 2.2 miles of this corridor crosses the Ohio Department of Natural Resources' (ODNR) Pleasant Valley Wildlife Area, a public hunting ground. ODNR noted their opposition to the transmission line and refused to apply for the applications needed for approval of the line. It should be noted that alternative routes studied passed through other nature centers. As a result of ODNR's refusal to consider allowing the line to cross taxpayer property, AEP looked to alternative routes that excluded Nature Center property and did not study it further.

Given the requirements of 4905-15-03, and that AEP still feels the route through the Pleasant Valley Nature Center is the most direct route, it is only appropriate to reflect all the routes in the attached comparison of the routes. The information in this matrix is primarily drawn from AEP's application.

"It is desirable to maximize certain criteria along a given route (e.g. paralleling existing corridors). These criteria are known as opportunities. Undesirable criteria, such as wetlands, historic properties, etc. are termed constraints and the study seeks to avoid/minimize their proximity to the project. Therefore the ***goal of routing is to maximize attributes while minimizing constraints.***"[1] The criteria considered in the Route Selection Study are **bolded** in the matrix.

"In addition to the ecological, land use, cultural, and engineering attributes and constraints, several qualitative factors were considered. These issues include construction and maintenance access, schedule, and likely right-of-way availability along the routes." The weight placed on the qualitative factors is not specified. Their effect, however, is to further skew the process toward what's easiest and most cost effective for AEP to build without consideration of other important socioeconomic factors.

Note – the weights placed on the ecological, land use, cultural, and engineering attributes emphasize the existence of a criteria ***not*** the impact on the factor. For example, the number of streams to be crossed is a factor even though there no permanent impact. For the number of houses and schools within 1000 feet, and farms, the impact ***is*** significant and permanent. Yet there is no difference in the weighting of the factors to reflect this.

Criteria **highlighted in red** show where there is an appreciable negative difference between the preferred and alternate routes. Criteria **highlighted in green** reflect where there is clearly an advantage presented by one route.

[1] AEP's Biers Run-Hopetown-Delano Transmission Line Project, January 2014

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

	Blue Route AEP Preferred	Red Route AEP Alternate	**Most Direct Route Through Wildlife Area**	**Comments**
Total Route Scores	29.22	29.36	Not Scored	The Blue Route score is depressed by the weight AEP placed on ecological factors such as woodlots to be cleared and streams to be spanned. Using their ecological features, AEP's study is biased in favor of targeting farmland and also raises a bias against other land uses and cultural factors. They also placed equal weight on long term impacts and *potential* construction impacts which they note are not significant.
Estimated Capital Cost	$16,630,102	$16,331,502	Not Costed	Note: The financial analysis only reflects AEP's cost. There is no analysis of financial or economic impacts to the land uses impacted by the transmission line.
Length (miles)	12.8	12.7	7.5 Estimated based on AEP maps	The application notes that approximately 2.2 miles of the most direct route would cross the Pleasant Valley Nature Center.
% of Length in or Adjacent to Existing Road Rights-of-Way	31%	31%	Not Determined	
% of Length in or Adjacent to Existing Transmission Line Rights-of-Way	21%	17%	Not Determined	
Land Use (40%) Note: Land Use does not contemplate agricultural impacts. This study views productive, high value farm land as simply "undeveloped" land. It places greater value on woodlots and wetlands.				
# of Homes within 1,000 feet	Approx. 227	77	**Not Studied.** **Estimated to be less than the Red Route since 30% of the route would be through public hunting grounds.**	P.6-19, 4906-15-06 Socioeconomic and Land Use Impact Analysis, (E) Health and Safety: "Transmission lines associated with Biers Run-Hopetown-Delano 138kV Project are proposed in locations that would not place them in close proximity to existing residential areas and, therefore, will not significantly increase EMF exposure of the public." P. 06-21 "AEP has limited the potential aesthetic impacts of the transmission line to the extent possible through the route selection process..." ***What is AEP's definition of public?***

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

	Blue Route AEP Preferred	Red Route AEP Alternate	**Most Direct Route Through Wildlife Area**	**Comments**
Approx. # of people living within 1,000 feet	680	231	**Not Determined. Estimated to be significantly less than Blue and Red Routes.**	This was approximated using U.S. Census data for Ross County.
# of Homes within 100 feet	3	1	Not Determined	
Median value of houses impacted	$30,418,000	$10,318,000	Not Determined	Median value of houses in Ross County: $134,000. **Note:** The ***value is understated*** as it is based on the median and does not include the actual value of all real estate impacted.
Financial impacts of a reduction in housing value due to the line: -10% -30%	($3,041,800) ($9,125,400)	($1,031,800) ($3,095,400)	Not Determined	Section 4905-15-06 calls for AEP to provide the socioeconomic impact of the proposed facility on each land use. Per Merriam-Webster, socioeconomic is defined as "relating to, or involving a combination of social and economic factors". No economic factors or impact were included in AEP's application.
% of Route Along Centerline of Existing Line to be Rebuilt	???	???	???	This is a construction factor and is unrelated to land use.
# of Schools within 1,000 feet	3 Unioto High, Intermediate, and Primary Schools, plus football and baseball fields.	0	0	P. 7 "**...crosses property developed with Union-Scioto schools...**" P.6-19, 4906-15-06 Socioeconomic and Land Use Impact Analysis, (E) Health and Safety: "Transmission lines...are proposed in locations that would not place them in close proximity to existing residential areas and, therefore, will not significantly increase EMF exposure of the public." ***What is AEP's definition of public and close proximity?***
# of students and staff within 1,000 feet	>2,600	0	0	
# Schools within 100 feet	0	0	0	
# of Churches within 1,000 feet	1	1	Not Determined	
# of Churches within 100 feet	0	0	Not Determined	
# of Commercial Facilities within 1,000	<10	<10	Not Determined	These businesses include gas stations, auto repair facilities, a paint shop, a boarding kennel, and a warehouse.
% of Route Crossing Ag Fields (Per AEP)	55%	53%	**Not Determined. Estimated to be less than the Blue and Red Routes.**	**This factor isn't included in the quantitative land use routing comparison. It is misleading given it only represents miles of route crossing crop fields.**

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

	Blue Route AEP Preferred	*Red Route* AEP Alternate	**Most Direct Route Through Wildlife Area**	**Comments**
Miles of Route Crossing Agricultural Fields	7.0	6.7	**Not Determined. Estimated to be less than the Blue and Red Routes.**	Section 4905-15-06 calls for AEP to provide the socioeconomic impact of the proposed facility on each land use. As it relates to agricultural land, the description shall include the acreage impacted and the applicant's evaluation of impacts to cultivated land, permanent pasture land, etc. ***This was not done***. AEP considers farmland "undeveloped" land. There is no evaluation regarding the number of farm acres permanently removed from production, the economic value of these acres or the crop farmers will no longer get, etc.
Miles of Route Crossing Pasture and Hayfields	**1.3**	**0.6**	**Not Determined. Estimated to be less than the Blue and Red Routes.**	
Miles of Route Crossing Old Field	1.0	1.1	Not determined.	
% of Route Crossing Agricultural Land	**73%**	**66%**	**Not Determined. Estimated to be less than the Blue and Red Routes.**	This factor isn't included in the quantitative land use routing comparison.
# Farm Acres Impacted	???	???	???	Section 4905-15-06 calls for AEP to provide the socioeconomic impact of the proposed facility on each land use. As it relates to agricultural land, the description shall include the acreage impacted and the applicant's evaluation of impacts to cultivated land, permanent pasture land, etc. ***There is no total of farm acres impacted in AEP's application***. This statistic only contemplates the rights-of-way and doesn't contemplate additional acres that will be impacted because of line placement, fields now too small to be farmed, etc. **Note:** This also does not reflect the *additional* fields impacted by the associated 69 kV line.

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

	Blue Route AEP Preferred	Red Route AEP Alternate	**Most Direct Route Through Wildlife Area**	**Comments**
# of Farms Impacted	???	???	**Not Determined. Estimated to be less than *Blue or Red Routes.***	Section 4906-15-06 Socioeconomic and land use impact analysis: the "applicant shall estimate the probable impact of the *proposed facility on each land use (including: ...(b) field* operations [such as plowing, planting, cultivating, spraying, and harvesting], irrigations, and field drainage systems)." ***This was not done.*** There is no analysis of the number of farms impacted or the financial impact on the farms of the proposed transmission line. **Note:** This does not reflect the ***additional*** fields impacted by the associated 69 kV line.
# of Farm Fields impacted	Approximately 30+ estimated from maps	???	**Not Determined. Estimated to be less than Blue or Red Routes.**	**Note: *This does not reflect the additional fields impacted by the associated 69 kV line.***
Other Sensitive Land Uses within 1000 Feet	8	4	**Not Determined. Estimated to be less than the Blue or Red Routes.**	Includes airports, parks, state forests, golf courses, schools, hospitals, churches, and cemeteries.
Other Sensitive Land Uses within 100 Feet	1	1	**Not Determined. Estimated to be less than the Blue or Red Routes.**	
Cultural (10%)				
# of Previously recorded archaeological sites within 1,000 feet	100	103	**Not Determined. Estimated to be less than the Blue and Red Routes.**	AEP has made ***assumptions*** about the location and nature of Anderson Works, a unstudied earthworks that lies in close proximity to the National Park Service's Hopewell earthworks.
# if Previously recorded archaeological sites within 100 feet	16	17	**Not Determined. Estimated to be less than the Blue and Red Routes.**	Same as above.
# of National Register of Historic Places within 1000 feet	4	4	Not Determined	
# of National Register of Historic Places within 100 feet	0	0	Not Determined	
# of Historic Structures (OHI) structures within 1,000 feet	12	14	Not Determined	

Biers Run- Hopetown – Delano Transmission Project Application
Summary of Qualitative and Quantitative Factors

	Blue Route AEP Preferred	Red Route AEP Alternate	**Most Direct Route Through Wildlife Area**	**Comments**
# of Ohio Historic Inventory (OHI) structures within 100 feet	1	1	Not Determined	
Cemeteries within 100 feet	???	???	???	
Ecological (40%) This category counts existence of factors like woodlots, streams, and wetlands. In the case of streams and wetlands, AEP notes there will be minimal construction impact and no permanent impact to these ecological features, unlike houses and farms where the impact will be significant and perpetual.				
# acres of woodlot to be cleared	12	23	Estimated to be more than Blue or Red Route.	AEP's application states the impacts to ecological features are reduced along the Blue Route compared to the Red Route. This statement is misleading in that it is only true of acres of woodlot to be cut, a cost factor for AEP.
# of wetlands crossings	5	???	Not Determined	
Acreage of wetlands crossed	0.48	0.61	Not Determined	Per application: "Construction impacts to streams and wetlands along the Preferred Route and Alternate Route ***will be minimal*** as the transmission line will span most of these sensitive areas." "Wetland areas should not be significantly affected by the operation or maintenance of the Preferred and Alternate Routes.
# Stream crossings	20	30	Not Determined	Per application: "Construction impacts to streams and wetlands along the Preferred Route and Alternate Route ***will be minimal*** as the transmission line will span most of these sensitive areas."
Threatened and Endangered Species	0	0	**Estimated to be the same as Blue and Red Routes.**	
Engineering (10%)				
Number of Public Road Crossings	Not Specified	Not Specified	**Estimated to be less than Blue or Red Routes.**	
% of Route Closely Paralleling Existing Linear Features	Not Specified	Not Specified	Not Determined.	Includes, roads, railroads, electric transmission lines, and pipelines.
Turn Angles Greater than 20 Degrees	Not Specified	Not Specified	**Estimated to be less than Blue or Red Routes.**	
Length of Route(miles)	12.8	12.7	**7.5 Estimated using AEP maps**	Greater length translates into greater identified and unidentified impacts on affected properties, people, etc.