

**PUBLIC SERVICE COMMISSION
OF WEST VIRGINIA
CHARLESTON**

CASE NO. 07-0508-E-CN

**TRANS-ALLEGHENY INTERSTATE
LINE COMPANY**

Application of Trans-Allegheny Interstate Line Company for a certificate of public convenience and necessity under W. Va. Code § 24-2-11a authorizing the construction and operation of the West Virginia segments of a 500kV electric transmission line and related facilities in Monongalia, Preston, Tucker, Grant, Hardy, and Hampshire Counties, and for related relief

DIRECT AND REBUTTAL TESTIMONY OF Dr. James Kotcon, Ph. D.

Q. Please state your name and address?

R. Dr. James Kotcon, 414 Tyrone Avery Road, Morgantown, WV, 26508

Q. What is your occupation?

R. I am an Associate Professor of Plant and Soil Sciences at West Virginia University.

Q. Are you familiar with the proposed Trans-Allegheny Interstate Line proposed for northern West Virginia?

R. Yes.

Q. Please describe your educational background and work experience that qualifies you to comment on this project?

R. I received a Ph. D. degree from the University of Wisconsin in Plant Pathology in 1983 and did post-graduate research with Cornell University for 2 years. I have been at WVU since 1985. My teaching responsibilities include a course on Environmental Impact Assessment which covers material on air quality, water quality, and multi-disciplinary environmental impact assessment. I have also served on various committees with WV-DEP and other state agencies related to drafting of legislation or rules on a range of environmental topics including ground water protection, pesticides, waste management, air quality, and risk assessment and remediation of hazardous waste sites. I have conducted research on potential for herbicide impacts from application associated with transmission line corridors for American Electric Power, as well as other pesticide research in agricultural applications. The primary focus of this research was to evaluate the potential for ground water contamination and impacts to nontarget organisms. My resume is attached.

Q. Please describe your background in environmental impact assessment.

R. Much of my research has focussed on environmental impact assessment in a range of agricultural settings, specifically on pesticide impact assessment. I have taught a multi-disciplinary course in environmental impact assessment since 1993. This course is now a required course for students majoring in environmental protection and integrates a range of scientific disciplines. I have also provided professional consulting on a range of subjects including pollution prevention, ecological risk assessment, and aerial dispersal of pesticides. I also am called on frequently to provide advice to local citizens and non-profit groups on various environmental issues, including air and water contamination, environmental permit analyses, and other technical and policy topics.

Q. Have you testified previously before the West Virginia Public Service Commission?

R. Yes, I provided testimony on environmental impacts and energy policy during the PSC's General Investigation into Utility Deregulation (1997-1999). I also provided testimony on the Application for a Certificate of Siting Approval for the Longview Power plant (Case No. 03-1860-E-CS-CN).

Q. Please describe the purpose of your testimony?

R. I will present information related to the environmental impacts of the proposed line, focusing on both direct and indirect impacts of the proposed transmission line. In addition, I will rebut the testimony submitted by TrAILCo in their Application, the Line Route Evaluation Study, TrAILCo witnesses Jack Halpern, Alan Fleissner, and the Grafton Area Route Evaluation Study.

Q. What are the primary environmental impacts associated with the proposed transmission line?

R. Environmental impacts from the line will be both direct and indirect. Adverse direct impacts from the proposed transmission line include, but are not limited to:

- ◆ permanent compromise of an extended swath of virgin land across the state
- ◆ loss of use of private property along the path of the line,
- ◆ noise and disturbance during construction,
- ◆ aesthetic impacts and loss of scenic values forever,
- ◆ water quality impacts from herbicides used to maintain the line right-of-way,
- ◆ electrical interference with appliances near the line,
- ◆ loss of wildlife habitat and threat to biodiversity.

Indirect adverse effects of the line will stem from increased sales of power, including:

- ◆ increased coal mining, mine subsidence, acid mine drainage, or mountaintop removal,
- ◆ increased air pollution, including sulfur dioxide, nitrogen oxides, ozone, mercury and particulate pollution, especially as power from old dirty coal plants displaces cleaner natural gas plants,
- ◆ increased emissions of greenhouse gases for the life of the line (30-50 years+).

Q. Are these environmental impacts regulated by other agencies?

R. The direct impacts of the line are not regulated by any other West Virginia agencies, with limited exceptions for herbicide impacts and certain wildlife habitat impacts. Herbicide application

is regulated by the West Virginia Department of Agriculture which has adopted regulations regarding aerial applications to transmission lines, as well as regulations for pesticide applicators. However, monitoring, inspections, and enforcement are very limited, and usually occur only after a complaint. The wildlife habitat impacts are regulated by the West Virginia Division of Natural Resources and the US Fish and Wildlife Service. Again, this regulation is very limited and focuses primarily on listed Threatened or Endangered species, and impacts to migratory birds. Broader issues with these topics, as well as impacts due to noise, visual impacts, electronic interference, or loss of land use are issues that will be regulated, if at all, by the PSC.

Indirect impacts from increases in coal mining, air pollutant emissions, or greenhouse gas emissions are not generally considered. While power plants may have an air pollution permit, the emissions limits generally will not limit the total pollutant emissions. For example, under the Acid Rain Program of the Clean Air Act, emissions of sulfur dioxide are capped for each power plant, however, any plant may exceed those limits simply by purchasing emissions allowances on the open market. Similarly, there is currently no overall limit on the amount of mining permitted, nor on the emission of greenhouse gases.

Q. Are greenhouse gas emissions regulated as a pollutant?

R. Not currently. However, several bills have been introduced in the U. S. Congress to limit these emissions. Reporting of carbon dioxide emissions from power plants is already required under the Clean Air Act Amendments of 1990. In addition, the US Supreme Court in June 2007 issued a ruling that requires the EPA to regulate greenhouse gases as pollutants under the Clean Air Act.

Thus it seems inevitable that these emissions will be regulated in the near future, creating a significant additional cost for power generators using coal. Since a primary purpose of the line is to provide increased capacity for transmission of electricity from coal-fired power plants, significantly increased costs for electricity from these plants suggests that there may be less demand for the line than investors might predict from current trends. Nevertheless, while there is no law against foolish investments, it is clear that investors are expecting that the ratepayers, not the stockholders, to cover all costs of the line. State law does require the PSC to balance all available information to assure that the proposed transmission line is “in the public interest”. The combination of the financial risks from regulation of greenhouse gas emissions and the lack of accountability by TrAILCo stockholders suggest that the TrAILCo line, as currently proposed, does not meet that standard.

Q. What impact will greenhouse gases have on the surrounding areas?

R. No credible scientist is currently able to precisely predict future climate on a scale as small as one city or county or even several counties, however EPA has made assessments of the impacts likely to occur regionally for the areas including West Virginia. These include a higher frequency of heat waves with increased incidence of heat-related mortality, increased concentrations of ground level ozone with the commensurate adverse effects of this pollutant, an increase in incidence of certain infectious diseases, and an increased frequency of extreme weather events such as droughts, floods, and severe storms. These will have direct annual costs to local residents and businesses, for example, insurance will become more expensive or harder to obtain.

Q. What adverse impacts are associated with sulfur dioxide?

R. Sulfur dioxide is created when the sulfur in coal is burned and combines with oxygen. It is directly toxic to plant and animal life. Sulfur dioxide is known to exacerbate both heart disease and

respiratory ailments in humans. Medical science does not yet allow us to assign air pollution as a direct cause of death to specific individuals. However, the epidemiological evidence is overwhelming, if air pollution levels increase, more people will die.

In plants, sulfur dioxide interferes with photosynthesis and causes chlorosis and necrosis of leaf tissue, leading to dead spots on foliage, reduced crop yields, reduced timber stands in forests, and increased susceptibility to a wide variety of microbial pathogens. It is well established that crop plants are affected at levels below those that cause human health impacts, and that pollutant levels are already high in West Virginia, so any increase in emissions will adversely affect local farmers and the timber industry.

In addition, sulfur dioxide reacts with water in the air to produce sulfuric acids, the major cause of acid rain. Acidic deposition leaches plant nutrients from soil and the effect is already so severe that the U. S. Forest Service this year proposes to alter timber harvests and take other steps to manage nutrient depletion in forest soils on the Monongahela National Forest. Preliminary estimates indicate that as much as 40 % of the Monongahela National Forest may have soils at high risk for nutrient depletion from acid deposition, and it is reasonable to expect that a significant proportion of privately-owned forest land has similar susceptibility.

Sulfur acids also other affect air-quality related values that have economic impacts to West Virginia. Sulfuric acid creates haze that reduces visibility in important tourist attractions. Acid deposition already affects many native West Virginia trout streams so severely that trout populations can no longer survive. Acidity also leads to deterioration of paint and metal structures by causing increased corrosion and weathering. This creates expenses through increased maintenance costs and shorter life of products ranging from automobiles to bridges to concrete buildings.

Q. What adverse impacts are associated with nitrogen oxides and VOCs?

R. These pollutants combine in sunlight to form ozone, known more commonly as “smog”. Ozone causes adverse effects to both human health and plants. Health impacts include aggravation of asthma and other respiratory diseases. Agricultural crops and forest trees are also adversely affected. The Southern Appalachian Mountains Initiative estimated in their 2002 Final Report that losses to forest tree basal area ranged from 3 to 22 % depending on timber species. While this may seem to be a small impact, the adverse effect occurs over a multi-state area and has a large cumulative impact on the timber industry.

Q. What adverse effects are associated with Particulate pollution?

R. Particulate matter is regulated based on the size of the particles, with the smaller particles being of increasingly greater health concern because they are inhaled more deeply into the lungs. Particulate pollution has been associated with increased respiratory disease and death, especially among vulnerable populations such as children, the elderly, and those with lung disease.

Q. Does West Virginia meet current EPA health standards for these air pollutants?

R. The areas traversed by the proposed line are currently in attainment for the current standards. However, some areas of the state, including the northern Panhandle, the Eastern Panhandle, and the Huntington,/Charleston/Parkersburg region are currently not in attainment of the fine particulate standards, and Berkeley and Jefferson Counties are not in attainment of the ozone standard. Significant investments will be required to reduce existing emissions in these areas. In

addition, EPA is proposing to significantly tighten the standards for ozone and fine particulate matter. This means that it will be even more difficult for those nonattainment areas to come into compliance, and areas that are currently in compliance, such as those counties crossed by the proposed line, may be declared as nonattainment areas as well. In addition to the adverse economic impacts associated with the nonattainment status, the adverse health effects described above become more common and more severe.

Q. Will the increases in emissions of these air pollutants produce health effects in West Virginia?

R. As pollution emissions increase, more people die. A study by Abt Associates (“Power Plant Emissions: Particulate Matter-Related Health Damages and the Benefits of Alternative Emission Reduction Scenarios” (June 2004), available at:

http://www.cleartheair.org/dirtypower/docs/abt_powerplant_whitepaper.pdf) documents the adverse health impacts from power plant pollution. Using these estimates, the effects of this pollution were estimated for individual states ([Dirty Air, Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants](#). Ledford, 2004, available at:

<http://www.cleartheair.org/dirtypower/docs/dirtyAir.pdf>). The report shows that West Virginia leads the nation in per capita deaths from power plant pollution. The study calculates that 399 West Virginians die from power plant pollution each year. Under pollution reductions triggered by the EPA’s Clear Skies proposal, mortality would be reduced by about 40 %. It is not possible to calculate precisely how large the impacts will be because TrAILCo has not estimated the increased capacity factors induced by construction of the line (TrAILCo’s Response to Sierra Club’s Fourth Discovery Request). But if emissions increase due to increased plant operations, those mortality rates will inevitably head back up. More people will die.

Q. What are the adverse effects associated with mercury emissions?

R. Mercury is emitted in several forms from the smokestacks, and tends to deposit locally nearest the source. Unlike other gaseous pollutants, a higher proportion of the mercury is likely to deposit in counties surrounding the source. It deposits as either particles or is washed out in rain, and accumulates in streams, rivers and lakes. Here, it is metabolized by various organisms and enters the food chain. Because mercury is often in fat-soluble forms, it tends to accumulate and magnify as it moves up the food chain. Thus meat and dairy products and especially fish tend to be the major sources of exposure in humans.

Once in the body, mercury accumulates in tissues. Young children and developing babies in pregnant women are especially vulnerable. Mercury causes developmental problems in children and infants, leading to behavioral problems, delayed development, and reduced mental ability. The EPA recently estimated that approximately one in six women of child-bearing age already contain levels of mercury that could cause health problems for their children.

Because of these impacts, fish consumption advisories have been established to limit consumption of fish from contaminated streams in West Virginia.

Q. What other adverse effects will occur from pollution emissions?

R. Air emissions of other heavy metals such as selenium, beryllium and arsenic will increase, with corresponding health effects. Emissions of acid gases such as sulfuric acid and hydrochloric acid will also increase the concentrations of these hazardous materials in the area.

Q. Are other environmental impacts likely to occur?

R. Yes. Noise impacts during construction will be significant to local residents. Because much of the line crosses rural farmland and residential communities, noise will be a significant disruption. In general, noise impacts are most disruptive in the most sensitive locations. These include churches, schools, hospitals, and of course, residential neighborhoods. The impact is generally greatest during sleeping hours, or in summer when people prefer to enjoy good weather by spending time outdoors. Many of the sounds, such as the “backing” safety alarms on trucks and construction vehicles are specifically designed to be intermittent and get the attention of humans and thus are especially disruptive. So it is unlikely anyone could become accustomed to these sounds, even after long periods of exposure.

Once constructed, transmission lines routinely produce a power “hum” sound. While this is a persistent annoyance that degrades the enjoyment of the outdoors, some local residents may be able to acclimate to this after a period of time. The noise levels predicted (Direct Testimony of Gary Johnson, March 30, 2007, page 17) during foul weather (58 dBA) are sufficient to significantly interfere with the use and enjoyment of property. Because these noises vary over time and with weather conditions, it is more difficult to acclimate to those noises. Furthermore, some individuals may remain sensitive, and people visiting the area are likely to be affected. Some people are highly disturbed by such sounds, and will avoid approaching or crossing near a line, thereby reducing the use and enjoyment of property. This is of particular concern when the line crosses recreational lands, and interferes with activities such as hiking, camping, or other outdoor recreation.

Visual impacts will also be pronounced. Because of the height of the towers, aircraft warning lights may be required. Again, these are specifically designed to be intrusive. The towers and the line itself are likely to have an adverse effect on people visiting pristine tourism sites. These sites were set aside specifically because of the natural view, and such an extensive human artifact will greatly degrade their scenic value.

Rebuttal To TrAILCo’s Direct Testimony

I. Application

Q. Have you reviewed the Application submitted by the Trans-Allegheny Interstate Line Company (TrAILCo) on March 30, 2007?

R. Yes.

Q. Please describe your conclusions with regard to the environmental analysis in the Application submitted by TrAILCo.

R. The Application (Application, page 6) identifies the real reason for the proposed transmission line. Specifically, the transmission project was proposed “to provide the eastern PJM load centers with access to the lower cost coal-fired generation in the western PJM Region”. This provides no benefits to West Virginia ratepayers, and in fact exacerbates the environmental insults that are imposed on local citizens from coal-fired power generation.

The application (Application, page 13) states that “The construction and operation of the West Virginia segments are not expected to have a significant environmental impact”. Such a

statement is so ludicrous that it should be rejected outright. No credible environmental expert would make such a statement about such a large and imposing facility. Such a statement fails to comply with the requirements in PSC Electric Rules in 150-CSR3, especially Rule 9.2.1.h which requires Allegheny to describe the "...environmental impact said proposed line will have upon the area on and adjacent to said proposed line."

II. Line Route Evaluation

Q. Please describe your general conclusions regarding the Line Route Evaluation submitted by the TrAILCo on March 30, 2007?

R. The Line Route Evaluation (LRE) criteria implicitly acknowledge the significant adverse impact of the transmission line. The very fact that the first criterion (Executive Summary page 1) is to minimize the wetland areas crossed "AND THE NUMBER OF RESIDENCES WITHIN 500 FEET OF THE CENTER LINE" (emphasis added) is an implicit acknowledgement that the line has very significant adverse effects on property owners, even those who are located near the line but are not crossed by the line itself. In addition, the statement (LRE, page 6) that the routes will have to avoid the City of Morgantown and the surrounding urban area" is further evidence that explicitly identifies significant adverse impacts of the line, again contradicting the claim in the application that "The construction and operation of the West Virginia segments are not expected to have a significant environmental impact". Furthermore, TrAILCO specifically worked to avoid crossing federal lands (as specified in the route selection criteria, page 11: "Avoid crossing designated natural resource lands such as national forests,..."), and thereby triggering the need for an Environmental Impact Statement under the National Environmental Policy Act. While avoiding impacts to public lands is a laudable goal, it is also clear evidence that TrAILCo recognizes that the environmental impacts are indeed significant. Federal agencies are authorized to issue a "Finding Of No Significant Impact" for projects where there is no significant environmental impact, and may thereby avoid the need to prepare an Environmental Impact Statement. If TrAILCo truly believed that the project would have no significant impact, there would be no need to avoid crossing federal lands.

Q. Are the Route Evaluation Criteria used in the Line Route Evaluation reasonable, appropriate and complete?

R. No. While some of these criteria (LRE, page 10) do indeed reduce the environmental impacts of the line, others are contradictory, and several key criteria were omitted. For example, criterion 3 for selecting the route produces the result that much of the route is undeveloped forest land. Unfortunately, this selection criterion means that this route maximizes the adverse impacts on wildlife habitats. This directly contradicts criterion 5, which minimizes impact on sensitive species sites. The more the route attempts to avoid residential and commercial development, the greater the impact will be on wildlife habitat.

The Line Route Evaluation criteria also included the goal of avoiding "non-standard design requirements". It is not clear why non-standard designs should be avoided as certain design features may significantly reduce adverse environmental impacts. For example, burying the lines may significantly reduce adverse aesthetic impacts, and reduce the width of the right of way that would have to be cleared. While this also increases the cost, it seems to be a reasonable approach for high impact or sensitive areas.

Some of the large area constraints identified (LRE, page 16) appear to be listed solely for the purpose of avoiding lands for which an Environmental Impact Statement would be required under NEPA (e.g., federal Forest lands, National Register Historic Districts, large wetlands). This approach may lead to selection of a route that may impact more valuable or environmentally sensitive areas solely because less sensitive areas were avoided for political/legal reasons. For example, the selected route appears to cross within one-quarter mile of Fairfax Stone State Park, an area that could have been avoided if routes on Monongahela National Forest lands were considered. TrAILCO's Response to Sierra Club's Third Discovery Request fails to list this area, and although it is indicated on the maps provided with the March 30, 2007 application, there is no indication that TrAILCo is aware of this State Park. The NEPA process was specifically established to provide a comprehensive process for reviewing environmental impacts, disclosing those to the public, and providing for public involvement in decision-making. The decision to avoid NEPA requirements can be viewed as evidence of TrAILCo's deliberate efforts to avoid a comprehensive analysis of environmental impacts.

The Route Selection Criteria do NOT include: avoidance of habitat for listed threatened or endangered species; avoidance of areas with karst topography or other areas with sensitive groundwater aquifers; avoidance of high quality waters, e.g., trout streams; avoidance of scenic impacts to designated overlooks or other areas prized for their visual quality; etc. In addition, a criterion to use lands already heavily impacted to the extent practical should be added. These could include areas with significant surface mining, Corridor H or other highway rights of way. While this might increase the number of people who view the adverse visual impacts, the actual impacts would be reduced compared to the fragmentation and disruption produced by a new corridor.

Q. The Line Route Evaluation describes a series of public meetings used to incorporate public input. Have you observed these meetings, or the public hearings sponsored by the PSC? Is TrAILCo's approach an appropriate way to incorporate public input and did it reduce the adverse impacts of the line?

R. Yes, I attended the TrAILCo public meetings in Kingwood (Nov. 28, 2006) and at the Clinton Fire Hall (Dec. 12, 2006), as well as several of the PSC hearings. Public input is widely recognized as a critically important step in environmental impact assessment. Outside experts rarely have complete knowledge of all of the sensitive issues associated with a project, and public input can greatly facilitate ways to reduce these impacts, while also reducing conflict over projects and increasing local acceptance of the chosen alternative. To be successful, the public needs to be informed of all relevant information regarding the project, and a format is needed that assures the public that their input is taken seriously.

Unfortunately, the description of the "public meetings" (LRE, page 14) fails to mention that, in some cases, the final route selected was not illustrated or presented to the public at these meetings. Hence, the public had incomplete and inaccurate information on which to comment. In addition, TrAILCo did not receive complete and timely public input because neither the public nor the affected land owners were informed, at that time, of the route that is currently being proposed.

Another major flaw with the TrAILCo open houses described in the Public Meetings (LRE, page 14) was that there was never an opportunity to hear interchange and debate from the public at large. The meeting approach was strictly "top down" with Allegheny officials controlling all of the information flow, as well as the interactions among participants. Individuals were segregated to specific tables, but no opportunity for debate or information exchange was provided. In addition, the meetings were conducted in such a way that there was never an opportunity to question the need

for the line. Such a staged event prevents members of the public from learning of each other's concerns and manipulated the input that is received in order to support a foregone conclusion, while simultaneously conveying the attitude that public concerns and alternative approaches would not be taken seriously. This approach clearly discouraged any input regarding alternatives other than construction of a line in TrAILCo's preferred corridor. The efforts to avoid NEPA requirements can also be viewed as evidence of TrAILCo's deliberate efforts to avoid meaningful public involvement. The Direct Testimony of Alan Fleissner states that the public emphasized use of existing Rights-Of-Way and identified site-specific details which TrAILCo "considered". But the record is devoid of any evidence that public input was considered, nor is there any meaningful response to any of the issues raised. For example, the preferred route largely avoids using existing rights-of-way in the portions west of Mount Storm. Nor is there any substantive response to comments questioning the need for the line, or urging energy conservation and demand-side management as an alternative to a new line. A legitimate public input process documents how public concerns are incorporated into the decision-making process and responds directly to all substantive comments

On the contrary, I was able to learn a great deal about specific concerns at the PSC hearings. These included alternative locations for the line, concerns regarding sensitive historic features, sensitive springs, streams, and water supplies, concerns regarding health impacts, aesthetic impacts, impacts to property values, safety issues, and others. The Line Route Evaluation does not respond to any of these site-specific issues.

Q. Does the Line Route Evaluation support the selection of the proposed route as having the fewest environmental impacts?

R. No. Table 2-3 presents data showing that the selection of TrAILCo's preferred route results in impacts that contradict many of TrAILCo's route selection criteria. For example, compared to Route A of the 502 Junction to Mt. Storm segment, TrAILCO's preferred route (Route H) is 5 miles longer, crosses almost twice as much steep soils, has more stream crossings, crosses almost twice as much designated natural lands, crosses over or near endangered species habitat as well as state sensitive species habitat (Route A avoids these altogether), crosses more forest land, impacts almost twice as many low and medium developed properties, crosses more transmission line rights-of-way, parallels no existing transmission line rights-of-way, impacts more than twice as many residences within 500 feet, and requires many more angle structures. Likewise the same statement by Jack Halpern in his direct testimony that "these impacts are less than those from the other possible routes that were examined" is simply untrue and is contradicted by the evidence in the Line Route Evaluation sponsored by Halpern. Halpern's conclusions (page 8) are in error and are contradicted by his own data, as the chosen route has an excessive number of residences impacts within 500 feet, does not minimize impact to threatened or sensitive species habitat, and requires clearing of an excessive amount of forest land.

Q. Are there impacts to soil quality described in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The soil erosion and compaction control practices identified (LRE, page 79) are inadequate to mitigate the adverse impacts of construction on sensitive or high value soils. For example, ripping to break up compaction in agricultural soils is of only marginal effectiveness, and does not adequately repair the damage from heavy construction activities. Many years of restoration activities may be needed by the property owners or managers to restore soil quality.

The procedures to mitigate these impacts are well known and are described in the Line Route Evaluation, however, the erosion control measures proposed are only as effective as their implementation, and Allegheny has a poor record in this regard. Even if properly installed during construction, the failure to maintain these practices means that erosion impact may become more significant as time passes. Soil erosion and sedimentation result in long-term damage to water quality and stream resources for long distances down stream of the source of the impact, resulting in increased treatment costs for public water supplies, damage to fisheries and aquatic resources, and other water quality impacts.

The Commission should require independent monitoring and an enforceable bond to assure that TrAILCo has adequate incentive to perform soil erosion practices with adequate diligence. In addition, the Commission should require improved monitoring and soil erosion control practices on other Allegheny transmission lines to assure good faith and a net improvement in environmental quality.

Q. Are the impacts to streams described accurately in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The Line Route Evaluation underestimates the magnitude of potential impacts. The impacts come from both forest clearing, as well as altered drainage patterns due to construction of the line and adjoining access roads. By intercepting runoff percolating along steeper slopes, road and construction impacts will accelerate runoff to streams. This can lead to increased flooding during storms, as well as reduced flows during dry periods due to lost ground water recharge. This effect is unlikely to be significant for larger watersheds, but could increase the potential for flash floods or alter aquatic habitat in small streams. The Line Route Evaluation correctly identifies the effect of clearing on increasing water temperatures, an impact that is most likely to be significant for trout waters. As shade is lost, direct sunlight heats the water to a greater extent and the warmer temperatures may adversely affect trout survival. However, the conclusion from the Line Route Evaluation that “The length of stream paralleled or crossed has been minimized thus any impact the project would have on stream temperature would be minimal” (LRE, page 81) is simply incorrect and is deliberately misleading. Route H has the highest number of stream crossings of any alternative studied (Table 2-3), thus it is demonstrably untrue that the number has been minimized. Furthermore, even if the number had been minimized, the conclusion that the impacts therefore are minimal is simply bad logic. Many West Virginia trout streams are already at or near the threshold of thermal tolerance, and global warming is likely to exacerbate the high temperature stresses on trout. In this situation, ANY additional warming of trout water is significant, and can not be described as “minimal”.

With regard to chemical pollution, the conclusion that “The number of stream crossings and feet paralleling a stream has been minimized and riparian buffer maintenance techniques would be followed, thus any effect chemical pollutants may have would be localized.” (LRE, page 81-82) is also deliberately misleading and untrue. Once chemical pollutants enter a stream, they flow down gradient with the river and any effect simply cannot be described as “localized”.

Finally, the study fails to identify impacts to sensitive water resources. These include drinking water well recharge areas, wellhead protection zones, karst topography, alluvial aquifers, springs, caves and sinkholes, areas with surface mining or deep mine subsidence, all of which are sensitive areas for ground water protection. TrAILCo’s Response to Sierra Club’s Third Discovery Request indicates that additional surveys for some of these sensitive water resources are underway,

however, TrAILCo only indicates that they would take steps to protect drinking water supplies, and TrAILCo offers no plans to protect other sensitive water resources .

As further mitigation, TrAILCo should avoid crossing trout streams wherever possible, and specifically must avoid paralleling trout streams for any distance. TrAILCo should also create a stream improvement program and fund off-site improvements in trout habitat as mitigation for the adverse impacts to trout streams from the proposed and from existing transmission lines, as a means of creating a net improvement in environmental quality. TrAILCo should identify all sensitive aquatic resources. These include drinking water well recharge areas, wellhead protection zones, karst topography, alluvial aquifers, springs, caves and sinkholes, areas with surface mining or deep mine subsidence, all of which are sensitive areas for ground water protection. TrAILCo should avoid aerial herbicide application in the proposed corridor wherever sensitive water resources or recharge areas exist, and plans for long term protection and monitoring of those groundwater resources should be required.

Q. Are the impacts to forest vegetation described accurately in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The description of forest vegetation impacts in the Line Route Evaluation completely underestimates the severity of the vegetation effects (LRE, page 89-90). Forest fragmentation and expanded edge effects would adversely impact areas much larger than TrAILCo identifies. For example, in continuous woodland, a new corridor can result in loss of trees some distance from the right of way, as the canopy openings created for the line would result in increased wind-throw and tree mortality at increasing distances. TrAILCo also misstates the severity of the impacts in areas where the line would parallel an existing right of way. In these areas, the newly cleared right of way would create new edge effects in areas that were previously distant from the edge, thus impacting entirely new acreage, contrary to the impression left in the report. This effect is clearly seen in the visual impact simulations such as illustrated on page 128.

The impacts to forested habitat are significant, and no mitigation of these impacts is proposed. Reforestation efforts in off-site areas with rare or sensitive species to replace the forest cleared should be required, with an emphasis on plantings in areas that reduce forest fragmentation.

Q. Are the impacts to terrestrial wildlife described accurately in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The Study does not provide adequate assurance that endangered species habitat is avoided. It seems likely that the corridor crosses areas that serve as maternity nesting habitat for Indiana bat, in which case clearing activities must be avoided during the summer season. Habitat for Northern Virginia Flying Squirrel and for Cheat Mountain habitat must be avoided, and surveys for listed plant species should be conducted before construction begins.

With regard to game and non-game wildlife species, the Study (LRE, page 94) presents a very unprofessional mistake in assessing the wildlife impacts in that it claims benefits from clearing such as providing brush piles as cover for upland species. While it is true that disturbance tolerant species may benefit, the species most threatened and most impacted would be those species that are intolerant of disturbance or that require deep forest interiors rather than edge habitat. Most of West Virginia has plenty of white-tailed deer or ground hogs, and additional habitat to benefit these species is not needed. Deep forest interior species are among those most seriously impacted by the proposed line. Adverse impacts for these species are difficult or impossible to adequately mitigate.

To mitigate adverse impacts to wildlife, surveys for habitat of Cheat Mountain Salamander, Cheat Three-tooth Snail, and Northern Virginia Flying Squirrel should be required. In addition, mist net surveys for Virginia Big-eared Bat and Indiana Bat should be required. Mitigation to replace loss of interior forest habitat and other adverse impacts should be required

Q. Are the impacts to avian wildlife described accurately in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The Study (LRE, page 95) claims that the effects from bird collisions are expected to be minimal, however they provide no data to support this conclusion. TrAILCo admits in their Response to Sierra Club's Third Discovery Request that they have conducted no studies of bird or bat mortalities due to collisions. The Commission has previously required extensive bird and bat surveys for wind farms, most of which are aligned on a north-south orientation and therefore do not cross migration routes. The proposed line is predominantly on an East-West orientation and crosses many miles of migration routes for birds and bats. In addition, the route crosses the Backbone Mountain wind farm in Tucker County, the site of North America's largest recorded bat kills. Although the towers are slightly smaller than the wind mills used in modern wind farms, the transmission cables are strung continuously between them, and the towers themselves present a risk of electrocution for perching birds and bats that is not present from wind mills. The Study recites numerous recommendations for surveys and mitigation efforts from the US Fish and Wildlife Service (page 96), but presents no evidence that these have actually been completed, or that TrAILCo would commit to following those recommendations. Likewise, TrAILCo's Response to Sierra Club's Third Discovery Request indicates that they have been "consulting with the West Virginia Department of Natural Resources and the U.S. Fish and Wildlife Service to identify, develop appropriate protocols for, and conduct the necessary biological field surveys and studies for the TrAIL project.", but again, there is no indication that TrAILCo has committed to implementing the recommendations of such a study. Given that TrAILCo serves no West Virginia customers, that negligible if any benefits can be expected for West Virginia, and that TrAILCo has no incentive to provide wildlife benefits, a high standard of wildlife mitigation requirements and enforcement provisions is a reasonable requirement. Evidence for this conclusion is seen in the claim by TrAILCo that no significant impacts are expected, a claim they make with no supporting surveys or relevant evidence.

The Direct Testimony of John Bodenschatz (Bodenschatz, page 10) indicates that a lattice tower structure is to be deployed. Because this design creates perch opportunities for birds and bats at windmill sites, modern wind farms use a fully-enclosed steel tubular design to reduce adverse impacts on birds.

To mitigate adverse impacts to avian wildlife, pre-construction bird and bat surveys, post-construction monitoring for avian and bat impacts, and mitigation for loss of habitat and other adverse impacts should be required. TrAILCo should be required to adhere to the recommendations from the US Fish and Wildlife Service, similar to the requirements imposed for wind farms. TrAILCo's Response to Sierra Club's Third Discovery Request includes as Attachment 1-A the Avian Protection Plan Guidelines, which includes recommendations for these types of monitoring and mitigation protocols, although TrAILCo does not explicitly commit to adhering to these guidelines in their own testimony. TrAILCo must also evaluate the adverse impacts of their tower design on avian fauna, as well as the potential for alternative tower designs to minimize these adverse impacts.

Q. Are the impacts to recreation described accurately in the Line Route Evaluation? Is the mitigation of these impacts adequate? What else could be done?

R. No. The Line Route Evaluation (Table 4-4 and in the text) greatly underestimates the adverse impact to recreational users. The transmission line crosses several important recreational trails, and some users will simply avoid these areas. Some hikers will refuse to cross under high voltage lines, or may be excessively disturbed by the humming noises and the static electricity feel of the area. In addition, transmission lines serve as points of access for off-road vehicles. Once patterns of unauthorized uses have been established, it is difficult to control. These uses create soil erosion and sedimentation problems, harass wildlife, disturb other recreational users, and create numerous other problems.

As mitigation, TrAILCo should be required to develop additional recreation facilities to offset the lost opportunities associated with the transmission line, and to develop active and passive control measures to prevent illicit ORV use.

III. Direct Testimony of Jack Halpern, March 30, 2007

Q. Halpern describes a series of public meetings used to incorporate public input. Is TrAILCo's approach an appropriate way to incorporate public input and did it reduce the adverse impacts of the line?

R. Halpern's testimony (Halpern, page 11) that TRAILCO specifically initiated the open house meetings to involve the public in the planning process" significantly misrepresents the meaning of the word "involve". The open house meetings were primarily one-way sessions in which the public was given information, but little opportunity to challenge the underlying purpose of the line, nor was information from the Line Route Evaluation available to illustrate the relative impacts of alternative routes. A meaningful public involvement process should have been undertaken in which the affected public would have the opportunity to make informed comments, and hear debate regarding the merits of alternatives. To the extent that the public was involved, it was to serve Allegheny's needs in identifying a route, rather than for Allegheny to identify the best way to serve the needs of the public. Halpern's testimony is misleading regarding the public involvement process.

Q. Do you agree with Halpern's conclusions regarding the environmental impacts of the line?

R. No. The statement (Halpern, page 8, line 6 & 7) regarding the selected route that "these impacts are less than those from the other possible routes that were examined" is simply untrue and is contradicted by the evidence in the Line Route Evaluation sponsored by Halpern. As clearly identified in Table 2-3 of the Line Route Evaluation report, TrAILCo's preferred route results in impacts that contradict many of TrAILCo's routing criteria. For example, compared to Route A of the 502 Junction to Mt. Storm segment, Route H is 5 miles longer, crosses almost twice as much step soils, has more stream crossings, crosses more total wetlands, crosses almost twice as much designated natural lands, crosses over or near endangered species habitat as well as state sensitive species habitat (Route A avoids these altogether), crosses more forest land, impacts almost twice as many low and medium developed properties, crosses more transmission line rights-of-way, parallels no existing transmission line rights-of-way, impacts more than twice as many residences within 500 feet, and requires many more angle structures. Thus, Halpern's conclusions (page 8) are in error

and are contradicted by his own data, as the chosen route has an excessive number of residences impacts within 500 feet, does not minimize impact to threatened or sensitive species habitat, and requires clearing of an excessive amount of forest land.

Q. Are there other areas where Halpern’s testimony misrepresents the adverse impacts of the line?

R. Yes. The statement (Halpern, page 9) that the proposed route “minimizes forest fragmentation by paralleling an existing 500-kv transmission line ...” appears to be deliberately misleading. First, the preferred route crosses more forest habitat than any other route evaluated. The Line Route Evaluation, Table 2-3, page 37 indicates that the preferred route crosses 308,950 feet (line H) versus 302,450 for the next worst impacting alternative (Line E) and only 273,250 feet for Line D, the least impacting alternative. The preferred route can only be claimed to “minimize” fragmentation in the sense that the worst alternative could have been made even worse. No competent environmental impact assessor would make such a statement. Secondly, even where the line parallels an existing line, new forest would be cleared to make room for the new line. Thus, the existing edge habitat would be eliminated, and new interior habitat would be turned into edge habitat. Halpern’s testimony drastically and improperly underestimates the true impact to forest habitat from the fragmentation induced by the proposed line. While it is partially true that the existing edge-adapted wildlife would continue to have edge habitat following line construction, the Commission should recognize that even the existing edge habitat would be disrupted during construction, and the project would result in a net loss of interior habitat, even when paralleling an existing line.

In addition, Halpern’s statement that “The implementation of Class III clearing within 100 feet of streams... would also minimize impacts to riparian species...” is also misleading, as the Line Route Evaluation indicates that the preferred route, Line H, crosses more streams (71 small streams and four large river crossings) and thus impacts more riparian habitat, than any other alternative studied. Thus, Halpern’s testimony is not credible. The loss of forest habitat and the resulting forest fragmentation and the loss of important riparian habitat are all unacceptable impacts of the proposed line, and TrAILCo’s preferred route is the worst possible route of those evaluated.

Halpern’s testimony (Halpern, page 12, lines 14-16) that the information filed “responds to the requirements of Electric Rule 9.2.1.g.” is incorrect. The rule requires that

“The information filed should clearly show the justifications for selecting the proposed route over the alternate routes studied.”

Although Halpern states (Halpern, pages 13-14) that Route H was selected because it had a number of advantages, those advantages are largely unrelated to the route selection criteria listed in the report (Line Route Evaluation, page 11) and ignore the greater environmental impacts documented for almost every environmental criterion studied (Line Route Evaluation, Table 2-3, pages 36-39). Halpern states (page 15, lines 12-15) that the routes were analyzed “to determine the best alignment for the transmission line in terms of minimizing impacts to the natural and cultural environment.” Yet contrary to this testimony, the route selected clearly fails to meet this goal. Thus, the justifications for selecting Route H are anything but clear. The testimony by Halpern is factually incorrect, deceptive and not credible, and the justification for selecting the proposed route over the other alternatives studied is inadequate, incomplete and misleading, and does not meet a reasonable interpretation of the requirements of Electric Rule 9.2.1.g..

IV. Direct Testimony of Alan Fleissner, March 30, 2007

Q. Please comment on the Direct Testimony of Alan Fleissner

R. Mr. Fleissner repeats (Fleissner, page 7-9) the misleading testimony regarding the open houses hosted by TrAILCo in 2006. Contrary to his statements, the process did not result in meaningful public involvement. Fleissner states that the public emphasized use of existing Rights-Of-Way and identified site-specific details which TrAILCo “considered”. But the record is devoid of any evidence that public input was considered, nor is there any meaningful response to any of the issues raised. For example, the preferred route largely avoids using existing rights-of-way in the portions west of Mount Storm. Nor is there any substantive response to comments questioning the need for the line, or urging energy conservation and demand-side management as an alternative to a new line. The absence of evidence in the testimony and in the Line Route Evaluation Report leads to the obvious conclusion that the Open House meetings were NOT intended to respond to public concerns, but were merely a tool used in an attempt to minimize legitimate public input. A legitimate public input process documents how public concerns are incorporated into the decision-making process. Because of the flaws in the public input process, very little weight should be given to TrAILCo’s conclusions regarding the invalid public input procedures used by TrAILCo to date.

Q. Do you agree with Fleissner’s conclusions regarding the environmental impacts of the line?

R. No. The testimony (Fleissner, page 9) that the proposed route minimizes environmental impacts is blatantly false and contradicted by the evidence in the LRE report. The statement that “additional work was done to utilize existing corridors” (Fleissner, page 10, lines 3-4) is without any supporting evidence and is contradicted both by the absence of such use in line segments west of Mt. Storm, and by TrAILCo’s later opposition to proposals to study such use on the Fort Martin-Pruntytown and Pruntytown-Mount Storm lines (See TrAILCO’s Response to Consumer Advocate Division and Laurel Run Community Watershed Association. Motions to Require Study of Alternate Route and Provide Appropriate Notice. May 15, 2007). This response argues that no one factor, such as paralleling an existing line, should take precedence over other factors in route selection. But this argument is contradicted by the Affidavit of Alan Fleissner (May 16, 2007, attached to TrAILCo Response described above) which goes to great length to emphasize that avoiding removal of existing homes was a paramount consideration in selecting the proposed route. Thus, TrAILCo is drawing conclusions and making arguments that are directly contradicted by their own evidence. This clearly represents a blatant abuse of discretion by TrAILCo, and should be considered bad faith and contrary to their own route selection guidelines. Thus, Fleissner’s testimony regarding the proposed route is not credible.

Q. Do you agree with Fleissner’s conclusions that the acquisition of Rights of Way for the line provides adequate compensation for affected landowners?

R. The Right-Of-Way acquisition process described (Fleissner, page 14-15) does not consider the adverse impact and loss of property values for those lands which are near the proposed route, but not within the 200-foot Right-Of-Way. These landowners may suffer a significant loss of property value, yet TrAILCo proposes no compensation or mitigation. The number of landowners

affected in this way is likely to be significantly larger than the number whose property is actually crossed by the Right-Of-Way.

V. Direct Testimony of John Bodenschatz

Q. Please comment on the Direct Testimony of John Bodenschatz with regard to herbicide impacts?

R. The claim (Bodenschatz, page 40, lines 15-16) that herbicides used for controlling vegetation on Rights-Of-Way “will not destroy wildlife cover and food supply” is blatantly false. The claim that “Herbicides that will be used on TRAIL have been scientifically designed to work on enzymes found in plants only – not people or animals.” is also misleading. The fact that a herbicide acts on a particular plant enzyme does not in any way assure that it will not also have adverse effects in humans or wildlife. The label and Material Safety Data Sheets for these herbicides contain clear and explicit warnings of adverse impacts to humans, and require protective equipment and re-entry restrictions in most cases. The apparent disregard for herbicide impacts expressed in this testimony does not give confidence that TrAILCo will insist on the stringent safety procedures needed to use these chemicals safely. Bodenschatz’s testimony in this regard is misleading and incorrect. Stringent safeguards should be required to protect humans, wildlife, ground and surface waters and non-target organisms from adverse environmental impacts of herbicide use.

VI. Grafton Area Route Evaluation Report, Aug. 10, 2007.

Q. Please comment on the Grafton Area Route Evaluation report. Are the Route Selection Criteria appropriate?

R. It is not clear why the Route Selection Criteria in the Grafton Area Route Evaluation report (GARE, page 10) includes the criterion that the line separation distances between parallel 500-kv lines be limited to no LESS than 200 feet. This criterion virtually assures that the amount of new right-of-way acreage will be maximized, rather than to minimize the impact as was supposed to be the goal of this study. The use of this criterion artificially inflates the environmental impact of the proposed alternate routes. A corrected study should be conducted to evaluate whether the alternate routes can be designed to include less impacting routes that more closely overlap existing rights-of-way.

Q. Please comment on the Rights of Way acreage in the Grafton Area Route Evaluation report. Are they correct?

R. That is unclear at best. The Grafton Area Route Evaluation report (GARE) appears to overestimate the acreage of new right-of-way that would be required. Table 2-2 of the report assumes (footnote on page 24) that existing rights of way that would be paralleled were only 50-100 feet wide, while the new 500 kv line would require a 200-foot wide right-of-way. For example, the

report identifies Route B as having a length of 171,050 feet. If the entire length has a 200-foot right-of-way, the total area for the line is 785 acres. Yet even though Route B parallels existing rights-of-way for 37.3 % of its length, the report indicates that 706 acres of new right-of-way would be required, compared to only 633 for the “Proposed Route”. The presentation of these results is, at best, highly misleading, and may be evidence of “bad faith” on the part of TrAILCo. Since these rights-of-way are already owned by Allegheny, actual data should be required for this study, rather than self-serving assumptions. TrAILCo should identify the actual amount of their existing right-of-way that could be used.

Q. Do you agree with the conclusions by TrAILCo that their proposed route is superior to the Grafton Area Route?

R. It is not possible to make a clear determination because the GARE is incomplete and inadequate, and because the route selection criteria are inconsistently applied. The report identifies the Proposed Route as superior to the Grafton Area Route B, in part because the Proposed Route is 6.3 miles shorter than Route B. While this might be considered significant, the credibility of the argument is undercut by the fact that the Proposed Route was the longest of the 8 routes studied in the original Line Route Evaluation Report (Line Route Evaluation report, Table 2-3, page 36), and was over 5 miles longer than the shortest Route in that study (Route A). If the length of the line was a serious impediment, the Proposed Route would never have been selected in the first place.

The report also identifies the Proposed Route as superior to the Grafton Area Route B, in part because fewer residences are within 250 or 500 feet of the line. However, the credibility of this argument is undercut by the fact that the proposed Route passes within 250 feet of almost twice as many residences and within 500 feet of almost three times as many residences as Route A of the original Line Route Evaluation Report (Line Route Evaluation, page 38). If this were a serious impediment, the Proposed Route would never have been selected in the first place.

Other selection criteria used to justify TrAILCo’s claim that the Proposed Route is superior to the Grafton Area Route B, are also contradicted by their original Line Route Evaluation. The Proposed Route impacts more buildings within 1000 feet than Route A of the original Line Route Evaluation, requires more forest clearing than ANY of the other alternatives in the Line Route Evaluation, crosses more cultivated land than Route A, crosses more developed land than Route A, and comes within 500 feet of more commercial buildings than Route A.

Q. Are there other defects on TrAILCo’s Grafton Area Route Evaluation report?

R. Yes. The GARE report repeats the erroneous conclusion (stated on page 36) that impacts to waters from the transmission line “would be localized and minimal”. As noted above, significant water quality impacts are likely and stringent water quality protections should be required. TrAILCo repeats many of the same environmental impact assessment errors in this report as were found in the original Line Route Evaluation (e.g., forest fragmentation, recreational resources, cultural resources, aesthetic values, etc.), and similar corrective action is still required.

Q. Does this complete your testimony?

R. Yes.

RESUME

James Kotcon

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EXPERIENCE

1996 - Present. Associate Professor of Plant Pathology, West Virginia University. 50 % research, 50 % teaching. Teach courses in plant science, environmental impact assessment, fruit pathology, and nematology. Advise graduate and undergraduate students.

Research on organic farming systems, agricultural pests of peach and apple, environmental impacts of pesticides on groundwater quality and on nontarget organisms, biological control of nematodes.

2005. Interim National Program Leader for Organic Agriculture. USDA-CSREES. Interagency Personnel Agreement with WVU. Manage organic agriculture research and education programs, do outreach to organic stakeholders, assess leadership needs, develop CSREES strategic plan.

May 1994-Dec. 1994. Environmental Consulting. Sciences International, Inc. Ecological risk assessment at SuperFund sites; field sampling, data analysis, report writing and regulatory compliance.

Jan. 1994-May 1995. Environmental Consulting. West Virginia Environmental Council and West Virginia Citizen Action Group. Conduct environmental policy analysis, lobbying, and organizing on environmental regulatory issues.

Sept. 1985-Dec. 1993: Assistant Professor of Plant Pathology, West Virginia University.

Sept. 1983-Sept. 1985: Research Associate, Dept. of Plant Pathology, Cornell Univ., Long Island Horticultural Research Lab. Research to assess ground water contamination by pesticides.

Aug. 1979-Aug. 1983: Research Assistant, Dept. of Plant Pathology, Univ. of Wisconsin. Research on potato diseases. Assist teaching 'Plant Nematology'.

Sept. 1977-June 1979: Research Assistant, Dept. of Botany and Plant Pathology, Michigan State University. Research on ecology of plant-parasitic nematodes in vegetable crops. Assist teaching 'Nematode Diseases of Economic Plants' and 'Biology of Nematodes'.

June 1977-Sept. 1977: Lab Assistant, Nematology Extension Lab, Michigan State University.

Aug. 1976-Dec. 1976: Research Intern, Oak Ridge National Laboratory, Oak Ridge, Tennessee. Air pollution research.

EDUCATION

Ph. D. Aug. 1983. Dept. of Plant Pathology, Univ. of Wisconsin-Madison. Dissertation: Root deterioration in the Potato Early Dying Syndrome. Major Advisor: Dr. Douglas I. Rouse.
Minor: Soil Science.

M. S. June 1979. Dept. of Botany and Plant Pathology, Michigan State Univ. Thesis: Studies on the ecology of nematodes associated with vegetables grown on organic soils. Major advisor: Dr. George W. Bird.

B. S. May 1976. Dept. of Biology, Univ. of Wisconsin-Stevens Point. Major: Biology (emphasis in Botany and Ecology) Minor: Chemistry

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science
American Phytopathological Society
Ecological Society of America
Organization of Nematologists of Tropical America
Society of Nematologists
Union of Concerned Scientists
International Society of Organic Agriculture Research

COMMITTEES AND PROFESSIONAL SERVICE

American Phytopathological Society Potomac Division. Treasurer, 2000-2003.
American Phytopathological Society Plant Health & Environmental Quality Committee. 1999-2001.
American Phytopathological Society Nematology Committee (Past Chair).
Society of Nematologists Ecology Committee (Past Chair).
Society of Nematologists Education Committee.
NE-133 Regional Nematology Research Technical Committee (Past Chair).
Associate Editor, Journal of Nematology 1988-89, reappointed 1992-1993.
Reviewer for: Phytopathology, Plant Disease, Nematropica.
USDA National Research Initiative Technical Review Panel, Methyl Bromide Alternatives. 2000.
West Virginia Dept. of Agriculture Cooperative Agricultural Pest Survey Committee.
West Virginia University Ad Hoc Polystyrene Advisory Committee.
Mountain State Organic Growers and Buyers Association. Certification Technical Committee
Numerous Departmental and College Committees.

ENVIRONMENTAL PROTECTION/PUBLIC SERVICE ACTIVITIES

WV-Department of Environmental, Division of Water Resources, Antidegradation Sounding Board. 2001-2002 Review guidance documents to implement water anti-degradation rules in West Virginia.

West Virginia Environmental Quality Board Metals Committee. 1998-99. Interagency Committee established by EQB to provide technical input and policy guidance in developing water quality standards for dissolved metals.

WV-Division of Environmental, Office of Air Quality, Emissions Trading Working Group. 1998-99. Develop rules for implementing air pollutant emissions trading program in West Virginia.

West Virginia Voluntary Remediation and Redevelopment Act Rule-making Steering Committee. 1996-98. Technical Subcommittee 1996-1999. Developed rules and risk assessment guidance documents for WV-DEP.

West Virginia Division of Environmental Protection Reorganization Advisory Board. 1991-1993. Appointed by Gov. Gaston Caperton to Board to represent environmental interests in environmental agency reorganization. Participated in legislative drafting, environmental policy and public involvement committees.

West Virginia Groundwater Task Force. 1991-1992. Draft regulations implementing groundwater protection act requirements relative to agricultural chemicals.

U. S. Forest Service, Technical Review Committee. 1992-1993. Provide environmental review and technical input on research programs to assess impacts on nontarget organisms of pesticides used for gypsy moth management in forest ecosystems.

U. S. Forest Service, AIPM Interdisciplinary Environmental Assessment Team. 1991-1992. Assisted U. S. Forest Service in drafting environmental assessment documents and mediating disputes regarding Gypsy Moth research in Fernow Experimental Forest, Parsons, WV

West Virginia Sierra Club. Chapter Chair, Jan. 1992 to 1994; Legislative Chair, 1990-91, 94-04; Political Chair, 1990-2003; Conservation Chair, Monongahela Group, 1986-1988. Directed conservation campaigns in solid waste management, water quality, hazardous waste, public lands, and environmental policy. Coordinate Chapter Training activities. Active leader in Outings Program and Mon. Nat. Forest Trail Recovery Program.

West Virginia Environmental Council. President (1998) and member of Board of Directors 1991-2004. Legislative drafting and/or lobbying for groundwater, solid waste, industrial siting, risk assessment, environmental policy, agriculture, forestry, genetically engineered organisms, etc.

Coopers Rock State Forest Foundation. Founding member of Board of Directors. Fund raising, public involvement, and long term planning to assist state parks. Also assisted drafting legislation for environmental review and public involvement in state park development projects.

Cheat Lake Environmental and Recreation Association. Founding member of Board of Directors. Development and planning for recreation area surrounding Cheat Lake in Northern West Virginia.

TEACHING RESPONSIBILITIES

Plant Science 206. Principles of Plant Science. Introductory course in plant science, covering basics of plant anatomy, physiology, and ecology and principles of agricultural and forest production.

Environmental Protection 460. Environmental Impact Assessment. Undergraduate course oriented toward upper level environmental science majors, covers methods of environmental assessment, preparation of environmental impact statements, and multidisciplinary field and laboratory procedures.

Plant Pathology 501. Diseases of Economic Crops. Graduate level course covering principles of fruit pathology, epidemiology, integrated pest management, and disease control.

Plant Pathology 409/509. Nematology. Undergraduate/Graduate level course in principles of plant nematology, including nematode biology, host-parasite relations, population dynamics, laboratory techniques, identification, nematode management, and nematology research methods.

Numerous special topics and seminar courses (23 credit hours, 1986-1993).

Currently advising 16 undergraduate Environmental Protection students, and 1 graduate Plant Pathology student. Serve as graduate committee member for 7 graduate students.

CONTINUING EDUCATION, EXTENSION, AND OTHER TEACHING ACTIVITIES

Coordinate program for the American Phytopathological Society Potomac Division annual meetings. 2001, 2002, 2004.

Organized and chaired national colloquium 'Biological Control of Nematodes' at American Phytopathological Society meeting, Grand Rapids, MI Aug. 7, 1990.

Organized and chaired national colloquium 'Pesticides in Groundwater' at American Phytopathological Society meeting, San Diego, CA. Nov. 13-17, 1988.

Co-organizer for 'WV Groundwater 87-Status and Future Directions' Conference, Morgantown, WV. Aug. 13-15, 1987. Edited and published Conference Proceedings.

Operate West Virginia University's Nematode Diagnostic Laboratory, providing nematode identification and management recommendations to the public.

Numerous presentations at grower meetings, Extension training workshops, Integrated Orchard Management Training Program, Pesticide Training and Certification Workshops, other commodity groups, etc. Including numerous tours, poster presentations, workshops and demonstrations.

Frequent guest lectures in other classes at WVU

Numerous presentations at public meetings, testifying at public hearings, and legislative lobbying on environmental issues, especially ground water, solid waste, and hazardous waste.

RESEARCH GRANTS

GRANTS FUNDED AS PRINCIPLE INVESTIGATOR

2005. Interagency Personnel Agreement with USDA-CSREES for organic agriculture. USDA-CSREES. **\$34,599.**

2002-2005. Comparison of organic farming systems using off-farm nitrogen with and without animals. **USDA-Sustainable Agriculture Research and Education Program. \$149,968.**

2001-2002. Intercropping with resistant varieties for management of plant diseases in organic tomato production. **Organic Farming Research Foundation. \$8,940.**

1999-2002. Systems of transition from conventional to organic agricultural production. **USDA-Sustainable Agriculture Research and Education Program. \$217,247.**

1999-2002. Transition methods to convert from conventional to organic agricultural systems. **USDA-National Research Initiative Competitive Grants Program. \$103,329.**

1997. Development of West Virginia Voluntary Remediation and Redevelopment Guidance Document. **West Virginia Division of Environmental Protection. \$8,524.**

1991-1992. Hydrogeologic evaluations of the proposed APCO Wyoming to Cloverdale 765 kV electric power transmission line. **Appalachian Power Company. \$136,632.**

1990-1992. Nematicide mobility and biodegradation: Effects of orchard soil management. **USDA-CSRS Water Quality. \$99,924.**

1992, Renewed 1993. Research in plant nematology. **ISK Biotech. Total \$4,000.**

1990-1991, Renewed 1992. Novel rotation crops as alternatives to fumigant nematicide treatment in deciduous tree fruit production. **USDA-LISA. Total \$30,154.**

1991, Renewed 1992 and 1993. Alternative processing apple production systems and impacts on groundwater quality. **State Horticultural Association of Pennsylvania. Total \$7,250.**

1991, Renewed 1992. Integrated orchard management for processing apples. **West Virginia Tree Fruit Assessment Board. Total \$9,000.**

1987-1988, Renewed 1989. Environmental impacts of phenamiphos applied broadcast and in drip irrigation to peach orchards. **USDA National Pesticide Impact Assessment Program. Total \$41,533.**

1987. Nematicide evaluations in peach orchards. **Mobay Corporation. \$1,000.**

1986. Distribution and population dynamics of dagger nematodes, *Xiphinema* spp., associated with peach in West Virginia. **WVU Faculty Senate Research Grant. \$3,500.**

GRANTS FUNDED AS CO-INVESTIGATOR

2007. Immune status of lambs, born of protein-supplemented periparturient ewes and creep-grazed in spring, against *Haemonchus contortus*. **USDA-CSREES NE-IPM Program. \$57,000.**

2000. An investigation of the impact of biocomplexity on productivity and resistance to pest invasion in diversified agroecosystems- a survey of disease management and farming practices of organic tomato growers. **WVU Hatch Project. \$ 11,123.**

1998-2000. Environmental justice through pollution prevention: Assist state governments to identify most promising scenarios for implementing and measuring progress, and with follow-up compliance assistance to companies. **US Environmental Protection Agency. \$287,156.**

1993-1996. Ecosystem-based orchard management for processing apples. **USDA Sustainable Agricultural Research and Education Program. \$50,670.**

1992. Ecosystem-based orchard management for processing apples. **USDA National Research and Education Program on Sustainable Agriculture. \$16,200.**

1987-1991. Pesticide Impact Assessment Support: Groundwater sampling for pesticide residues. **National Pesticide Impact Assessment Program. \$5,000 per year.**

1989. Insect and Nematode management on turf grasses. **West Virginia Golf Course Superintendents Association. \$6,000.**

1987-1988. Interdisciplinary groundwater quality assessment team at West Virginia University: Formation of research team and organization of 1987 West Virginia Groundwater Conference. **WVU Water Research Institute. \$11,183.**

1985-1986. *Pratylenchus* spp. on potato: Yield response and environmental and economic impacts of fumigation. **USDA National Pesticide Impact Assessment Program. \$15,000.**

1985-1986. Mocap: Evaluation of efficacy and dissipation in soil and groundwater. **Rhone-Poulenc, Inc. \$9,240.**

1984-1985. *Pratylenchus penetrans* on potato: Yield response and environmental and economic impacts of fumigation. **USDA National Pesticide Impact Assessment Program. \$14,997.**

PUBLICATIONS

JOURNAL ARTICLES

Collins, A., J. Kotcon and L. Smith. The impact of biodiversity and management practices on foliar diseases in organic tomato production. *Renewable Agriculture and Food Systems*. (submitted for publication).

Whaley, D. A., C. B. Yuill, and J. B. Kotcon. Paradigm Shifts – Industry response to pollution prevention. *Journal of Hazardous Materials* (submitted for publication).

Salinas, K. A., S. L. Edenborn, A. J. Sexstone, and J. B. Kotcon. Feeding preferences of the bacteriovorous nematode *Cephalobus brevicauda* (Cephalobidae): Effect of bacterial type and size. *Pedobiologia* (submitted for publication).

J. R. Hendricks and J. B. Kotcon. Nematode management in *Malus domestica* using endophyte-infected fescue as ground cover. *Journal of Nematology* (accepted for publication).

Pannaccione, D. G., J. B. Kotcon, C. L. Schardl, R. D. Johnson, and J. B. Morton. 2006. Ergot alkaloids are not essential for endophytic fungus-associated population suppression of the lesion nematode, *Pratylenchus scribneri*, on perennial ryegrass. *Nematology* (accepted for publication).

Salinas, K. A. and J. Kotcon. 2006. Effects of Kodiak® (*Bacillus subtilis* strain GBO3) on soil-inhabiting nematodes near the rhizosphere of treated vs untreated snap bean seeds *In Situ*. *Journal of Sustainable Agriculture* (In Press).

Bull, C. T., C. Greene, J. B. Kotcon, and L. Oberholtzer. 2006. Organic Agriculture-Innovations in organic marketing, technology, and research: Introduction to the Proceedings. *Crop Management* doi:10.1094/CM-2006-0921-01-PS. Available at: <http://www.plantmanagementnetwork.org/pub/cm/symposium/organics/intro/>

- Salinas, K. A., and J. Kotcon. 2005. In vitro culturing of the predatory soil nematode *Clarkus papillatus* and interactions among adults and juveniles. *Nematology* 7(1):5-9.
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