



March 12, 2010

SUBMITTED ELECTRONICALLY AND VIA U.S. MAIL

National Park Service
Attention: DEWA PPL EIS Planning Team
Denver Service Center – Planning Division
12795 West Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287

Subject: Susquehanna-Roseland 500kV Transmission Line EIS Scoping Comments

Dear Planning Team:

On behalf of Environment New Jersey, New Jersey Environmental Federation, New Jersey Highlands Coalition, Sierra Club – New Jersey, Delaware Riverkeeper Network, Stop the Lines, Appalachian Mountain Club, Highlands Coalition, Rock the Earth, and the Association of New Jersey Environmental Commissions please accept these scoping comments on the proposal to prepare an Environmental Impact Statement (EIS) for the Susquehanna to Roseland Transmission Line (SR500) applications submitted by Public Service Electric and Gas (PSE&G) and Pennsylvania Power & Light Electric Utilities (PPL).

We appreciate the opportunity the National Park Service (NPS) has provided for public input on the issues to be addressed in the draft EIS (DEIS) for this proposed action. Please include the issues raised in our scoping comments in the project record for the EIS as standing for Environment New Jersey, New Jersey Environmental Federation, New Jersey Highlands Coalition, Sierra Club – New Jersey, Delaware Riverkeeper Network, Stop the Lines, Appalachian Mountain Club, Highlands Coalition, Rock the Earth, and the Association of New Jersey Environmental Commissions on these issues. We request that copies of the DEIS, on CD-Rom, be sent to each of the commenting organizations at the addresses listed at the end of these comments.

COMMENTERS

The organizations commenting on the scope of a DEIS are described in more detail in the following paragraphs. In addition to tireless advocacy across the State, region, and nationally on issues of paramount importance to our environment, several of these organizations have been raising significant issues and concerns about the proposed Project

744 Broad Street, Suite 1525
Newark, NJ 07102
Ph 973.424.1166 Fx 973.710.4653

www.easternenvironmental.org

in various other fora: the New Jersey Board of Public Utilities^{***}, the New Jersey Highlands Council, and the New Jersey Department of Environmental Protection.

Environment New Jersey is a non-profit 501(c)(3) organization whose mission it is to take independent research and tough-minded advocacy to win concrete results for the environment, especially when powerful interests stand in the way of environmental progress. Environment New Jersey takes action at the local, state and national levels to improve the quality of our environment and our lives. Environment New Jersey together with Environment America, its national arm, has for many years advocated that New Jersey, other states and the nation should phase out traditional energy sources and build toward a future when clean, renewable energy and energy efficiency are meeting 100% of our electricity needs, as soon as possible.

Clean Water Action is a 30 year-old national non-profit 501(c)(4) organization based in Washington, D.C., dedicated to organizing citizen efforts to protect the environment. Clean Water Action has 1.2 million members working to empower people to take action to protect America's waters, build healthy communities and to make democracy work for all of us. In New Jersey, Clean Water Action does business as New Jersey Environmental Federation (NJEF) where it fights to protect natural resources and clean up pollution in New Jersey. NJEF has nearly 70,000 individual members and over 100 environmental, community, religious, labor and student member groups.

The New Jersey Highlands Coalition is non-profit organization formed as an alliance of other non-profit groups whose mission is to advocate for the protection, preservation, and enhancement of the water, forests, wildlife, farmland and other natural historic and cultural resources of the New Jersey Highlands. Its member organizations include: Alliance for Historic Hamlets, ANJEC (Association of NJ Environmental Commissions), Township of Alexandria, Hunterdon County, Burnham Park Association, Canal Society of New Jersey, Citizens for the Preservation of Ogdensburg, Citizens to Save Tewksbury, Concerned Citizens Against Quarry, Eco Action Initiatives of Warren County, Friends of Fairmount Historic District, Friends of Holland Highlands, Friends of the Sparta Mountains, Garden Clubs of America, Great Swamp Watershed Association, Hawthorne Park Association, Highlands Tourism Partnership, Hunterdon Land Trust Alliance, Kinnelon Conserves, Lake Gerard Fish & Game Club, The Land Conservancy of New Jersey, Morris County Trust for Historic Preservation, Mount Hope Historical Conservancy, Inc, Preserve Historic Hackettstown, Inc, Musconetcong Watershed Association, Musconetcong Mountain Conservancy, New Jersey Audubon Society, New Jersey Conservation Foundation, New York-New Jersey Trail Conference, New Jersey Outdoor Alliance, Northeast Organic

^{***} The National Park Service sought and was granted participant status in both the proceeding before the Pennsylvania Public Utilities Commission and the New Jersey Board of Public Utilities. As such, it has in its files copies of all pleadings, discovery, orders, and other documents generated in connection with those matters. For that reason, certain items from those proceedings are referred to herein, but are not attached; however, we respectfully request that those items incorporated by reference in this letter be expressly included in the record of this NEPA proceeding.

Farmers Association of NJ (NOFA-NJ), POWWW (Preserve Our Wetlands, Waters and Woods), Preserve Greystone, Raritan Highlands Compact, Residents Against Power Plants, Residents Alliance for Neighborhood Preservation, Inc. (RANPI), Weequahic Park Association, Save Rural Andover Borough, South Branch Watershed Association, Skylands Preservation Alliance, Stop Riverbank, Stop the Lines!, Sustainable Highlands NJ, Trout Unlimited, NJ State Council, Upper Raritan Watershed Association, and Washington Valley Community Association

The Sierra Club is a nonprofit corporation organized under California law, with 65 chapters and over 750,000 members nationwide. The Sierra Club's mission is to explore, enjoy and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's resources and ecosystems; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. The New Jersey Chapter (Sierra NJ) is a non-profit organization and a state chapter of the Sierra Club. It has approximately 20,000 members who hold monthly meetings in ten locations throughout the state.

Delaware Riverkeeper Network (DRN) works to protect and restore waterways throughout the entire 13,539 square mile Delaware River watershed, which includes portions of New Jersey, Pennsylvania, New York and Delaware. From its office in Bristol, PA, DRN defends the watershed's remaining high quality waters, tributaries and diverse habitats and works to restore those areas of the watershed that are impaired and damaged.

Stop The Lines is a non-profit grassroots group of citizens along the Susquehanna-Roseland line that are opposed to the proposed overkill expansion of the line. They have worked to educate the public and keep people involved and informed in the process. Stop The Lines continues to advocate for a "no build" solution since energy demand has been dropping for more than 3 years.

The Appalachian Mountain Club (AMC), founded in 1876, promotes the protection, enjoyment, and stewardship of the mountains, forests, waters, and trails of the Appalachian region. It believes these resources have intrinsic worth and also provide recreational opportunities, spiritual renewal, and ecological and economic health for the region. Because successful conservation depends on active engagement with the outdoors, it encourages people to experience, learn about, and appreciate the natural world. AMC's 100,000 members, advocates, and supporters promote this mission with great enthusiasm.

The Highlands Coalition is a four-state alliance of nearly 200 nonprofit, municipal, state and federal organizations working collaboratively to protect and enhance the sustainability of natural and human communities in the Highlands region of Pennsylvania, New Jersey, New York, and Connecticut. At a regional level, it works to secure federal and state funding for land protection in the Highlands and to foster more regional approaches to planning for and managing growth. At the local level, members of the Highlands Coalition contribute to efforts to fend off inappropriate development projects that threaten important

Highlands resources and work with planning boards and community groups to understand the values of the Highlands and incorporate them into their decision making.

Rock the Earth is a Pennsylvania nonprofit conservation organization whose mission is to protect and defend America's natural resources through partnerships with the music industry and the world-wide environmental community. Rock the Earth has approximately 2,300 members nationally, 150 of which reside in Pennsylvania or New Jersey. Rock the Earth members have routinely used and visited the Delaware Water Gap National Recreation Area (DEWA), the Middle Delaware National Scenic and Recreational River (MDSR) and the Appalachian National Scenic Trail (AT) in Pennsylvania and New Jersey (jointly, "the Park Units") for recreational purposes, which have included backpacking, hiking, camping, angling, bird viewing, photography, and other non-motorized activities, in which they can experience the beauty, peace, natural quiet, and solitude found there.

The Association of New Jersey Environmental Commissions (ANJEC) is a private non-profit educational organization. Its mission is to promote the public interest in natural resource protection, reclamation and sustainable development and to support environmental commissions working with community officials and concerned citizens.

INTRODUCTION

As described in more detail below, the SR500 transmission line proposed by PPL Electric Utilities Corporation (PPL) and Public Service Electric & Gas (PSEG) and the other so-called "backbone" transmission projects: Trans-Allegheny Interstate Line (TrAIL), the Potomac-Appalachian Transmission Highline (PATH), and Mid-Atlantic Power Pathway (MAPP) (collectively all of which were conceived of as part of "Project Mountaineer") are a single action that must be evaluated together in any EIS under the National Environmental Policy Act (NEPA).

The SR500 is part of a larger "reliability" project promoted by PJM Interconnection, LLC (PJM). Additionally, the SR500 and the energy generation sites that have been proposed and are in PJM's generation queue cannot exist without each other, therefore, those generation sites are also part of this single action and must be evaluated. Accordingly, these comments will refer to the "transmission line" when referencing the proposed approximately 140-mile long transmission line, to the "generating sites" when referencing the proposed generation sites in PJM's generation queue that the transmission line would service, and to the combination of the transmission line and generating sites as the "Project."

PSE&G has presented the SR500 as one necessary to address alleged reliability violations identified by the regional transmission operator, PJM. There are significant questions about the need for the Project. This letter offers some information about the history of the transmission line, the alleged reliability issues, the role of PJM, the alternatives that have not been considered, both in terms of meeting energy needs in the future as well as the location of the Project, and the overarching mandate the legislature has placed on the

New Jersey Department of Environmental Protection (NJDEP) in the Energy Master Planning Act and the Global Warming Response Act, as well as corresponding actions in Pennsylvania, to help achieve greenhouse gas reductions in the future.

In summary, the Project is about money. The Project is about “wiring” the regions with power lines sufficient to bring power from coal-fired power plants in western PJM to lucrative energy markets in the east. The Project is not about: reliability, energy demand, preventing blackouts, or renewable energy. There are alternatives to the Project: energy conservation, energy efficiency, demand side management projects to reduce peak energy demand, and distributed energy projects that locate small scale energy generation where the need exists. In essence, there is no reason to allow additional destruction of federal, state, and local lands. In fact, an article in the Bergen Record, dated October 26, 2009, cites that both then-Governor Corzine and even Ralph Izzo, the Chief Executive Officer of Public Service Enterprise Group (PSE&G’s parent corporation) are opposed to large transmission lines that move power from west to east, because they are bad for renewables and environmentally harmful:

Suggesting we should get our renewables from remote areas regardless of transmission costs is like saying if only we had access to free refrigerated freight trains, we should get all our ice cubes from the North Pole," Izzo said. Who pays to build the trains or lay the tracks? And wouldn't it be cheaper to make the ice locally? Izzo also said that long-distance lines invariably would cross regions where power is produced from coal, and it is unlikely that once lines are built those power plants would be barred from using them. Thus you could end up with transmission lines that are **economically unjustified and environmentally self-defeating**, he said.¹

Furthermore, on May 4, 2009, the Governors of 10 states (Massachusetts, Rhode Island, Delaware, Maine, Maryland, New Hampshire, New Jersey, New York, Vermont and Virginia) wrote to the U.S. Congressional Delegation expressing concern about the effect transmission projects would have on efforts to develop wind resources in those states.² The Independent System Operators (ISOs) in New York and New England also expressed concern about investment in large-scale transmission, such as the SR500 and the other “backbone projects” without a better understanding of the impacts it will have on the development of local resources, particularly wind.³

In summary, the commenters have serious concerns about whether the proposed Project can be approved consistent with the NPS’s statutory and regulatory obligations for managing lands in the DEWA, the AT and the SRR and about the potentially serious

¹ Herb Jackson, Bergen Record, *N.J. says green energy effort may be harmful*, October 26, 2009.

² Hon. Deval Patrick, et al., Letter to Senator Harry Reid, et al, dated May 4, 2009 (copy attached – Exhibit A).

³ Gordon van Welie, et al., Memorandum to Joint Coordinated System Planning Initiative, dated February 4, 2009 (copy attached – Exhibit A).

environmental impacts of the Project on both the federal holdings, but also the larger ecosystem.

GEOGRAPHIC SCOPE

The National Park Service (NPS) has preliminarily identified the geographic scope of the proposed action. That geographic area is inadequate. While the commenting organizations appreciate that the immediate area of concern for the NPS is the Delaware River Water Gap National Recreation Area (Water Gap or DEWA), the Appalachian Trail (AT), and the Middle Delaware Recreational and Scenic River (River or SRR), the Project affects a significantly broader area. The Water Gap, the River, and the AT are several, individual jewels within the crown known as the Highlands of Connecticut, New York, New Jersey, and Pennsylvania (Highlands).⁴ It is incumbent upon NPS to broaden the scope of the EIS. The commenting groups maintain that due to the interconnectedness of the backbone projects described above, the NPS should broaden the scope of the EIS to cover all of the areas impacted by any of the four projects. If the NPS elects not to broaden the geographic scope in that matter, it should, at minimum, consider all impacts along the entire 146 mile line, in all watersheds intersected, and in particular, in the Highlands. In support of this request, we provide with some historical background on the creation of the Highlands.

The Highlands – A Brief Overview

In 1990, Pennsylvania Congressman Kostmayer inserted a provision in the federal Farm Bill that provided funding for the Secretary of Agriculture to conduct a study by the Forest Service of the Highlands Region in New York, New Jersey and Pennsylvania, to assess the forest resources including fish and wildlife, water resources and recreation, land use patterns, natural integrity, “local culture and quality of life,” and to develop “alternative conservation strategies to protect the long-term integrity and traditional uses of lands within the region.” Food, Agriculture, Conservation, and Trade Act of 1990 §1244, 104 Stat. 3547, Pub. L. 101-625, (Nov. 28, 1990).⁵

In 1992, three major reports on the Highlands were released. The Skylands Greenway: A Plan for Action, called for the designation of a National Greenway, a Greenway Council and the “enaction of a Highlands Commission with the planning and regulatory authority to protect and manage the crucial lands and critical natural resources... within the Highlands Physiographic Province.”

The Highlands region received federal recognition as a “landscape of national significance, rich in natural resources and recreational opportunities,” in the 1992 USDA/Forest Service New York-New Jersey Highlands Regional Study. The Highlands

⁴ US Forest Service, The Highlands of Connecticut, New York, New Jersey, and Pennsylvania, available at: <http://na.fs.fed.us/highlands/about/index.shtm>

⁵ Morris County Park Commission, et al., Fanny Highlands Watershed, A Plan to Protect Water Supplies and to Preserve Forests (July 1991).

Work Group, an outgrowth of the Forest Service study, called for public action to protect the Highlands, through a Highlands National Stewardship Area and a Highlands Regional Council. Also in 1992, New Jersey Conservation Foundation published a 150-page book, *The New Jersey Highlands: Treasures at Risk*.⁺

In 1997, in another attempt to secure federal support, the NJ Assembly passed a resolution calling for the establishment of a Highlands National Forest Preserve. In 2000, Senator Torricelli and Rep. Frelinghuysen sponsored federal legislation authorizing an update of the 1992 Forest Service NY-NJ Highlands Regional Study. To assist with implementation of the study, a Highlands Preservation Summit was convened by Congressman Ben Gilman (NY), to provide feedback to Forest Service planners.

At the same time, efforts to secure state recognition were moving forward in the states. In 2001, the New Jersey State Planning Commission recognized the New Jersey Highlands as New Jersey's first "Special Resource Area" in the State Development and Redevelopment Plan, with the concept receiving support from many Highlands municipalities. Two years later, in September 2003, NJ Governor Jim McGreevey appointed a New Jersey Highlands Task Force to come up with recommendations on how to protect the New Jersey Highlands through state legislation.

In March, 2004, the New Jersey Highlands Task Force released its Action Plan. State legislation was introduced on March 29. On June 10, 2004, the New Jersey Legislature passed the New Jersey Highlands Water Protection and Planning Act by overwhelming majorities. Governor Jim McGreevey signed the Act into law on August 10. (PL 2004, Ch. 120).

Federal legislation was only slightly behind. In December 2004, Congress passed the federal Highlands Conservation Act, which President George H.W. Bush signed into law. Pub. L. 108-421. This law authorized \$10 million per year for ten years for land preservation in the four Highlands states of New Jersey, New York, Pennsylvania and Connecticut, plus \$1 million per year for technical assistance by the US Forest Service.

CONSULTING AGENCIES

In preparing the DEIS, NPS, the U.S. Fish & Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), the Army Corps of Engineers (ACOE), the Forest Service (FS), the Environmental Protection Agency (EPA), and the Department of Defense (DOD) must evaluate the Project's compliance with the substantive requirements of the laws governing the protected areas within which the Project would be located or will affect. This includes disclosure to the public, in the DEIS, of the agencies' determinations whether the

⁺ The commenters respectfully request that all studies, reports, and chapters cited to in this letter be incorporated by reference and considered part of the formal record in this NEPA proceeding. If the NPS requires copies of certain documents, please contact the author of this letter.

Project would be compatible with the purposes of the Delaware River Water Gap National Recreation Area (DEWA), the Appalachian National Scenic Trail (AT) and Middle Delaware Scenic and Recreational River (SRR) and whether it would be consistent with NPS's obligation under the applicable statutes, regulations, policies, and directives to prevent degradation to public lands.

We note at the outset that the Internal Scoping Report, dated October 2009 (ISR) failed to identify EPA and NMFS as interested federal agencies. Additionally, the February 8, 2010 letter from the NPS to various state and federal agencies and tribal authorities failed to include NMFS and the Forest Service in the list of entities commenting on the scoping for the EIS, as well as a number of other tribal authorities. These deficiencies must be corrected.

FUNDAMENTAL NEPA CONSIDERATIONS

In preparing the DEIS, please consider and address the following issues:

Legal Requirements

NPS and other commenting agencies must evaluate and disclose to the public in the DEIS their determination of the Project's compliance with the substantive laws governing the protected areas on and near DEWA, AT, and the SRR.

The ISR set forth a fairly inclusive list of applicable statutes, regulations, orders, and policies governing NPS's NEPA review of the Project. A brief discussion of those areas omitted by NPS, in large part due to an inappropriately narrow scope of review, is set forth later in this letter. Of particular importance are the pieces of enabling legislation creating the three areas. The laws make it clear that the public's recreation use and enjoyment is paramount. For example in the DEWA's enabling legislation, Congress set out to provide for public recreation and enjoyment, and for "preservation of the scenic, scientific and historic features contributing to public enjoyment of such lands and waters." Pub. L. 89-158 (September 1, 1965). In creating the SRR to protect and enhance the value of the Delaware River, Congress commanded that primary emphasis was to "be given to protect [the area's] esthetic, scenic, historic, archeological, and scientific features." Pub. L. 90-542 (October 12, 1968). The AT received federal protection in the 1960s primarily because its integrity as a simple footpath intended to provide a wilderness respite from urban life had become so threatened.⁶ The goal is to provide maximum recreational opportunities and to preserve and conserve significant resources. Overlaying all of these individual laws in the NPS Organic Act, which identifies the purposes of the parks as conservation and protection so that they can be enjoyed today and remain unimpaired for future generations. NPS Organic Act, 16 U.S.C. §1.

⁶ Appalachian National Scenic Trail, Resource Management Plan, September 2008, I-1.

NPS must disclose in the DEIS whether it can, consistent with its management obligations for the DEWA, AT, and SRR under the operative laws, authorize the use of any federal land for a transmission line that will pass through these areas. NPS is obligated to manage the lands the benefit of present and future generations and to ensure the conservation, protection, and improved management of the ecological, social, and economic environment of the area including geological, biological, wildlife, riparian, and scenic resources.” Id. In the event that NPS finds that the proposed transmission line and generation sites will impair the resources of the DEWA, AT and the SRR, it must select the No Action Alternative and deny the right-of-way application and authorization to construct the transmission line. 16 U.S.C. §1a-1.

NPS must also disclose in the DEIS and evaluate whether any proposed alternatives would result in the construction of new roads or facilities or alter existing roads or trails on federal lands within the area. The permanent effect of transmission line construction should prevent NPS from authorizing a right-of-way that violates the NPS Organic Act and any of the individual pieces of enabling legislation noted above. NPS must evaluate in the DEIS whether, consistent with the nonimpairment mandate of those laws, it can authorize a right-of-way for the proposed transmission line.

We have serious concerns that construction of the transmission line and generating sites within the DG, ST, and SRR cannot be compatible with the purposes for which those federally-protected areas were established. NPS must eliminate from consideration any alternatives that are not compatible with the Organic Act, and the enabling legislation.

Best Available Science

NEPA and its implementing regulations require that a DEIS be a nearly complete EIS that contains almost all of the components that will appear in the Final EIS. 40 C.F.R. § 1502.9(a). The purpose of preparing a DEIS and circulating it for public comment is to ensure that the public can review the agency’s alternative proposals and its actual analysis of the impacts of those specific alternatives. See id.; Cal. v. Block, 690 F.2d 753 (9th Cir. 1982). A DEIS released to the public before completion of major ecological studies and without complete evaluation of major alternatives would violate this principle. NPS must insure that all significant ecological studies of the various alternatives, including the impacts of both the transmission and generation infrastructure, be completed, disclosed, and evaluated in the DEIS.

Rushing out a DEIS on the schedule outlined in the ISR, without a thorough collection and evaluation of data on potential Project impacts, would violate NEPA. NPS’s disclosure and evaluation of the impacts of the generating sites and transmission lines may only occur after it has obtained the necessary information; and, to the extent it lacks that information, it must obtain it before issuing the DEIS. Nat’l Parks & Conservation Ass’n v.

Babbitt, 241 F.3d 722, 733—34 (9th Cir. 2001) (noting also that “generic statement that the effects are unknown does not constitute the requisite ‘hard look’ mandated by the statute”).

PURPOSE AND NEED

The DEIS must not define the purpose and need for the project in an impermissibly narrow way. See 40 C.F.R. §§ 1500.1(b); 1502.13; Env'tl. Law & Policy Center v. U.S. Nuclear Reg. Comm., 470 F.3d 676 (7th Cir. 2006); Simmons v. U.S. Army Corps of Eng'rs, 120 F.3d 664 (7th Cir. 1997). As it is currently stated in the ISR, the purpose and need is drawn too narrowly. This purpose and need for potentially granting an expanded right of way across federal lands, rights to use park natural areas for access, to construct new towers and add a new 500 kV line and authorizing an action that would result in industrial construction within the DEWA, AT, and SSR cannot be so limited, but must rather focus on identifying whether there truly is a need for the Project in these areas at all.

The NPS must critically examine the purpose and need of the expansion from both the Park's perspective and the applicants' perspective. There is clearly a connection between transmission expansion and new coal and other fossil fuel plant generation.⁷ The NPS has thus far in its early scoping documents ignored that connection. As such, we insist that the NPS critically analyze, from the applicants' perspective, whether the applicant is seeking to expand the transmission system to accommodate future electricity generation, as opposed to meet an immediate need.

A careful and impartial analysis will reveal, at least to some extent, if not wholly, that the PPL and PSE&G proposes this Project at this time to increase the value of its shares. Being the case, the NPS must reject the applications as the Project is not intended to serve a public need, but rather a private one for the members of PJM. The NPS is under no requirement to abet its permittees' profit from development of new facilities.

The NPS must accurately and logically define the purpose and need for the expansion. With accurate and informative data as it applies to the needs of the public, namely current demand and reasonable load forecasts in the future, the NPS can determine if the proposal is justified in serving the public's needs.

We also note some inaccuracies in the purpose as stated in the ISR at 1.1.1. PSEG and PPL will also be engaging in demolition activities on federally-protected lands to remove and dismantle existing towers. In addition to adding a new 500kV circuit, PSEG and PPL will be removing the existing 230 kV line and adding a new 230 kV line. NPS should evaluate in the DEIS whether fossil energy generation and transmission is an appropriate use for the federally-protected lands that the Project would affect.

⁷ See the excerpts from sections 4 of the 2007 and section 8 of the 2008 PJM RTEPs relating to generation in Pennsylvania. (Exhibit A)

This proposal necessarily involves consideration of whether there exist potential alternative sites for generating energy that do not require the construction of a “backbone” transmission line, which would involve less ecologically sensitive areas than the DEWA, AT and SSR, as well as the Highlands, including generation sites that are closer to existing transmission lines or distributed generation alternatives, energy efficiency, and conservation measures that would involve little or no additional new transmission line construction. The DEIS must also evaluate other sites on other lands that are available in the vicinity.

NPS should also consider whether the lower efficiency and higher maintenance cost of fossil energy generation and long-distance extra-high voltage electricity transmission, compared to renewable generation alternatives (solar, geothermal, hydropower, distributed generation) would obviate any need for this Project. Please also evaluate whether there is a need for long-distance transmission, when other energy generation sites are located closer to existing transmission lines. This analysis can be done—the data is available, but PJM and PSEG have not done it.

ADDITIONAL PROJECT BACKGROUND

PSE&G and PJM have presented the SR500 as one required to address alleged “reliability” violations that are predicted to occur in the future. PSE&G claims that New Jersey needs the SR500 because PJM has predicted that, in time, there will be “reliability problems.” Those “problems” consist of predicted violations of the North American Electrical Reliability Council (NERC)’s standards on some circuits in Pennsylvania and New Jersey.

It bears noting that PJM is the regional transmission operator (RTO)—it manages the transmission grid in its region and the corresponding energy markets. That is all it does. **If PJM predicts problems, the only solutions it will propose involve building new power lines.**

The Project Is Unnecessary—When You Have a Hammer, Everything Looks Like a Nail...

There are many ways to solve reliability problems, including the alleged NERC problems. All of these ways are better and cheaper than building new power lines. Some examples of alternatives include:

- Building new power generating sources where there is the most demand, rather than importing power from hundreds of miles away.
- Rebuilding and “reconductoring” existing lines using existing rights of way.

- Reducing overall demand by managing energy use, by both industrial and residential users with new technologies that allow power companies to reduce use at peak times.

As a threshold matter, the claims PJM and PSE&G are making about the “need” for the line are suspect. The SR500 is not necessary for a number of reasons. First, the predictions about energy demand increasing have proven to be false. Energy demand is down. Second, PJM’s models, which drive the conclusion that there will be reliability violations, do not adequately take into consideration alternative ways to meet demand. Third, the transmission grid could use some modernizing, but the Project will not modernize the grid. The Project is simply a means to move cheap coal-fired power from west to east. If a company can make money producing cheap power anywhere in the vast PJM region, PJM must figure out how to accommodate that power on the grid—regardless of whether we need or want that power. Finally, threats of more blackouts in the absence of the Project are unfounded and amount to baseless fear-mongering by PSE&G and PPL. To alleviate any concerns the NPS may have in this regard, we have included some information about the causes of the 2003 Blackout in these comments, taken from the official report.

How Did We Get Here? Some Useful Background Information

There is no doubt that energy policy is complicated. It is technical, laden with jargon, and generally difficult to understand. Although the NPS has been asked to evaluate the merits of PSE&G’s and PPL’s application for the Project, to understand how the SR500 developed and why it is the subject of intense opposition, some context is useful.

Major changes in the power industry in the last decade created the new push for interstate transmission lines. Competition among providers is now fostered; in addition, new generation and transmission companies have replaced the vertically integrated utilities that served only those customers within their bounded service area. Power providers scouting for new markets to serve are now looking at customers remotely located from their generation plants.

The ‘congestion’, which is now cited as the justification for constructing interstate transmission lines, reflects the fact that the grid was not built to handle the new volume of long distance bulk power transactions. Power suppliers to our west are thus constrained in their ability to deliver power to higher paying consumer markets to our east. The economic costs ascribed to congestion reflect the grid’s limitations to move the power offered by these generation companies to the markets in NY and NJ where they desire to sell their power. The estimates of congestion costs reflect the fact that higher priced power is being consumed regionally than what these power companies would offer to the market.

The Energy Policy Act required the Department of Energy (DOE) to examine transmission congestion and constraints. It is important to bear in mind that transmission system “congestion” and “reliability” are two distinct issues that merit separate consideration in policy decisions. It is possible to have congestion without having reliability problems – as

is the case today. Congestion is the inability to deliver lowest priced power at any point in time. This is not a matter of national security, or even system reliability. Congestion is about money—not about need.

Energy Policy Act of 2005

The 2005 Energy Policy Act was pushed through Congress by the Bush (Cheney) Administration and the power industry lobby to put into federal law the industry’s plan for electric power. Industry lobbyists scared Congress and the public into thinking there was a major crisis of the grid infrastructure that would lead to more 2003 blackouts. At the very same time, industry and government investigators had actually concluded that power lines had held up very well in 2003 considering all the chaos in the switching of power in the region.

The Act created National Interest Electrical Transmission Corridors (NIETC) that essentially allow federal seizure of private land for use by privately owned power companies, a revolutionary expansion of eminent domain power in federal law. Lobbyists pushed hard for special treatment of companies that built new interstate transmission lines. In particular, they got a provision that FERC could allocate costs of new lines to all ratepayers using power from those lines. Lobbyists also got approval for extra high guaranteed profits on power line rates as an incentive to build new transmission lines. These benefits have been passed on to regional transmission operators (RTOs) and utilities, as discussed in the next section.

PJM’s Role

To put PJM’s role in context, recall that in 1997, FERC approved the restructuring of PJM (prior to that time, it operated as a power pool) into an independent system operator (ISO).⁸ The ISO has control over the transmission system and the spot energy market. In short—PJM reviews, plans, and approves transmission system projects.

A Brief History of the Project – in the Shadow of “Project Mountaineer”

In the wake of the Energy Policy Act of 2005, PJM rapidly moved to take advantage of the NIETC and the economic benefits that would flow to RTOs and utilities. As a result, our entire mid-Atlantic region is encompassed by an overarching PJM transmission plan known by the name Project Mountaineer.⁹ PJM’s Western Region President put it best when he testified to FERC in May 2005 about PJM’s commitment to increasing transmission for coal-fired generation and describing its then-new initiative—Project Mountaineer:

⁸ José Rotger, et al., Transmission Expansion in New York State, New York Independent System Operator White Paper, November 2008

⁹ Testimony of Karl Pfirrmann, President, PJM Interconnection, L.L.C., Western Region, Prepared for the Federal Energy Regulatory Commission’s Technical Conference: Promoting Regional Transmission Planning and Expansion to Facilitate Fuel Diversity Including Expanded Uses of Coal-Fired Resources; Docket No. AD05-3-000, May 13, 2005. (emphasis added)

PJM is certainly proud of what has been accomplished to date to open up markets to coal, but there is much more that we and others in this region can do to further **enhance that use of coal**. It is for this reason that, today, PJM is setting out by example, a new initiative which we have labeled Project Mountaineer -- appropriately titled for the state that we're in -- to utilize our regional transmission expansion planning process to explore ways to further **develop an efficient transmission super highway, if you will, to deliver the low-cost coal resources in this region of the country, to market**. RTOs have and will continue to bring benefits to this region. PJM has a proven, transparent regional planning process that has already identified over a billion dollars of transmission improvements, all designed to improve the reliability and economics of power flows in this region. This is further exemplified recently by the announcement by Exelon and PSE&G to contribute an additional \$25 million towards construction of projects identified through our regional planning process.¹⁰

Dating back to at least 2005, the thrust of PJM's regional transmission planning and expansion for Project Mountaineer has been to support the "expanded use of coal-fired resources," building from earlier activities directed at "opening up markets for coal-based resources." Its objective is to explore options to further develop high voltage transmission to move power from the coalfields of Ohio, Kentucky and West Virginia to markets along the eastern seaboard. "It is an example of how the region can take coordinated regional planning to the next level ... [outlining] the scope of transmission projects that would be needed to significantly enhance the ability of coal based resources to reach eastern markets." The success of PJM efforts was measured in part in terms of "increased market opportunities for this region's generation resources"

New Jersey sits in a strategic position for Project Mountaineer (depicted in the map below)¹¹, as it is in the easternmost portion of PJM's region and the gateway to New York and New England.

¹⁰ Id. at 61.

¹¹ Id.



PJM's "Backbone" Projects

As part of the restructuring of PJM as the ISO for a vast region, PJM and its transmission owners developed a system-wide rate methodology for allocating the cost of existing transmission facilities and of new facilities below 500 kV. As for new facilities, FERC determined that the costs of all new PJM-planned facilities that operate at or above 500 kV should be shared on a region-wide basis. Notably, FERC extended this rate treatment to both reliability and economic projects. FERC's decision represented a marked departure for transmission cost allocation in PJM, which has long been premised on a 'beneficiary pays' approach. Importantly, the decision represented a victory for transmission owners developing the PJM west-to-east "mega-projects" (e.g., AEP and Allegheny), which have stated that they will not develop these billion-dollar projects absent cost recovery via a regional, PJM-wide cost allocation mechanism.

In 2006 and 2007, PJM authorized four major interstate projects representing well over \$5 billion in investment. These four major projects are: Trans-Allegheny Interstate Line (TrAIL), Potomac-Appalachian Transmission Highline (PATH), Susquehanna-Roseland, and Mid-Atlantic Power Pathway (MAPP). All of these projects lie squarely within the recently designated Mid-Atlantic National Interest Electric Transmission Corridor (NIETC).

TrAIL

PJM authorized TrAIL in June 2006. To be built by Allegheny Energy and Dominion, the \$1.1 billion TrAIL project is a new 500 kV line from southwestern Pennsylvania through West Virginia into northern Virginia. Specifically, the TrAIL project would run from a new Prexy substation in southwestern Pennsylvania to the 1,600 MW Mt. Storm coal plant in West Virginia, continuing east to the Meadow Brook substation in Middletown, Virginia and ending at Dominion's Loudoun Substation in the suburbs of

northern Virginia. The Allegheny Energy portion of the project (Prexy-Meadowbrook, about 210 miles) is estimated to cost \$820 million, while the Dominion portion in Virginia (65 miles) is estimated at \$243 million. On July 21, 2008, FERC approved a settlement agreement that establishes a cost-of-service formula rate for TrAIL, and among other things grants the project several rate incentives, including a **return on equity (ROE) rate of 12.7%; full recovery of construction work in progress** (CWIP) in rate base; and use of a hypothetical 50/50 capital structure and accelerated depreciation expense rates.

PATH

Responding directly to PJM's May 2005 Project "Mountaineer" transmission project, in January 2006 AEP proposed a 550-mile, \$3+ billion 765 kV interstate transmission project, dubbed the I-765 project and also known as PATH. Extending from AEP's Amos substation in western West Virginia into the Doubs substation in Maryland, and continuing through southeastern Pennsylvania to PSEG's Deans substation in northern New Jersey, the I-765 project would transfer 5,000 MW of energy and capacity from PJM West to PJM East. AEP partnered with Allegheny Energy and submitted the project to PJM for review and potential inclusion in the PJM RTEP as a backbone transmission project.

The remaining portion of the I-765 project from Kemptown in Maryland to the Deans substation in New Jersey remains under study by PJM for potential inclusion in the RTEP, and is not part of the AEP/Allegheny joint venture. Notably, this line would not be located in the New Jersey Highlands, as PSE&G's Deans substation is located in Middlesex County.

Susquehanna-Roseland

Authorized by PJM in June 2007, the Susquehanna-Roseland 500 kV line would extend 130 miles from PPL's Susquehanna substation (adjacent to the Susquehanna nuclear power plant) in northeastern Pennsylvania to PSEG's Roseland substation near Newark, New Jersey. Estimated at a total of \$1.1 billion, the \$500 million Pennsylvania portion of project would be built by PPL and the \$600 to \$750 million New Jersey portion by PSEG.

MAPP

In October 2007, PJM approved Pepco Holdings Inc.'s (Pepco) MAPP project. It is a new 230-mile 500 kV transmission line running from the Possum Point Station in northern Virginia into Maryland and the Calvert Cliffs nuclear plant, and then crossing the Chesapeake Bay to the Delmarva Peninsula and heading north through Delaware (via the Indian River coal plant) to the Salem Station in southern New Jersey.

Energy Demand Is Down—the Predictions Are Off

PSE&G's original rationale for the Susquehanna-Roseland line was based on PJM's need for the line assuming a projected 4 percent increase in peak demand in 2008. However,

actual demand for electricity was down and continues to decline. The decrease in demand has been documented by PJM, North American Electric Reliability Corporation (“NERC”), PSE&G, and other utilities. In a November 12, 2008 report, PJM revealed that actual unrestricted peak demand for the summer of 2008 was actually 7.8% lower than summer 2007 demand (as opposed to the predicted 4% increase).¹²

The unexpected drop in electricity demand is widespread, and may be indicative of a permanent shift in consumption rather than a byproduct of the economic downturn. It also may be an indicator of the impacts of conservation mandates enacted by many states, including New Jersey, and contemplated at the federal level. Because consumption dropped even in places where prices were flat or declining, some power companies are questioning the reliability of weather-adjusted forecasting models altogether, like the type of model used by PJM that predicted both an increase in demand and the corresponding reliability violations.¹³

PSEG’s reduced demand forecasts are mirrored in PJM’s updated load projections. In January, 2009, PJM released its draft 2009 Load Forecast in which PJM assumed a 4,929 megawatt decrease in the projected electric load for the region in the 2011 timeframe.¹⁴ PJM’s most updated load forecasts assume that a financial recovery beginning in 2010 will induce a return to pre-recession levels of electricity consumption. But this is a risky bet using ratepayers’ funds and relying on inherently uncertain economic forecasts. As recently as June, 2009, Eric Rosengren, President of the Federal Reserve Bank of Boston, observed that a poor understanding of the linkages between financial intermediaries, markets and the real economy has led many forecasters to underestimate the size, severity and length of the current economic downturn. Speaking at a Federal Reserve conference in Washington, Rosengren warned that liquidity disruptions were likely to have longer-term repercussions than most forecasters have assumed.¹⁵

While PJM claims that near-term reductions in consumer demand and recent economic downturns are **not** factored into its long-term load forecasts and should not impact the need for long lead-time expansions like the Susquehanna-Roseland line, recent transmission expansion delays attest otherwise. On May 19, 2009, Potomac Electric Power Company (“PEPCO”), a subsidiary of PEPCO Holdings, Inc., announced that it was delaying the in-service date of its planned Mid-Atlantic Power Pathway (“MAPP”) transmission line from 2013 to 2014 on PJM’s recommendation that the line *would not be*

¹² See Brief of Piedmont Environmental Council in *Piedmont Environmental Council v. Virginia Electric Power Company, et al.*, on Motion to Virginia Supreme Court, at 8. In a news release on May 5, 2008, PJM states that their weather adjusted peak demand in 2007 was 136,100 MW. 10,591 MW out of a peak of 136,100 MW is about a 7.8 percent reduction.

¹³ Smith, Rebecca. *Surprise Drop in Power Use Delivers Jolt to Utilities*. Wall Street Journal. November 21, 2008. See also Exhibit BKS-11, p. 15, Xcel 2008 10-K; Exhibit BKS-12, Duke Energy Corp. 2008 10-K; Exhibit BKS-13, American Electric Power 2008 10-K.

¹⁴ PJM Interconnection 2009 Load Forecast Report.

¹⁵ *Fed’s Rosengren: Need better research on markets, economy link*. Reuters, June 5, 2009. Available at <http://www.reuters.com/article/bondsNews/idUSNYS00512520090605>

needed until demand for electricity increases and the economy recovers.¹⁶ Consideration of near-term demand reductions induced by current economic conditions also factored into PJM's decision to abandon altogether a section of the MAPP line that would have run from Delmarva Power's Indian River substation to Salem, New Jersey. In late 2009, portions of the PATH application have been withdrawn or suspended due to decreased demand.

Despite the fact that the timing of an economic turn-around and its affect on future electricity demand is unknown to PJM, it is committed to pursuing planned RTEP projects. The rationale for pursuing these projects, however, has shifted from the previously stated "need." **Now PJM views these projects as economic investments should it have the opportunity to capitalize on a recovery and attendant increases in consumer demand.** Indeed, in PJM's 2008 Annual Report, President and Chief Executive Officer Terry Boston exclaimed:

It is still not clear how long or to what degree the current recession will affect electricity demand or how the recovery of financial markets will proceed. The current decline in electricity use can buy us time to get the extra-high-voltage lines built that have already been approved in the RTEP.¹⁷

Of course, the same decrease in demand is also an opportunity for us to put in place the other programs contemplated by the EMP and the Renewable Portfolio Standards.

It is clear, then, that the stated need for the SR500 no longer exists. **The projections that led to the predictions that "reliability violations" will occur in the future and must be addressed by constructing the Project have not been borne out.** Instead of abandoning or halting the Project, however, PJM and PSE&G want to press ahead with the Project and are forced to admit that the motivation is economics, not reliability.

The Models Used to Predict Need Do Not Adequately Consider Alternatives

PSE&G and PPL justify both the need and the in-service date of the Susquehanna-Roseland Project using PJM's 2008 RTEP analysis, a Regional Transmission Expansion Plan, which relies on PJM's 2007 Load Forecast Report for projecting the likelihood and severity of reliability criteria violations in the context of transmission planning. However, these reports are outdated. PJM's 2007 Load Forecasting Report uses 2006 data for projecting consumer demand in 2011 and beyond. Not only does this data fail to consider reduced consumption due to the current recession, it does not consider substantial efforts by the BPU and others since 2006 to reduce consumer demand through increased efficiency, improved time-of-use metering and expanded demand response. PJM also does not factor in the probability of mandated efficiency standards and conservation efforts.

¹⁶ *PJM Reinforces MAPP Need; Adds Year to Schedule.* Pepco Holdings, Inc. Press Release. May 19, 2009.

¹⁷ Boston, Terry. *2008 PJM Annual Report*, p.7.

In December, 2006, The Brattle Group was asked to evaluate PJM's demand forecasting model after PJM's official forecast for the year 2006, made in February 2006, fell far short of the actual RTO peak demand that was observed on August 2, 2006. Their results suggest that **flawed inputs accounted for the forecasting error** rather than any inherent bias in the model.¹⁸ In other words, The Brattle Group found that the accuracy of PJM's load forecasting hinged on the accuracy of the data input into the model. The Brattle Group's findings should highlight the inherent uncertainty of planning transmission infrastructure in 2010 based on limited and demonstrably flawed data from 2006.

Demand Side Management Is Just Starting to Be Considered

In its 2008 RTEP re-tool, PJM finally began to recognize Demand Side Management (DSM) as an explicit adjustment to the unrestricted load forecast.¹⁹ But even this adjustment is problematic and likely to overestimate projected demand since PJM requires that any load management resource fully commit through the Reliability Pricing Model (RPM) before it is considered in load forecasting. As of 2007, PJM requires any interested parties with demand resources to submit the demand response modification to PJM for its approval prior to the opening of the RPM auction window. Further, load management resources certified as Interruptible Load for Reliability (ILR) resources must be registered by March of the upcoming delivery year, and PJM will not consider late registrations. Because these requirements were not established prior to 2007, PJM's 2008 RTEP Analysis, which is based on its 2007 Load Forecast Report, cannot fully reflect load management resources that will be available to mitigate or eliminate projected reliability criteria violations in 2011 and beyond.

Because PJM zones were experiencing declining amounts of load management at the time of the 2007 Load Forecast Report, and because PJM had not yet established criteria for demand resources to participate in the RPM auction, PJM assumed that only the amount of load management available in 2007 would be available in future years.²⁰ This assumption was made despite public policy mandates of load management, conservation and efficiency. By using historical data to limit the assumption of available resources but ignoring historical data for determining load growth, the result was a 2007 Load Forecast Report that severely underestimates PJM's available resources and load management in 2011 and beyond. **Because this flawed load forecasting is the basis for PJM's calculation of load deliverability and generation deliverability tests, PJM's projection of reliability criteria violations is also flawed and likely to bear little relation to PJM's actual ability to meet reliability criteria in 2011 and beyond.**

Here are some things we do know about PJM's general assumptions from the Project application:

¹⁸ The Brattle Group. *An Evaluation of PJM's Peak Demand Forecasting Process*, prepared for the Capacity Adequacy Department, PJM Interconnection, LLC. December 5, 2006. p.25.

¹⁹ PJM 2008 RTEP retool.

²⁰ Response to BPU Staff Request, S-PP-43, in NJBPU Proceeding, Administrative Record No. 352.

PJM claims the duration of the recent drop in overall demand in PJM will be “short.” PJM managers offer no evidence as to why they believe that new residential construction and industrial production will begin expanding within the next year. Most economists in the US are not so optimistic. We have no way of determining if PJM is right or wrong if they will not provide the reasoning behind their rosy economic predictions.

In its original planning for the Project, PJM has assumed that DSM and increasing efficiency would not result in any reduction in the growth of peak demand in the PJM region. PJM attributes all recent declines in peak demand to “the economic downturn.” This is not surprising, because PJM only began its own Energy Efficiency (EE) program in 2008, despite the fact that PJM continually boasts about how it is the oldest Regional Transmission Organization in the US. While claiming that no other power companies’ EE programs will have any effect on peak demand, PJM now claims that its own EE program, only one year old, will have an effect on peak demand in the future. PJM’s assumptions about the real and potential impact of DSM and EE are inaccurate and confused, at best. PJM’s last major electricity auction showed a dramatic increase in sales of DSM resources.

In the past, PJM has not included any new electrical generation capacity in its opaque model unless the new capacity is a new power plant that has reached a certain point in PJM’s own application process. In fact, modifications and additions to existing plants, particularly new natural gas fired equipment, can add significant capacity to the PJM process even without adding new plants. This expansion process has resulted in lots of new capacity on the east coast that PJM’s model failed to predict.

Even PJM’s 2009 draft Load Forecast Report fails to adequately assess the contribution of demand response programs to PJM’s load management resources in the project-critical time period. Indeed, PJM’s assumption that future available load management include only the demand resources cleared in past RPM auctions, plus the 5-year average of interruptible load for reliability/active load management, and no estimate of even conservative increases in demand response, results in an absurd 2009 Report projection of static or decreasing resources placed under PJM coordination for all years after 2010.²¹

The lesson is simple: without inclusion of a more accurate determination of projected load in the areas affected by the Susquehanna-Roseland Project, **PJM cannot accurately project the criteria reliability violations that the Project is meant to address or even if the Project in-service date can ensure that those projected violations will be addressed.**

There Are Other Methods to Address Peak Demand

PJM Interconnection has based its argument for the need for the Project entirely on projected “reliability violations” in the future that may occur due to stresses on the existing transmission system at times of peak demand.

²¹ 2009 PJM Load Forecast Report, Table B-7.

Peak demand is not the same thing as overall demand for electricity—it is the maximum demand that is put on a part of the electrical grid only a few times a year. Ordinarily this occurs during extreme weather events, when consumers use more electricity to heat or cool homes or offices. Although these extreme events do not occur often, grid planners plan the overall capacity of the electrical grid for these few peak times of the year plus a margin of safety, usually around 15%. This is particularly true of the centralized, inflexible grid that exists in the PJM region today.

Even if PJM's forecasted need for electricity is accurate, conservation and local generation solutions were not adequately considered. **Energy efficiency and demand side management, along with the deployment of distributed generation, are better alternatives than the Susquehanna-Roseland project.**

Energy Efficiency

One study in energy efficiency concluded that **increasing efficiency, “is generally the largest, least expensive, most benign, most quickly deployable, least visible, least understood, and most neglected way to provide energy services.”**²² Another study, from the American Council for an Energy-Efficient Economy, noted that cost effective investments in energy efficiency in New Jersey, New York, and Pennsylvania could reduce electricity use by 33 percent in aggregate.²³ An assessment from the Center for Energy, Economic and Environmental Policy at the Bloustein School of Public Policy and Planning at Rutgers University evaluated New Jersey's Reduced Energy Demand Options Program and found that virtually no customers had yet taken advantage of it, implying that significant savings could still be reached through promotion and participation.²⁴ The Northeast Energy Efficiency Partnership went even further and noted in 2009 that New Jersey could cost effectively save 19,000 GWh per year, including 5,700 MW of peak demand, through energy efficiency and demand side management programs.²⁵ The study calculated that such programs could collectively realize \$16.8 billion in net savings to ratepayers by 2020.

PSE&G has captured only a small fraction of this potential. **A recent 2009 assessment found that of the 75 largest utilities that offered energy efficiency programs in 2007, PSEG did not even make the list of the top 50.**²⁶ These studies show

²² Amory B. Lovins, *Energy End-Use Efficiency 1* (2005)(selected).

²³ Steven Nadel, Skip Laitner, Marshall Goldberg, Neal Elliott, John DeCicco, Howard Geller, and Robert Mowris, *Energy Efficiency and Economic Development in New York, New Jersey, and Pennsylvania* (Washington, DC: ACEEE, February, 1997).

²⁴ Center for Energy, Economic and Environmental Policy Edward J. Bloustein School of Public Policy and Planning Rutgers, The State University New Brunswick, New Jersey and the Aspen Systems Corporation, *PROCESS EVALUATION of the RENEWABLE ENERGY PROGRAMS ADMINISTERED AND MANAGED by the NEW JERSEY BOARD OF PUBLIC UTILITIES OFFICE OF CLEAN ENERGY*, November, 2004.

²⁵ Northeast Energy Efficiency Partnership, *An Energy Efficiency Strategy for New Jersey Achieving the 2020 Master Plan Goals*, March, 2009.

²⁶ John D. Wilson, *Energy Efficiency Program Impacts and Policies in the Southeast* (Southern Alliance for Clean Energy, May, 2009), p. 12.

that residential energy efficiency improvements in lighting, cooling, refrigeration, electronics, space heating, and hot water heating, along with commercial and industrial improvements in lighting, refrigeration, cooling, ventilation, office equipment, manufacturing, water heating, space heating, and building controls, could cost-effectively and reliably displace the need to build electricity infrastructure.

Demand Side Management

Demand side management programs, by contrast, displace the need for generation and transmission infrastructure at a small fraction of this cost. Demand Side Management (or DSM in power business jargon) prevents the need for more generating capacity by lowering the peaks in peak demand, as well as other techniques that reduce overall demand. Instead of having relatively low base load levels of power with just a few high peaks, DSM programs are designed to “shape” energy use to reduce the need to maintain a great deal of unused capacity needed to meet peak load situations.

The obsolete centralized power system that FERC and PJM are pushing with the Susquehanna-Roseland Project and the other “backbone” projects promote huge investment in both distant generating plants and power lines that are needed to meet peak demand. This system is very expensive for rate payers, because they must pay for all this extra investment that is only rarely used.

DSM is a simple way of reducing the need for over-building by reducing the peaks on demand. There are many different ways to utilize DSM to reduce peak load. One of them is the smart grid technology that is a popular topic of discussion currently. DSM can also be done with pricing mechanisms. A simple system involves giving discounts on electric rates during nighttime hours. With cheaper nighttime power, for example, residential users will begin to install timers on washing machines so they run at night and businesses begin to shift their electricity use to night shift work.

PJM noted a dramatic increase in trading in DSM resources in its major wholesale power auction in early May 2009: The increase in demand resources (DR), or 5,682 megawatts (MW), over the last auction a year ago is enough capacity that would be equivalent to the power needs of about five million households. A total of 67 percent of the DR cleared in constrained regions, reflecting its value in helping to reduce congestion. The increase was driven by the market and the elimination of a special interruptible load provision whereby suppliers received payments for curtailing usage. Suppliers in this program are now required to bid as DR. For the first time, energy efficiency (EE) participated in the sixth Reliability Pricing Model auction bringing 569 MW of new EE resources to PJM.

The most dramatic increases in DSM and EE trading occurred in just the areas that PJM has decided are most in need of congestion and reliability relief. If the Project and the other backbone projects are built, the momentum that is developing for inexpensive and immediately available solutions to these problems will be eliminated, because “cheap” coal-

fired power will flood into the region. Instead of people and utilities solving their own problems by their own efforts, PJM will pump more “cheap” and dirty energy from OH and WV into NJ and eastern PA. California, which put in place state mandated DSM and energy efficiency standards in the 1970s, has seen per capita electricity use remain constant since the late 1970s. In the US as a whole, over that same time period, per capita electricity use increased 9% each decade.

The International Energy Agency reviewed forty large-scale commercial DSM programs found that they saved electricity at an average cost of 2.1 to 3.0 ¢/kWh.²⁷ Similarly, the Institute of Electrical and Electronics Engineers found an average cost of 2.6 ¢/kWh for demand-side management, load management, and energy efficiency programs in Vermont.²⁸ Another 2009 study found that the total cost for DSM programs ranged from 2.6 to 4.0 cents per kWh.

Sadly, despite the clear economic benefits of energy efficiency to both PSEG and the public, PSEG and PJM have practically ignored the value of utilizing demand-side management to displace the need for the Project. By their own admission, PSEG has stated that “voluntary curtailment of customer load . . . typically results in very small amounts of load reduction and is not a reliable means to resolve violations of reliability criteria,”²⁹ and later that “there is no documentation to assert that demand reduction will be implemented when called-upon.”³⁰ That is a very disturbing statement, as mechanistic demand reduction is a “flick of the switch” matter, and generalized demand reduction is New Jersey policy. Also, PJM admits that its professionals have “not analyzed” the potential for smart/interval metering³¹ which is being used on distribution systems in other areas of the country for peak shaving, load shifting and peak demand reduction.

Distributed Generation

Distributed generation refers to small-scale power supply devices that produce electricity close to its point of consumption—it can improve grid reliability, lessen the need to build expensive transmission infrastructure, reduce congestion, offer important ancillary services, and improve energy reliability and security through geographic diversification. Deploying distributed generation units offers an effective and economic alternative to constructing new transmission and distribution lines, transformers, local taps, feeders, and switchgears, especially in congested areas or regions where the permitting of new transmission networks is difficult.

27 Howard Geller & Sophie Attali, *The Experience With Energy Efficiency Policies and Programs in IEA Countries: Learning from the Critics* (2005).

28 Susan Chang, *The Rise of the Energy Efficiency Utility*, IEEE Spectrum, May, 2008, available at <http://spectrum.ieee.org/print/6216>.

29 Response to Municipal Interveners Request Munis-General-16.

30 Response to Municipal Interveners Request Munis-McGlynn-2.

31 Response to Municipal Interveners Request Munis-General-20.

PJM has conceded that PJM's transmission planning process is designed to specify regulated transmission solutions to reliability problems and does not consider alternatives to transmission *not otherwise proposed through the market*.³² However, PJM's deliverability tests preclude the possibility of non-transmission solutions because the tests are designed to ignore the reliability benefits of proposed generators until they have progressed through PJM's interconnection queue to the point of executing an Interconnection Service Agreement. Indeed, prior to executing an ISA, the tests are designed to consider any non-transmission solution proposed by the marketplace as an additional burden likely to magnify rather than alleviate reliability concerns. Under such conditions, **few if any non-transmission alternatives could compete with the regulated transmission solutions specified by PJM's planning process.**

We have seen that **the need for new transmission lines can be reduced by decreasing peak demand for power through demand side management.** There is another way that we can make new transmission projects unnecessary.

We now have electrical power generating technologies that allow us to create a safer, less polluting, more reliable electrical grid based on local diversified generating plants. Many of these new technologies are well adapted to producing peak load power, exactly what the PJM engineers say is causing the problem in their grid management.

Building large coal-fired plants far from customers and shipping "coal by wire" hundreds of miles is an inherently insecure and unreliable system. The bigger the transmission system, the greater the potential for power instability on the grid and the more difficult it is to bring the system up after system failures. The 2003 blackout in the Northeast, as discussed elsewhere in this letter, was caused more by the interconnectedness of the massive transmission grid than it was by any technical failures in transmission lines. More and bigger lines will only make things worse.

A truly secure system would include many different kinds of generating sources that in many cases overlap and provide redundancy. These generators would also be very small scale so they could be located close to population centers where power demand is highest.

Pacific Gas and Electric Company (PG&E), the largest investor-owned utility in California, built an entire power plant in 1993 in a specific location to test the grid and transmission benefits of a 500 kW distributed power plant. PG&E found that the distributed generator improved voltage support, minimized power losses, lowered operating temperatures for transformers on the grid, and improved transmission capacity. The benefits were so large that the small-scale generator was twice as valuable as estimated, with projected benefits of 14 to 20 ¢/kWh.³³

³² Response to BPU Request, S-PP-28, NJPBU Administrative Record No. 182.

³³ Howard J. Wenger, Thomas E. Hoff, and Brian K. Farmer, "Measuring the Value of Distributed Photovoltaic Generation: Final Results of the Kerman-Grid Support Project" (presentation at the First World

Distributed generation can provide utilities with a variety of important ancillary services as well, including system control, reactive power supply, and spinning reserves. Because of their smaller size, these generators have lower outage rates, decreasing the need for reserve margins and excess transmission capacity. Indeed, researchers at the University of Albany and the National Renewable Energy Laboratory determined that dispersed solar photo-voltaic (PV) resources are so valuable they could have prevented the \$6 billion 2003 blackout that affected 40 million people spread across Canada and the eastern United States. After running thousands of simulations, they found that had distributed solar PV facilities been operating on August 14, the blackout most likely would have been avoided.³⁴

Rather than building huge transmission lines, new emphasis would be placed on power distribution and switching rather than bulk transmission of electricity. No single failure or sudden demand for peak power on this “distributed grid” would affect many people beyond a small area, and, with sophisticated distribution technologies, power could be rerouted and re-established relatively quickly.

Distributed generation provides a strong, resilient grid that can respond immediately to peaking loads. Massive power lines like the Project dramatically magnify the risks involved with weather damage, power flow instability and sabotage.

Despite the fact that PJM and FERC pricing rules actively discourage new generating technologies on the east coast, new generation has been growing steadily from North Carolina to New York, mainly in the form of gas-fired power plants that are uniquely designed to meet peak demand. The construction of new power plants on the east coast is actually a much more efficient and cost effective way to solve PJM’s reliability problems. If the east coast is providing its own power, that power doesn’t need new power lines to import it from WV and OH.

Planning and Alternatives to Transmission

One perspective on renewable development, reliability, and other power system goals is that new transmission is central to meeting these objectives. This point of view is illustrated by FERC testimony to Congress in early 2009:

We need a National policy commitment to develop the extra-high voltage (EHV) transmission infrastructure to bring renewable energy from remote areas where it is produced most efficiently into our large metropolitan areas where most of this Nation’s power is consumed. Certainly, developing local renewable energy and distributed

Conference on Photovoltaic Energy Conversion Conference Proceeding, Waikaloa, Hawaii, December 1994) (Washington, DE: IEEE, 1994), 792–796.

³⁴ For a full accounting, see Exhibit BKS-38 (NJBPU Admin. Rec. No. 101), NERC Blackout Report, Chap. 5, How and why the blackout began in Ohio, details the multiple stages where controllers failed to take action, required under NERC reliability standards, that could have avoided the blackout.

resources³⁵ is also important as we expand our capacity to generate clean power, but that is a separate issue from, and is not a substitute for, developing the EHV transmission infrastructure....³⁶

An alternative viewpoint is that a **transmission-focused planning process may, almost by definition, not give enough emphasis to non-transmission approaches to meeting energy needs.** This view is illustrated by the reaction of the New York and New England RTOs to the “Joint Coordinated System Plan,” which outlines massive transmission construction to allegedly bring wind power from the Dakotas to the East Coast. In the view of the northeastern RTOs, the plan was badly flawed because it did not consider other options, including eastern wind plants, demand response,³⁷ and building shorter transmission lines to renewable power in Canada.³⁸ Another example of this perspective is an “infrastructure vision” report of the **National Governors’ Association, which emphasizes decentralized and technological solutions to power system issues rather than big transmission projects.**³⁹

Reliability and Changes in the Energy Market

The transmission grid was built for a specific business and technical model: power plants would use transmission lines to move electricity to distribution networks for delivery

³⁵ Distributed resources (also called distributed generation) refers to generation located close to load and often owned by the power customer. The term covers a wide variety of technologies, ranging from residential rooftop solar to large industrial cogeneration systems. Depending on individual circumstances the distributed generation system can be connected to the transmission or distribution system of the local utility.

³⁶ U.S. Congress, Senate Committee on Energy and Natural Resources, Prepared Testimony of Acting Chairman Jon Wellinghoff, Federal Energy Regulatory Commission Pending Legislation Regarding Electric Transmission Lines, 111th Cong., 1st sess., March 12, 2009, p. 2, <http://www.ferc.gov/EventCalendar/Files/20090312100013-03-12-09-testimony.pdf>.

³⁷ Demand response refers to arrangements under which electricity consumers reduce demand in real-time in response to high prices and/or short supply, thus obviating the need to construct or operate expensive peaking power plants and associated transmission lines.

³⁸ Letter from Gordon van Welie, President and CEO, ISO New England, Inc., and Stephen Whitley, President and CEO, New York Independent System Operator, to Joint Coordinated System Planning Initiative, February 4, 2009,

http://www.nyiso.com/public/webdocs/services/planning/jcsp/2009_2_4_JCSP_Letter_FINAL.pdf.

³⁹ Darren Springer and Greg Dierkers, An Infrastructure Vision for the 21st Century, National Governors Association, Washington, DC, 2009, pp. 11-13, <http://www.nga.org/Files/pdf/0902INFRASTRUCTUREVISION.PDF>. The report observes (p. 13) that “electric power demand has typically been met by constructing new electricity generating plants and transmission lines with much less attention to managing demand or encouraging efficiency.” The report finds that some new transmission construction will likely be needed, particularly to access new supplies of renewable energy.

For further discussion of these points see U.S. Congress, Senate Committee on Energy and Natural Resources, To Receive Testimony On Pending Legislation Regarding Electricity Transmission Lines, Prepared Testimony of James A.

Dickenson on Behalf of the Large Public Power Council, 111th Cong., 1st sess., March 12, 2009, [http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=b9e47ea9-c62b-23fc-33ff-](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=b9e47ea9-c62b-23fc-33ff-30fda7b3a744&Witness_ID=ed6a79eb-6664-412c-b66b-7e87e4e55435)

[30fda7b3a744&Witness_ID=ed6a79eb-6664-412c-b66b-7e87e4e55435](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=b9e47ea9-c62b-23fc-33ff-30fda7b3a744&Witness_ID=ed6a79eb-6664-412c-b66b-7e87e4e55435).

to customers. The power plants were large “central station” facilities using fossil, nuclear, or hydroelectric energy sources, and were designed to run as-needed, when-needed. The power flow was one-way, from the power plant to the customer.

The current grid is unable to respond to demand in any way other than meeting electrical loads (the demand for electricity that is created whenever a switch is flipped), by generating new electricity, or the entire transmission system becomes unstable as voltages drop below their operating requirements.

The current electrical power system in the PJM region relies on a power technology that is rapidly becoming obsolete. The PJM system, especially since **PJM’s membership expanded in 2004 to include companies like AEP and its massive coal-fired plants,** relies on large power plants located hundreds of miles from the customers who need power in times of peak load. As a result, PJM relies on huge coal-fired plants that must continue to burn coal and produce electricity even when their power is not needed. This highly centralized system must be built to meet peak demand that may only happen a few times a year. For most of the rest of the year, PJM’s generating and transmission system operates far below its peak load capacity.

Peak loads can be managed in a much more flexible and economical way, without rate payers paying for lots of expensive equipment that is only fully used a few times a year. The Project is just more of the same—expensive infrastructure to support an outdated system that will not help New Jersey meet its obligations under the Global Warming Response Act, the Regional Greenhouse Gas Initiative, the Renewable Portfolio Standards, and the Energy Master Plan.

This model is already changing:

Variable Renewable Generation: One factor is the introduction of large amounts of wind power onto the grid. Unlike conventional power plants, the output of wind plants varies with the weather. Power systems were not designed to handle this kind of power supply variability and uncertainty. Total wind capacity is now large enough in some parts of the country, such as the ERCOT Interconnection (covering most of Texas), to be an important influence on how the power system is operated. The variable output of wind plants can be dealt with in a variety of ways, including improved wind forecasting, adding electricity storage and/or quick start natural gas-fired peaking plants to the grid, and drawing wind power from a wide geographic area to smooth out local changes in wind speed.

Demand Response: Another factor, as discussed above, is the increasing use of demand response programs, in which large commercial and industrial customers agree to interruptible power service in return for lower rates. Demand response reverses the conventional power system operating model: instead of changing power plant output to match demand, demand is reduced to match the available supply of electricity.

Distributed Generation: A third factor, also discussed above, is the use of distributed generation (local power generation controlled by the customer), which can vary from rooftop solar units to large industrial cogeneration facilities. A distributed generation facility will sometimes take power off the grid. Other times it will have excess power to sell to the utility, reversing the normal flow of electricity. Buying power from customers is inconsistent with standard utility technology, accounting, and rates. This is especially true when the generation is hooked up to the distribution system, which was designed to make final delivery of power to customers, not receive power from the customer.

Integrating non-traditional resources into the grid will be a reliability challenge. This is not because these resources are new. For example, distributed generation in the form of industrial cogeneration has been increasingly common since Congress passed the Public Utility Regulatory Policies Act (P.L. 95-617) in 1978. The issue is integration of much larger amounts of these resources into a power system primarily designed around a different model. To facilitate business as usual with the Project gets us no closer to our energy goals.

We “Need” a Modern Grid—Not a Bigger Grid

Third, the transmission grid could use some modernizing, but the Project will not modernize the grid. The Project is simply a means to move cheap coal-fired power from west to east. If a company can make money producing cheap power anywhere in the vast PJM region, PJM has to figure out how to accommodate that power on the grid—regardless of whether we need or want that power.

*Grid Reliability*⁴⁰

The transmission grid is sometimes portrayed as a decrepit victim of underinvestment; one recent press report described the grid as “frayed” like grandmother’s quilt.⁴¹ There is, in fact, no clear evidence that the transmission grid is physically deteriorating. But this does not mean that the grid is universally well managed or is as up-to-date as it should be. The grid probably needs to be modernized to improve reliability. This is not necessarily the same as installing the full smart grid discussed above. The smart grid is an ambitious concept for integrated operation of the power system. The full smart grid is not needed to use a subset of “intelligent” technologies to improve the reliability of the transmission system.

One part of a strategy for preventing repetitions of the 2003 blackout is to **modernize the grid from a reliability standpoint. This will not always entail building more power lines.** One analysis written shortly after the 2003 blackout concluded that “The common contributing factor to the recent blackout, based on investigations to date, is confusion-communication breakdowns both technical and human....[W]e maintain that

⁴⁰ Congressional Research Service, *Electric Power Transmission: Background and Policy Issues* April 2009 at 30.

⁴¹ Peter Slevin and Steven Mufson, “Stimulus Dollars Energize Efforts to Smarten Up the Electric Power Grid,” *The Washington Post*, March 10, 2009.

much can be solved by updating technology and by changing procedures followed within the operating companies. This fix is cheaper and much more immediate than huge investment in new power lines.”⁴²

In summary, depending on the case, building new transmission lines is not the only or best approach to enhancing power system reliability.⁴³ In some instances investments in new monitoring and control technology may be the better solution.

Smart Grid

Distinct from proposals for expanding the grid are proposals for modernizing the transmission system. Modernization proposals are often made under the rubric of the “smart grid,” a term that encompasses technologies that range from advanced meters in homes to advanced software in transmission control centers. There is no standard definition of the smart grid.⁴⁴ For the purposes of this letter, the smart grid can be viewed as a suite of technologies that give the grid the characteristics of a computer network, in which information and control flows between and is shared by individual customers and utility control centers. The technologies will allow customers and the utility to better manage electricity demand, and will include self-monitoring and automatic protection schemes to improve the reliability of the system.⁴⁵ Although grid technology has not been static over the years,⁴⁶ the smart grid concept would implement capabilities well beyond any existing electric power system.

The smart grid primarily involves the development of software and small-scale technology (e.g., smart meters for homes and businesses that would interface with grid controls) rather than construction of new transmission lines. However, full implementation of the smart grid also requires new electricity rate structures, especially for residential

⁴² Ralph G. Loretta and James E. Anderson, “The Near-Term Fix,” *Public Utilities Fortnightly*, November 2003, p. 34

⁴³ The Carnegie Mellon study cited earlier observes that “While transmission investment can, but is not guaranteed to, have a positive impact on cascading failure risk and reliability, transmission construction alone is a costly, and potentially ineffective, solution to reliability problems.” Paul Hines, Jay Apt, and Sarosh Talukdar, “Large Blackouts in North America: Historical Trends and Policy Implications,” Carnegie Mellon Electricity Industry Center, Working Paper CEIC-09-01, March 4, 2009, p. 29, http://wpweb2.tepper.cmu.edu/ceic/PDFS/CEIC_09_01_blt.pdf.

⁴⁴ DOE’s Electricity Advisory Committee noted that “there are many working definitions of a Smart Grid.” Electricity Advisory Committee, *Smart Grid: Enabler of the New Economy*, U.S. Department of Energy, Washington, DC, December 2008, p. 1.

⁴⁵ Other descriptions of the smart grid emphasize its environmental benefits through reducing fossil-fueled electric generation and air pollution emissions. See the comments of FERC Commissioners Moeller and Spitzer in Federal Energy Regulatory Commission, “FERC Accelerates Smart Grid Development with Proposed Policy, Action Plan,” press release, March 19, 2009, <http://www.ferc.gov/news/news-releases/2009/2009-1/03-19-09.asp>.

⁴⁶ Scott Gawlicki, “Demonstrating the Smart Grid,” *Public Utilities Fortnightly*, June 2008, p. 51; and Kenneth Martin and James Carroll, “Phasing in the Technology: Phasor Measurement Devices and Systems for Wide-Areas Monitoring,” *IEEE Power and Energy*, September/October 2008.

customers, and as discussed below, this and other aspects of the smart grid may prove contentious. This, however, is where resources should be spent.

Blackout Threats Are Idle and Create Unnecessary Fear

PSE&G has used thinly veiled threats of blackouts in its public relations campaign,⁴⁷ yet the threats are baseless fear mongering and are not founded on the facts. The need for modernization discussed in the preceding section is illustrated by the causes of the August 14, 2003 northeastern blackout. The blackout, which interrupted service to 50 million people in the United States and Canada for up to a week, started with transmission line trips (automatic shutdowns) and resulting overloads on the FirstEnergy utility system in Ohio. The blackout was not the result of insufficient transmission capacity or deteriorated equipment. As identified by the joint United States – Canada investigating task force, the blackout was caused by factors such as the following:⁴⁸

- FirstEnergy and the NERC reliability region within which it operated did not understand the strengths and weaknesses of the FE system. FirstEnergy consequently operated its system at dangerously low voltages.
- FirstEnergy's system operators lacked the "situational awareness" that would have revealed the blackout risk as lines began to trip. The operators were blinded by monitoring and computer system breakdowns, combined with training and procedural deficiencies which led to those failures going undetected until it was too late.⁴⁹
- The Midwest Independent System Operator (MISO), the RTO that manages the grid in FirstEnergy's service area, did not have the real-time information necessary to assess the situation on FirstEnergy system and provide direction to the utility.

Once the FirstEnergy system collapsed, overloads and power swings spread out across the Northeast, causing a cascading series of transmission line and power plant trips

⁴⁷ PSE&G Advertisement, "Caution: Blackouts Ahead," Star-Ledger, January 15, 2009.

⁴⁸ The following points list some of the key factors that contributed to the collapse of the First Energy system and the consequent cascading blackout. For a full analysis of this complex event see U.S.-Canada Power System Outage Task Force, Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, April 2004, <https://reports.energy.gov/BlackoutFinal-Web.pdf>. Perhaps the best brief description of the causes of the blackout is the "Voltage Collapse" text box on page 81.

⁴⁹ "Transcripts of telephone conversations, released by the House Energy Committee, show bewilderment after the first control room computer went down. 'We have no clue,' one operator said. Another, speaking to a regional controller at MISO just before the blackout, said, 'We don't even know the status of some of the stuff around us.'" Ralph G. Loretta and James E. Anderson, "The Near Term Fix," Public Utilities Fortnightly, November 1, 2003, p. 34. The blackout report notes that FirstEnergy had no automatic load-shedding schemes in place, and did not attempt to begin manual load-shedding. U.S.-Canada Power System Outage Task Force, Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, April 2004, p. 70, <https://reports.energy.gov/BlackoutFinal-Web.pdf>.

that left tens of millions of people without electricity. One reason the outage spread over such a wide area was because many power plants were equipped with unnecessarily sensitive automatic protection mechanisms that tripped the units prematurely. The speed of the cascade allowed almost no time for manual intervention. The elapsed time from the start of the cascade (i.e., when failures began to radiate out from the collapsed FirstEnergy grid) to its full extent was about seven minutes.

In summary, as discussed in the official blackout report and other analyses, **the 2003 blackout was not caused by a utility having built too few transmission lines, or because power line towers and substations were falling apart.** The blackout was apparently due to such factors as malfunctioning if not obsolete computer and monitoring systems, human errors that compounded the equipment failures, mis-calibrated automatic protection systems on power plants.⁵⁰ The report's author also noted that "depending on the case, building new transmission lines is not the only or best approach to enhancing power system reliability. In some instances investments in new monitoring and control technology may be the better solution."⁵¹

IMPACTS

Physical Resources

Geologic Resources

The geologic resources of the Delaware Water Gap NRA and the Scenic and Recreational River are the area's signature, most memorable and perhaps most significant resources. The remarkably steep topography of the Delaware Water Gap, the Delaware River valley slopes and the Kitatinny Ridge maximizes the potential for erosion, rock slides and even avalanches caused by construction of the Project. Significant permanent scarring of the geological resources could occur, with geologic impacts far more severe than would occur in level topography. The ISR identifies possible impacts to these resources. Please study these impacts. The Project plans make clear that tower locations and footing types are dependent upon soils and bedrock. Additionally, the impacts associated with demolishing and removing the existing towers should be studied. Impacts to soils from construction vehicles both inside and outside of the federal properties should also be studied. Additionally, the potential for subsidence associated with all of these activities, as well as simply due to increased load from demolition, construction, and maintenance activities and vehicles should be studied along the entire ROW and all the access roads—both new, old, temporary, and permanent.

Please also consider and study impacts to soils that arise due to air pollution (primarily atmospheric deposition) from electricity generated by facilities that are or will be

⁵⁰ Congressional Research Service Report at 31.

⁵¹ *Id.* at 32.

connected to the transmission system. This is discussed in more detail in the section on air quality impacts.

Specifically, please undertake a full examination of the geological formations that will be impacted by construction activities such as stability for construction, groundwater aquifers and water table depth, sinkholes, and springs. This will be necessary to account for direct, indirect, and cumulative effects associated with the project. For example, soil surveys should be conducted since construction and maintenance activities, as well since the re-establishment of vegetation along the ROW and in other areas (staging areas, access routes, etc.) provides an opportunity for erosion and the loss of productive soil. Blasting and tower foundation construction activities have the capacity to change the drainage patterns. As such, these impacts should also be studied in the context of both effects on geologic resources and water quality.

The proposed expansion of the ROW has the potential to affect the physical properties of the soil along and adjacent to the ROW by clearing land cover, and these impacts should also be studied. For example, the loss of ground cover of canopy may result in a change in the moisture content of the soil. Reduction in soil moisture increases the risk of wind erosion.

ROW expansion may also require increased use of herbicides in the federally-protected and unprotected areas for ROW maintenance and this may chemically alter soil composition. Soils may also be affected by fluids used in construction equipment and vehicles, for instance fuel, coolant, oil and other petrochemicals. Additional indirect effects may also arise out of removal and disposal activities associated with construction activities, which should also be studied. To the extent that the blasting and drilling proposed will use chemical compounds, those materials should be disclosed and the possible impacts studied. These studies should include leaching potential and impacts to groundwater and surface water in addition to soils and other geologic features.

Air Quality

The ISR identifies air quality impacts associated with construction and maintenance activities. Please study these impacts, which would presumably be from temporary stationary sources (cement batch plants, generators, construction equipment, etc.), as well as mobile sources.

Additionally, construction and operation of the SR500 transmission line will cause or contribute to increases in criteria and greenhouse gas pollutants associated with the generation facilities that currently or will connect to the transmission system. These pollutants will be transported to the Philadelphia, and Newark metropolitan areas. Both metropolitan areas, which include counties in Pennsylvania⁵² and New Jersey, are designated

⁵² http://www.epa.gov/reg3artd/airquality/ozone8hrmaintareas_2.htm

non-attainment for ozone.⁵³ Also, several counties in Pennsylvania and New Jersey are designated non-attainment for fine particulates (PM_{2.5}).⁵⁴ Increased emissions from SR500 would exacerbate effects upon public health and the environment, and impede the ability of these states to attain national ambient air quality standards.

The science of air pollution transport from fossil fuel fired generation in the Ohio Valley to the states downwind along the Eastern Seaboard is well established. EPA has studied air pollution transport for decades. EPA has worked with states to assess the causes, contributors and effects of transported air pollution. The data compiled by EPA in the context of these efforts has repeatedly demonstrated that power plants are significant contributors to air pollution problems in the Eastern Seaboard. During 1995 and 1996, EPA convened a working group involving the 37 easternmost states in a comprehensive modeling effort to assess causes and contributors to high concentrations of the ozone standard along the Eastern Seaboard. That effort, known as the Ozone Transport Assessment Group (OTAG), focused on modeling the interstate and interregional transport of air pollution. Inputs to the model included point source emissions and air quality.

In June 1997, OTAG concluded that oxides of nitrogen (NO_x) emissions from utilities and other major sources should be reduced by up to 85% from their 1990 emissions levels in order to resolve on-going ozone non-attainment problems in eastern states. In August 1997, eight New England and the Middle Atlantic states petitioned the EPA under section 126 of the Clean Air Act. Each petition: (1) Based its findings on the recently completed OTAG effort, (2) Emphasized that transported air pollution from states to their west caused and (3) Contributed to exceedances of the health-based National Ambient Air Quality Standard (NAAQS) for ozone, and (4) Requested that EPA act to reduce emissions from fossil fuel fired generation. The state petitions included evidence that air masses entering their states had concentrations of ozone that were at or above the NAAQS for ozone. This transported air pollution exacerbated the state's ability to comply with the ozone NAAQS. Also, locally required pollutant reductions, part of these states' implementation plans, were rendered ineffective by the transported pollution. Finally, the affected states had imposed more stringent environmental regulations than the upwind states. These differential requirements hindered economic competitiveness. Generating facilities in downwind states along the Eastern Seaboard have differentially higher operating costs, as part of their environmental and public health impacts have been internalized through compliance with more stringent regulations.

EPA issued findings on September 24, 1998, that agreed with the states' section 126 petitions and the OTAG recommendations that power plant emissions in the Ohio Valley are major contributors to on-going violations of the ozone standard in eastern states. Maryland has continued to document the transport of air pollution from the Ohio River

⁵³ <http://www.epa.gov/oar/oaqps/greenbk/anay.html>

⁵⁴ <http://www.epa.gov/reg3artd/airquality/pm25nonattareas.htm>;
<http://www.epa.gov/pmdesignations/2006standards/documents/2009-10-08/finaltable.htm>

Valley.⁵⁵ The Maryland Department of the Environment (MDE) and the University of Maryland have collaborated on a long-term project that involves real-time sampling of the air mass using aircraft. This effort has lead MDE to conclude that long-range transport is responsible for 40-80% of the air pollution that is measured in the Washington, DC and Baltimore metropolitan areas. This is especially evident during periods of high ozone levels during the summer months, when the air mass that enters Maryland continues to exhibit pollutants that are at or above the levels of the eight-hour ozone NAAQS. The Maryland studies are relevant because air pollution does not recognize political or geographic boundaries.⁵⁶

The construction of the SR500 transmission line will enable generators located in western PJM to access electricity markets in eastern PJM. Differentially higher prices in eastern PJM create economic incentives for generators in western PJM to participate in eastern PJM markets. Generators that have the capacity and flexibility to increase their electricity output will do so. There are many such units in western PJM. These western PJM generators emit more air pollution and greenhouse gases per MWh output than units in eastern PJM. As a result, NO_x and SO₂ emissions will increase by tens of thousands of tons each year, and CO₂ emissions will crease by several million tons each year. The air quality modeling work completed by OTAG ten years ago, and continuing research by states such as Maryland today, documented that air pollution is transported from the Ohio River Valley to states to the east, and that such effects were and continue to be significant. Corollary effects have also been well demonstrated, i.e. the forced shutdown of many electric generating units due to the 2003 blackout resulted in significant air quality and visibility improvement. Any increase in air pollution transported into Pennsylvania and New Jersey and neighboring states will negatively impact those states ability to attain and maintain compliance with national ambient air quality standards for ozone and fine particulates.

Additionally, coal fired power plants emit SO₂, NO_x, and toxic air pollutants such as chromium, lead, arsenic, hydrogen chloride, and mercury.⁵⁷ Atmospheric deposition of mercury from polluting sources like coal and oil plants have caused both Pennsylvania and New Jersey to issue fish consumption advisories due to unhealthy levels of Mercury.⁵⁸

The NPS has also made a concerted effort to identify adverse affects to the ecosystems with which it is charged to protect and preserve for current and future generations. For example, it has identified ozone sensitive plants, many of which are located in the Delaware River Water Gap.⁵⁹ Indeed, the NPS has expressed concern that the EPA's ozone public health standards discussed above are not protective enough of certain plant

⁵⁵ Visualization of Ozone Pollution Transport from Ohio River Valley into Maryland; David Krask, MDE, et al; National Air Quality Conference, Portland, OR; April 7, 2008

⁵⁶ http://ready.arl.noaa.gov/data/web/trajectory/northeast_us/today_1500_f.gif

⁵⁷ U.S. Environmental Protection Agency, "EPA to Regulate Mercury and Other Air Toxics Emissions from Coal- and Oil-Fired Power Plants." December 14, 2000.

⁵⁸ See <http://www.fish.state.pa.us/fishpub/summary/sumconsumption.pdf>;
<http://www.state.nj.us/dep/dsr/2009FishAdvisoryBrochure.pdf>

⁵⁹ http://www.nature.nps.gov/air/Permits/ARIS/docs/Ozone_Sensitive_ByPark_3600.pdf

species: “The Environmental Protection Agency (EPA) has established an ozone standard to protect human health. EPA has adopted an identical standard to protect public welfare, including plants, from ozone effects. However, there is evidence to suggest that this standard, based on human health effects, is not protective of very sensitive plant species; these plants may be harmed at ozone levels below the standard.”⁶⁰

NPS has also expressed concern about the affects of nitrogen and sulfur pollutants on park resources. Sulfur and nitrogen compounds are emitted as pollutants into the atmosphere by a variety of sources, including industry, power plants, and automobiles. After transport and transformation in the atmosphere they may be deposited by either wet deposition or dry deposition. Once deposited into ecosystems they may cause acidification, fertilization, or eutrophication. Effects include changes in water chemistry that affect aquatic vegetation, invertebrate communities, amphibians and fish. Deposition can also cause chemical changes in soils that affect soil microorganisms, plants, and trees. Plant species composition and abundance may change where nitrogen overstimulates growth, favoring some types of plant species and inhibiting growth of others. The deposition of nitrogen also contributes to nutrient enrichment in coastal and estuarine ecosystems, which can cause toxic algal blooms, fish kills, and loss of plant and animal diversity.⁶¹

Viewsheds

The ISR duly notes that the proposed project would permanently impact the visual viewshed. Please conduct the studies and analyses mentioned in the ISR.

Additionally, the NPS should study viewshed impacts for each alternative in a way that describes any physical changes to the landscape, examines consistency with the objectives of the NPS to preserve scenic resources, compatibility in mass, scale, and prominence, and degree of contrast in line, color, and form. To assess these impacts probable viewers and their viewer sensitivity must be identified, all significant vistas and viewsheds that could be impacted by any of the alternatives, and the dominant elements of the current viewsheds and how each alternative will impact that viewshed or vista.

Viewer sensitivity will be extremely high to viewshed impacts as this area is a National Recreation Area, utilized by millions of visitors for its scenery and views of the Delaware River. These impacts should be heavily weighted keeping in mind the objectives of the DEWA and Appalachian Trail.

The Bureau of Land Management’s Visual Resources Management Program under the Department of the Interior sets a high management standard for Visual Resource Management (VRM) class I. While the lands that are the subject of the proposed action are

⁶⁰ <http://www.nature.nps.gov/air/AQBasics/ozoneEffects.cfm>

⁶¹ <http://www.nature.nps.gov/air/AQBasics/compounds.cfm>

not BLM lands, the VRM could provide valuable assistance to NPS as it assesses impacts to the viewshed.

In addition to the obvious permanent impairments that the erection of 190' towers will have on both the immediate and surrounding landscape, the construction activities, expansion of the ROW, and clearing of access roads will produce localized scenic resource impacts as well that must be studied in the EIS. The document should address all foreground, middle-ground, and background vistas in its analysis of impacts. The scenic impacts of the towers on the viewpoints of the Appalachian Trail and all other trails, as well as local roads, and from the river itself, should be evaluated. The towers will be visible from miles away in clear weather.

Further, as noted in this and in other sections, the study of impacts to viewshed should not be limited to the vicinity of the proposed project. The project has the capacity to cause increased air pollution across a broad area that will adversely affect the viewsheds of the entire region. Additionally, the impact on the viewsheds of the Highlands Millennium Trail and the entire Highlands Region should be studied. Please consider the attached viewshed maps showing before and after impact to viewshed, attached with Exhibit A, which were also submitted with oral testimony of Julia Somers, Executive Director of the New Jersey Highlands Coalition, during the public comment period.

Finally, because this is only one of several “backbone” transmission projects proposed by utility companies in response to alleged reliability violations asserted by PJM, the cumulative effects of these projects on all impacted viewsheds should be studied.

Soundscapes

Please evaluate noise impacts from the transmission and generation components of the Project. In the absence of industrial activity, the soundscape of the DEWA, SRR, and the AT, as well as other trails and parks in close proximity to the federal areas, is generally very, very quiet. The demolition of the existing facilities, and the construction of the transmission line will disturb this silence, as well as the silence that can be found in the adjacent rural landscapes of Pennsylvania and New Jersey, pastoral neighborhoods, state and county parks and trails, and local open space areas. All associated demolition and construction activities create sounds that are an annoyance and cause stress to humans (recreational visitors and residents) and which may disturb wildlife, including fish, birds, mammals and other species, especially during sensitive periods of the year by interfering with breeding, courtship, predator detection, prey location, and other behaviors. The potential harm to scenic vistas, overlooks, shelters, visitor areas, etc., should be particularly carefully considered.

In the DEIS, please conduct an ambient noise study so that the baseline can be understood. Please fully consider the effects of all the noises that currently exist in the environment, how quiet large areas of these lands are—and the scarcity of areas like these, as

well as the surrounding areas that are protected, in part, to preserve their natural character—compared to much of the rest of the East. NEPA requires that NPS consider the relative scarcity of such values in evaluating the Project’s impact. The NPS has already acknowledged the scarcity in its description of the DEWA and the AT, in particular – areas that are within driving distance of 60 million people.

There are ways of examining noise inputs so that the effects on wild public lands, recreationists and native ecosystems can be better understood.⁶² Also, as articles and links at the Acoustic Ecology website show, there is growing evidence that wildlife and humans may be adversely affected by unnatural noise and noise pollution.⁶³

The National Park Service is paying attention to protecting acoustical resources; it should pay particular attention to protection of acoustic resources in quiet, undeveloped areas, sensitive species habitats and other wild landscapes, including the remaining less fragmented habitats critical for certain wildlife species and areas which Congress has specially protected. The Yosemite MP3 Recording (links in fn 62 and 63), describes how “noise acts just like smog.” A noisy fog envelops the landscape. Humans and animals cannot hear as clearly with loud droning noises. Prey species may spend increased time scanning looking for predators. They may hole up, and become less active with noise as it is more difficult to detect predators. It may be more difficult for them to detect food. How many noise events per day, and how prolonged will noise exposures be? What will be the relative increase in sound levels that humans and animals will be exposed to in noise stemming from transmission and generation infrastructure construction and maintenance?

Noise from demolition and construction is obvious. The possibility of ground-borne vibration and noise impacts related to construction activities on habitat, steep slopes, etc. should also be studied. Additionally, noise from EHV transmission lines has been documented. The ISR notes the corona effect. PSEG has offered only limited information about the noise levels as they relate to humans, but absolutely nothing with respect to animals.

The Yosemite Recording describes how human perception of a pleasurable experience is altered by noise. Many people come to public lands for a pleasurable experience, especially in areas like DEWA, AT, and SRR, and other such remote and undeveloped areas. While humans can still see beauty, the quality of their experience of beauty is diminished by disruptive or offensive noise. The quality of wild lands experiences, wildlife viewing and the experience overall will be diminished in areas of increased noise levels and noise events.

⁶² See <http://aeinews.org/archives/222>, describing a recent Yosemite Park Study and the examination of soundscapes.

⁶³ See <http://AcousticEcology.org/scienceresearch.html> and Understanding and Protecting Wild Soundscapes at <http://www.nps.gov/yose/naturescience/soundscape.htm>.

The DEIS should also examine the additive and cumulative negative effects of noise and visual impacts on undeveloped areas of the public lands. The combination of visual and noise impacts may be so severe for visitors and wildlife on the transmission route, associated construction and access roads, and generation sites that it would make NPS's approval of a transmission right-of-way that facilitated the overall Project unreasonable, particularly in light of NPS's obligation to protect the integrity of these areas.

A comprehensive noise analysis must critically examine noise levels and noise components of the Project that rare bats, migratory birds as well as the human population may be subjected to—both in the short and long term. What is the hearing range of affected animals? How intense will noise be within this hearing range? How will various components of the Project's noise disturbances interfere with, or otherwise adversely affect, the displays, mating, calling, foraging communication, echolocation or other behaviors of migratory birds, large and small mammals including bats? How will this sudden onset of significant new noise disturbance affect remote-area wildlife that are not typically exposed to such disturbance?

To determine these impacts the applicant must be asked to provide specific details on construction activities including the type of equipment that will be used and when it will be used, what season and time of day construction activities will occur (detailed construction schedule), and the specific noise-producing attributes of each piece of equipment. Noise levels produced at 50 ft are about 84 to 85 dBA from backhoes and bulldozers, 91 to 92 dBA from graders, and 80 to 88 dBA from compressors (U.S. Department of Transportation, FHWA, CADOT, and SBAG 1993). The possibility of ground-borne vibration and noise impacts related to construction activities on habitat, steep slopes, etc. must be studied.

Noise impacts to the DEWA will be exacerbated by the expansion of the ROW and the removal of vegetation. The impacts of this removal of vegetation on surrounding noise levels must be studied as an impact as this will affect wildlife currently protected by a larger forest buffer from the current corona effect of the existing lines. A secondary noise impact will be how the movement of the construction equipment, and in the long-term maintenance vehicles, to the ROW and access roads will impact sensitive receptors in the DEWA and surrounding local communities along utilized roadways. This impact statement should also address if detours are used during the construction project how those roadways that will bear the re-directed traffic are impacted by the increased noise.

Climate Change/Greenhouse Gases

Please evaluate the impact of the Project on climate change. This evaluation should be informed by the comments presented in other sections relating to air quality, soils, importance of habitat (which may be adversely affected by climate change), and the wildlife that may be impacted, including plant species, and in the overall comments on the Project. Alternative sources of renewable energy generation may have beneficial effects in assisting the transition to an economy less dependent on fossil fuels and in reducing the effects of

climate change on birds, wildlife, and the human environment. Please evaluate these benefits in the context of other alternatives for achieving the same goals that would involve fewer short-term, detrimental impacts to public lands and resources and that would ensure consistency with the public land management agencies' legal obligations.

Natural Resources

Water Quality

The ISR notes that construction activities have the potential to adversely affect water quality. Please study these impacts. The scope of any review needs to be expanded to the study all impacts in the Delaware River watershed, as well as the other watersheds in the project area that are impacted by the project.

Additionally, atmospheric deposition of pollutants caused by generation stations that currently or will in the future connect to the transmission system should also be studied for the impacts on water quality, as noted elsewhere in this comment letter.

Aquatic Systems

The ISR notes that there may be impacts to streams, rivers, and streamflow characteristics. Please study these impacts. As a matter of primary importance, the scope of review must be expanded, at minimum, to study all impacts from demolition, construction, and maintenance of the project on aquatic systems throughout the Delaware River watershed.

Furthermore, any expansion of the ROW will increase the areas in which the utility companies perform maintenance. Current practices, as part of NERC's transmission line vegetation management standards, as well as those of PSE&G's and PPL's call for the ROW to be clear and herbicides are used to accomplish this. Widening the ROW will result in increased herbicide use in and out of the park along the ROW. Because storm water run-off will increase due to a decrease in vegetative cover, the herbicides will enter tributaries to the Delaware River, and the River itself. Those waterbodies are sources of drinking water for New Jersey and Pennsylvania.

In addition to the chemical contamination, as noted in other sections, the Project will cause an increase in suspended solids in the waterbodies within the Project area due to erosion, which in turn reduces oxygen availability. This effect impacts aquatic plant and animal species, especially habitat for fish reproduction and reduction of macroinvertebrate diversity.

Impacts to groundwater have not been examined and as the construction of the towers will involve drilling and digging into the bedrock there is potential for impacts. If these activities result in interception of the water table, dewatering activities would result in

the localized drawdowns of water table elevation and could impact local wells. These construction activities may also result in contamination of groundwater by creating a direct flow of contaminants, including herbicides, into local aquifers due to drilling. It must be determined if any of the aquifers along the ROW are sole-source, which would magnify any negative impacts of construction. Increasing the runoff potential of soils will also negatively impact the prime groundwater recharge areas surrounding the right-of-way.

By removing the top soil layer and associated forest litter and humus, runoff will decrease the soil porosity and moisture retention capacity. This will induce even greater levels of runoff and will damage the groundwater recharge capabilities of the ecosystem. The decreased ability to absorb water resulting in runoff and sedimentation severely decreases water quality.

To evaluate these effects, the NPS must first determine current water quality as part of the DEIS and include a survey of the established benthic community in potential impacted streams. This should include the composition, quantity, and diversity of the community. Construction related water impacts include the possibility of fuel spills and contamination of runoff and further erosion and sedimentation. These concerns and possible prevention must be addressed in the general construction activity stormwater permit as required under the Clean Water Act.

Any potential channel relocations that occur due to construction must be studied as an impact and how fill and stream relocation will be impacted in wetland areas such as Arnott Fen. These areas of potential stream channel modification must be identified so that the impacts on wildlife resources can be fully examined, as well, with the coordination of Fish and Wildlife Service, NJ and PA agencies as required under the Fish and Wildlife Coordination Act.

In studying impacts to water quality, NPS should also consider visitor experience and how a diminished water quality would affect recreational uses on the Delaware River such as boating and canoeing, aesthetic qualities, and degradation of fisheries.

Additionally, atmospheric deposition of pollutants caused by generation stations that currently or will in the future connect to the transmission system should also be studied for the impacts on aquatic systems, as noted elsewhere in this comment letter.

Wetlands

The ISR notes that there may be impacts to wetlands. Please study these impacts. Additionally, atmospheric deposition of pollutants caused by generation stations that currently or will in the future connect to the transmission system should also be studied for the impacts on wetlands, as noted elsewhere in this comment letter. Furthermore, the scope of review needs to be expanded to study all impacts from demolition, construction, and maintenance on wetlands throughout the Delaware River watershed, at minimum.

As part of this analysis, hydrology, vegetation, and soils must be examined in the process of delineation. Assessments of function and value must consider all ecosystem services being provided by potentially affected wetlands, such as groundwater recharge value, water quality and sedimentation value, wildlife habitat, flood protection, biological diversity, recreation, and aesthetics so potential impacts and alternatives can be properly assessed. Impacts to wetlands that must be studied in this DEIS are changes in water levels, flow characteristics, and circulation patterns, or flooding frequencies due to the project. Changes in substrate conditions may affect the ability of the wetland to sustain vegetation and wildlife populations. Increased run-off as addressed above may introduce contaminants or more sedimentation to the ecosystem. Increased nutrient loading could produce algal blooms and reduce available oxygen in the water.

Floodplains

The ISR notes that there may be impacts to floodplains. Please study these impacts. Beneficial floodplain values identified in the Unified National Program for Floodplain Management should be utilized in studying impacts. These include the accelerated runoff produced along the ROW which results in more erosion and deposition within streams, increased transport and loading of contaminants, increase in flood peaks due to accelerated runoff in turn reducing the amount of water entering the ground, decrease in groundwater recharge, blocked or diverted groundwater flow, and the removal of habitat and food source for wildlife and fishery resources. These impacts can also produce a trophic cascade by upsetting the balanced ecosystem of the DEWA through construction activities and these long-term, cumulative impacts need to be considered.

Additionally, atmospheric deposition of pollutants caused by generation stations that currently or will in the future connect to the transmission system should also be studied for the impacts on floodplains, as noted elsewhere in this comment letter. Furthermore, the scope of review needs to be expanded to the study all impacts from demolition, construction, and maintenance on floodplains throughout the Delaware River watershed.

Vegetation

The ISR notes that impacts to vegetation are expected. Please study these impacts. Additionally, please evaluate what herbicide use will occur during construction and operation of the Project, and provide information on the types and amounts of herbicides proposed and potential impacts to ground water and surface water. Please describe whether mitigation, including alterations to the Project, or mandatory conditions on any right-of-way grant are necessary to off-set impacts from herbicide use discussed elsewhere in this letter.

Please also study the effects of atmospheric deposition of pollutants on vegetation, as discussed in the earlier sections.

Landscape Connectivity

The ISR notes that the Project will cause land use/habitat fragmentation. Please study these impacts. The scope, as noted previously, needs to be expanded, however, to include an analysis of adverse impacts to connectivity throughout the entire Project area, including all access and construction roads. This aspect is particularly important in light of the increased attention by the service on wildlife corridors. In fact, in a recent paper by DEWA Park Superintendent Donahue and GIS Coordinator Morlock entitled "Connectivity a Step Beyond Partnerships," the NPS recognized the need to look outside of the park borders. Specifically, the paper mentioned an effort to improve connectivity on the PA side of the park, in the Saw Creek Estates area, among others. This paper tacitly recognized the preservation and conservation efforts that had been in NJ and in other parts of PA, and suggested that connectivity be achieved by focusing on areas where development has intensified in gateway communities. In light of this recognition, it would be counterintuitive to now fail to study the entire length of the Project and the associated development that comes about because of the line.

The large vehicles, construction equipment and segments of transmission towers that will be transported will likely require removal of tree canopy to be accommodated, thus causing extensive forest fragmentation of interior forest areas in addition to nearby direct impacts. Employing the definition for core forest habitat in the Highlands Council Ecosystem Management Technical Report, 2008, page 39, "Core forest habitat is defined as a forest located more than 300 feet from altered land or a road," we calculated additional impacts to these resources. Our preliminary calculations indicate that a mere 1500 feet of "improved" road in a core forest area will disturb more than 15 acres of interior forest habitat. Depending on the quality and characteristics of the forest traversed by the access routes, forest habitat fragmentation is likely to affect between 500 and 1000 acres, or more. These vastly greater acreages of forest impacts from the construction access routes must be studied, analyzed and considered. Removal of forest cover would change the light exposure and soil moisture content that will have impacts to the surrounding vegetative community. Because they will be permanent, they cannot be mitigated.

The expansion of the ROW will fragment the forest, allowing edge species, specifically white-tail deer and cowbirds, to encroach deeper into the core forest. These edge effects can negatively impact species at least 300 feet within the forest boundary (Janzen, 1986). As deer herbivory is a major culprit in the declining health and biodiversity of forest sub-canopies these impacts must be examined to ensure rare, threatened, and endangered plant species populations can be maintained in the ecosystem surrounding the ROW. This will similarly decrease habitat for fauna and result in dislocation of species. These habitats must be examined to ensure no portions of the planned expansion area are an essential functional portion of a species' overall habitat requirements, such as nesting or feeding, and therefore could not or would be very difficult to replace. An overall decline in population numbers could result if the remainder of habitat area cannot meet the specific requirements of the species. Also species requiring large integral home ranges will be

negatively impacted and coordination with Fish and Wildlife Service is necessary to identify if such species will be impacted by further forest fragmentation.

Furthermore, a permit allowing for the expansion of the ROW will also result in the complete removal of all vegetation from expansion area. This will have a multitude of secondary effects including increasing runoff potential and erosion, allowing for the encroachment of invasive species and destruction of wildlife habitat along with primary impacts of loss of biodiversity, loss of forest cover and increase and magnification of forest edge impacts to the core forest, and increased use of herbicides along the ROW that will impact the surrounding ecosystem. Vegetation removal will also be required along proposed access roads and similar impacts should be expected in these areas as well.

Invasive Species

Please evaluate the potential impact of the transmission and generation components of the Project with respect to the establishment and spread of weeds.

Introduction of invasive species along the ROW and access roads would have a major impact on the biodiversity of the DEWA, as well as all of the other areas along the Project route and the alternative routes. Invasives out compete native vegetation potentially allowing for the spread of these species farther than the ROW and access roads, which will change the character of the Park and all other areas along the project and alternative routes. This loss of biodiversity will affect visitor experience and may result in decreased visitation by flora enthusiasts in favor of more biologically diverse sites. Also the financial impacts of invasive species management must be considered. The applicant will not be responsible for this program, instead leaving the National Park Service and state agencies to address the devastation. This will be especially difficult as President Obama has recently frozen the NPS budget over the next three years—making an expansion of an invasive species management program difficult under these conditions.

We urge NPS to further evaluate the ground-disturbing activities associated with the Project with respect to weeds. The potential for the further establishment and spread of weeds poses a serious threat to current character and long-term ecological integrity of the affected federal, state and local lands, wildlife habitat and other important resources and values. Specifically, please identify whether new or temporary road construction or materials depots would contribute to the introduction or spread of invasive weeds to the detriment of native vegetation.

Paying particular concern to the potential of the construction and operation of the transmission line and generation sites in spreading invasive weeds is critical because of the potential that new ground disturbing activity has for exacerbating existing weed problems from other land uses impacting NPS's ability to recover these lands permanently. Significant resources have been allocated by the New Jersey Natural Lands Council and the Natural Heritage Program and other state agencies in an attempt to restore—but such efforts (i.e. a

post-construction weed mitigation strategy) without prevention is a flawed strategy: if management after restoration is not altered, the original problems will return. The DEIS should discuss potential ways of mitigating weed impacts from the Project.

Rare or Unusual Vegetation

The Highlands provides habitat for at least 137 species of Rare and Endangered plants. (Highland Regional Master Plan Ecosystem Management Technical Report, Appendix E. 2008) The Natural Heritage Program provided PSE&G with information about 22 Endangered plant species likely to be found in the vicinity of the proposed project. (Letter from Herbert. A. Lord, Natural Heritage Program, to Herbert Pollock, PSE&G, June 27, 2008). Nothing has been done to evaluate or study how the project will address, identify or discuss potential impacts or mitigation of the project on rare or endangered plants, plant habitat sites, or the four designated Natural Heritage Priority Sites within the Highlands Region that are directly affected by the proposed project. (Comprehensive Mitigation Plan, pages 20-23.) The list of 21 Endangered plant species “possibly on project site, based on search of Natural Heritage Database, rare plant species and ecological communities currently recorded in the NJ Natural Heritage Database” include:

- Stiff Club-moss
- Bog Rosemary
- Rush Aster
- Glade Fern
- Water-marigold
- Water Sedge
- Labrador Marsh Bedstraw
- Small Bedstraw
- Featherfoil
- Shrubby St. John’s-wort
- Large-leaf Holly
- Pale Laurel
- Common Water-milfoil
- Illinois Pondweed
- Robbin’s Pondweed
- Rhodora
- Arum-leaf Arrowhead
- Bog Willow
- Small Burr-reed
- Arborvitae
- Seaside Arrow-grass

Unique Ecosystems and Rare Communities

The commenters support the inclusion of an analysis of impacts to Hogback Ridge. As noted in the comments on the scope of the DEIS, however, there are myriad Natural Heritage Sites that are both unique ecosystems and homes to rare communities. These should all be studied.

For example, four Natural Heritage Priority Sites are impacted by the transmission line upgrade:

- Green Pond Mountain Natural Heritage Priority Site (Rockaway and Jefferson Townships, Morris County): Two proposed access routes are located on the border of or entirely within the Green Pond Mountain Natural Heritage Priority Site. The Priority Site is an extensive matrix of forests, talus slopes, wooded wetlands and aquatic plant communities on Green Pond Mountain that contains habitat for a concentration of state critically imperiled, imperiled and rare plant species, and which has a Biodiversity Rank of B4V1. Rare palustrine and terrestrial plant species include Virginia Snakeroot, Mountain Spleenwort, Purple Bittercress, Soft-leaf Sedge, Featherfoil, Large-leaf Holly, Tall Cinquefoil and a data sensitive species or ecological community.
- Lake Denmark Natural Heritage Priority Site (Rockaway Township, Morris County): Directly adjacent and to the east of the Green Pond Mountain Natural Heritage Priority Site is the Lake Denmark Natural Heritage Priority Site. The existing transmission right-of-way and two proposed access routes totaling more than 4/5 mile, lie within this Heritage Priority Site. The Lake Denmark Natural Heritage Site consists of the watershed of the large glaciated lake, with its adjacent herbaceous, shrubby and forested wetlands. The Priority Site contains excellent populations of state-imperiled and other rare species, with a Biodiversity Rank of B4V1. Endangered and Rare terrestrial plant species include Climbing Fumitory, Fine-nerve Sedge, and Wood Lily (*Lilium philadelphicum*). Endangered and Rare palustrine, lacustrine and riverine species include Featherfoil, Floatingheart, Robbin's Pondweed, Small Burr-reed, Flat-leaf Bladderwort and Purple Bladderwort.
- Picatinny Arsenal: Both of the two Natural Heritage Priority Sites noted above are located in the biologically sensitive and species-rich northern portion of Picatinny Arsenal. This is only one of several reasons the Commenters request that the Picatinny Arsenal be included in the scope of the DEIS and that the Department of the Army and the Department of Defense be included in the NEPA process. In addition to Endangered plants, for example, Picatinny Arsenal is rich in Odonata, dragonflies and damselflies. Odonata diversity on the installation "is exceptional, representing more than half the number of known species in any other state or province in North America." (Carle 1995) For example, the rare New England bluet (*Enallagma laterale*) is a federal Candidate Species. The global range of this species in the northeastern US contains only 40 sites. The largest population occupies portions of Denmark Lake. Another dragonfly species is known from only one

- other site within the state. (Draft Integrated Natural Resources Management Plan, Picatinny Arsenal, United State Army Environmental Center, June 2000, at p. 25).
- Splitrock Reservoir Natural Heritage Priority Site (Rockaway Township, Morris County): The proposed construction access route on steep, unpaved Splitrock Road directly abuts the Splitrock Reservoir Natural Heritage Priority Site, located on the west side of Splitrock Reservoir and encompassing much of Farny State Park as well as some adjacent unpreserved lands. The Priority Site contains the only documented occurrence of an unnamed plant species that is critically imperiled in New Jersey. Containing mixed deciduous woodlands with steep and rocky slopes, plus several permanent and intermittent Category One streams, the Natural Heritage Site provides contiguous habitat for the imperiled plant species, including lands that drain toward that habitat.
 - Valhalla Glen Natural Heritage Priority Site, Montville Township, Morris County: The Valhalla Hemlock Glen Natural Heritage Priority Site is transected by nearly 2000' of the existing transmission right-of-way. Construction impacts could be severe. Lying north of Lake Valhalla, the Glen consists of rocky slopes in a hemlock ravine and associated wetlands along a small stream. Valhalla Glen contains a good occurrence of a state imperiled plant species, the Blunt-lobe Grape Fern. It is rated Biodiversity Rank B5V4.

Preserved Lands

It is noteworthy how many tracts of preserved lands will be impacted by this project. The transmission line on the existing right-of-way, the proposed switching stations (yet to be finalized) and the associated construction access roads traverse, abut or directly impact many preserved public lands. The proposed “temporary” access routes will cause direct severe and long-term impacts on many public and private preserved lands. Other lands will be scenically impacted. These include municipal land in Byram Township; Liffy Island Municipal Park in Hopatcong; Shawnee Trail Park in Jefferson Township; Camp Hudsonia, Lake Ames Park, Upper Hibernia Tract, Splitrock Reservoir Conservation Easement, the Farny/Copperas Ridge County Acquisition and pending farmland preservation in Rockaway Township; Buck Mountain State Park, Lake Rickabear Camp (private), and Rock Pear Mountain in Kinnelon; Forest Park in Boonton; and Turkey Mountain (part of Pyramid Mountain Park), Stony Brook and Bonnevieu Muncipal Parks and Troy Meadows in Montville. Other tracts will be impacted as well.

Several of these areas are discussed below, and make the case for the need to study all similarly situated and potentially affected areas:

- The Farny Highlands is a 30,000 acre mountainous headwaters forest in northern Morris County, which has been known as one of the “Highlands Critical Treasures” since 1993. A Plan to protect its water supplies and to preserve its forests was

completed in 1991. Sponsored by the Morris County Park Commission and staffed by Diane Nelson, participants included the NJ Division of Parks and Forests, NJ Fish and Wildlife Service, Office of Natural Lands, League to Save Open Space, Morris County Parks and Conservation Foundation, Morris County Trust for Historic Preservation, New Jersey Conservation Foundation, Protect our Wetlands, Water and Woods (POWWW), Trust for Public Land, and Upper Rockaway River Watershed Association. (Farny Highlands Watershed, A Plan to Protect Water Supplies and to Preserve Forests, July 1991).

The Farny Plan noted that “This forested area is also noteworthy for its scenic beauty as well as plentiful water supply.” The Farny Highlands Watershed Plan identified ten threatened lands, nearly all of which have been preserved in the 17 years since. These lands included “Jersey City” (now the Rockaway River Wildlife Management Area), Copperas Ridge (now the Wildcat Wildlife Management Area), Oak Trails, Mount Hope, Oak Meadow, Woodland Estates, Sammis, Society Hill, Dixon’s Pond and Buck Mountain (now Buck Mountain State Park). Several of the sites have been incorporated into Wildcat Ridge WMA. Additional lands proposed for acquisition included Bear Rock, Rock Pear and Turkey Mountain. These places have been preserved and should be protected from degradation.

- Mahlon Dickerson County Reservation - Mahlon Dickerson is described as “primarily a natural area” dedicated in 1967. The park is the largest facility in the Morris County Park System, encompassing over 3,200 acres of “beautiful near wilderness and recreational areas.” One of its outstanding features is the 1,300 foot elevation Headley Overlook, one of the highest points in the Morris County Park System, whose views will be substantially affected by the proposed transmission upgrade. In addition to an extensive network of trails within the park, the long-distance Highlands Trail extends from Sparta Mountain on the north, to the Headley Overlook, Saffin Pond, and on the Winona Trail to Route 15. The Winona Trail/Highlands Trail is one of the planned construction access routes.
- Pyramid Mountain Natural Historical Area – Located in Kinnelon Borough and Montville Township, Pyramid or High Mountain (elev. 934’) is the steepest and most dramatic of several parallel hills: Rock Pear Mountain and the Stony Brook Mountains to northwest, and Turkey Mountain to the southeast. Much of this area has been preserved over the past 20 years. The Morris County Park Commission brochure states “thanks to a remarkable coalition of citizen groups, conservation organizations, corporations and government agencies, the general public is welcome to enjoy the spectacular wilderness known as Pyramid Mountain Natural Historical Area. More than 1,000 acres of rugged trails, fields, forests, rock outcroppings and wetlands provide the visitor with a wide range of geological and ecological experiences. Cherished by naturalists, this wilderness area is a significant wildlife sanctuary. Along its many trails, you will discover special points of interest, including a unique glacial erratic, known as Tripod Rock, a multi-ton boulder which is

balanced on three smaller boulders, and deposited by the Wisconsin Glacier over 18,000 years ago, and an overlook which has a magnificent view of the New York City skyline.” This overlook is barely 1000’ from the proposed PSE&G transmission line upgrade, with its doubled height towers and construction route.

- The Highlands Millennium Trail, the Fanny Highlands Trail Network, and many other trails in the Highlands region will also be impacted. The Highlands Millennium Trail is a long-distance trail that extends some 150 miles from the Hudson River to the Delaware. It received federal recognition in 2000 as New Jersey’s Millennium Trail. The Fanny Highlands Trail Network is planned to consist of 50 miles of hiking trails that connect with the Highlands Trail. Today, the Fanny Highlands Trail extends from Route 23 south around Splitrock Reservoir to Hibernia, on Green Pond Road (Rt. 513). Views south across Splitrock Reservoir will include higher power line towers.

Many other trails in the northern Highlands will be directly or scenically impacted. Scenic viewpoints are a very important part of the recreational trail experience in northern New Jersey, and impacts from the doubled height of the proposed new towers are likely to be severe. Impacts on preserved lands and trails, and the scenic and recreational resources that these places provide, are a matter of public concern.

Wildlife

The NPS must be, and indeed is, concerned about threatened and endangered species both within and outside of park borders.⁶⁴ Not only is that required by federal law, it is also consistent with NPS policies and Director’s Orders. NPS is not only committed to maintaining healthy ecosystems, of which our parks are a part, but also preserving them from insult and attack so that future generations can enjoy them. In addition to more localized species, there are keystone and other important species that do not understand or adhere to geopolitical or arbitrary park boundaries. No place is this more apparent than with respect to our migratory bird species.⁶⁵ It is for this reason, among others, that the geographic scope of the EIS must be expanded.

Please also evaluate the effect of the transmission and generation components of the Project on bats. Intensive acoustic sampling of bats must be an integral and focal part of any biological assessment of these sites. Several bat species have been identified as possibly living on or migrating through the generation sites and Project area. This is particularly true with respect to bat hibernacula located on the Picatinny Arsenal.

In an area that lies in a highly valued but threatened ecosystem, the best available science must be employed to ensure protection of wildlife and avoid jeopardy to wildlife

⁶⁴ <http://www.nature.nps.gov/biology/endangeredspecies/>

⁶⁵ <http://www.nps.gov/dewa/naturescience/birds.htm>

habitat. Failure to employ the best available science to determine the biological baseline and evaluate potential impacts would violate NEPA.

Unique or Important Wildlife or Wildlife Habitat

We support NPS's recognition of the impacts the Project will have on migratory birds. Again, however, the scope is too narrow. The Migratory Bird Treaty Act does not allow for incidental take, and any bird kill by any aspect of the Project is a violation of the Act. As consideration of this and other EHV transmission projects expand, it is reasonable to expect that the overall number of mortalities will increase significantly—especially if the expansion is done in a manner that fails to consider impacts to wildlife.

The New Jersey Highlands are literally an ocean of birds during spring and fall migration, being located at a key juncture along the Atlantic flyway and the eastern edge of the Appalachian Mountains. For nearly one hundred years, birdwatchers have been drawn to various locations in New Jersey to observe “fallouts” of thousands upon thousands of birds. These spectacular migratory phenomena occur because in New Jersey there is a unique juxtaposition of moving frontal system winds combined with close proximity to mountainous and coastal geography.

These attributes frequently combine to create nocturnal flight conditions where birds must cut short a migratory flight and descend upon Highlands forests, as warm maritime winds collide with cold continental fronts over New Jersey. Whether in fall, when migratory flocks coalesce over New Jersey as they head south from New England and interior Canada, or in spring, when flocks are just beginning to branch out towards both interior Canadian destinations and New England as they head north up the Appalachian spine and the Atlantic coast, the New Jersey Highlands host a tidal wave of migratory birds.

The Highlands Regional Master Plan Ecosystem Management Technical Report 2008 recognizes that the forested ridges of the Highlands comprise a significant neotropical migratory bird flyway:

In addition to habitat for rare, threatened and endangered wildlife and plant species, the region's forests exist within a major bird migratory flyway, connecting wintering habitat in Central and South America with breeding grounds in northern latitudes. One-quarter of all neotropical bird species found in the United States are found in the Highlands and half of the total number of species that breed in the Highlands are neotropical migrants. Many of these species are forest-interior breeding species. Interior forests in the Highlands provide critical habitat for species including red-eyed vireo, American redstart and Eastern pee-wee. Two-thirds of migrant birds that use eastern migratory flyways are believed to be in serious decline. Several species, including northeastern populations of wood thrush, Kentucky warbler, black-throated blue warbler, and cerulean warbler are in rapid

decline. One reason for migratory bird species decline is loss of habitat through forest fragmentation and development pressures.” (Technical Report at 38).

Birds can and often do migrate at great heights above 800 feet, but during inclement weather can be found flying very close to the ground. (Gauthreaux, 1972). Furthermore, the New Jersey Highlands are frequently the beginning and endpoints of migratory flights, where birds by necessity will be at altitudes that interact with structures of the heights proposed. Most importantly, the 31 species of rare Highlands breeding birds will not be restricted to high-cruising altitudes. Since these 31 species are resident breeding birds, they will begin and terminate their migratory flights close to or within the proposed power line corridor.

Excluding electrocutions of birds that intentionally land on power lines, and only considering avian deaths caused by flying into “invisible” structures and lines during the dark or during poor visibility, power line collisions were estimated to kill 174 million birds per year in the US (Curry and Kerlinger, NWCC, 2001 from pages 6-7, Suggested Practices for Avian Protection on Power Lines, 2006). This is obviously a gross estimate, based on projections of a relatively small amount of data over a vast network of power lines, which works out to many hundreds of bird deaths annually per mile. Consider though, that many power lines are in areas with little habitat value and away from critical habitat or flyways, or run parallel to migratory flight paths, where impacts are much less likely than in the Highlands (1994, Chapter 3, page 17). With migratory bird densities among the highest in the world, the potential in the Highlands forests clearly exists for a tall, east-west running power line, perpendicular to the migratory path, to kill many hundreds or perhaps even thousands of birds per mile per year.

The NPS must study and evaluate risks posed to populations of rare avian species created by the potential habitat degradation of their migratory flyway posed not only by the proposed project, but also the alternatives. Careful habitat assessments can be made to determine the most likely areas for scientific monitoring of the proposed corridor. Since a smaller power line is already in place and the corridor is cleared, Forward-Looking Infra-Red (FLIR) detection systems (1994, Chapter 4, p. 30) can be utilized to monitor selected critical migratory habitats, to begin to estimate the likely future impacts of the proposed taller and larger power transmission system.

Additionally, please discuss the impacts of the transmission and generation components of the Project on raptors. In addition to the Highlands, the Delaware River Water Gap and the ridges and valleys in the area are marvelous raptor roosting, mating, and foraging habitat. We are concerned that it may not be feasible, regardless of mitigation measures, to design and operate the Project to adequately protect raptors. Please also discuss the impacts of the Project on other birds that use these areas. Harm to raptors is an acknowledged problem, with towers, transmission lines and tensioning towers potentially causing bird strikes and bird kills. NPS and USFWS must insure that any data regarding

raptors at the sites is complete and employs a methodology that allows meaningful evaluation of potential impacts.

It appears that transmission lines can have significant and negative impacts to birds, especially in locations where the powerlines are built over water and waterfowl concentration areas. For example, powerline collisions of wetland birds in Montana seems to aggravate the incidence of botulism in the birds in the area.⁶⁶ Another recent story documented that 706 birds (>80% waterfowl and cranes) were killed on 6.4 km of powerlines in Colorado.⁶⁷ A review from Norway shows that, based on relations to morphological characteristics, many of the waterfowl and raptor species we would be most concerned about are the ones with disproportionately high mortality rates.⁶⁸ Another report indicated 200-400 waterfowl killed by powerlines over water at a coal plant.⁶⁹

The Highlands are of singular importance and significance to neo-tropical nocturnal migrants, dozens of state-listed rare species of birds that utilize forested Highlands' ridges for both nesting and migration, which takes place at night. PSE&G has indicated that it will construct the new towers and switching station in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 and will implement an Avian Protection Plan (APP) in accordance with guidelines from the Avian Power Line Interaction Committee. This document, however, deals primarily with avian electrocutions and design standards to minimize electrocutions, which generally occur with larger birds.

Utilizing minimization principles to avoid perching, electrocution, and daytime collisions does not deal with night migration issues, except to estimate that annually 174 million birds are killed by collisions with power lines, and many of these would occur at night. The Avian Power Line Interaction Committee (APLIC) and the Edison Electric Institute published two "State of the Art" volumes (1994 and 2006) regarding migrating birds and their interactions with power lines. The earlier study, *Mitigating Bird Collisions With Power Lines: The State Of The Art in 1994*, is more relevant to the issue of transmission line upgrade impacts on migratory birds, especially conservation of neo-tropical songbirds in the New Jersey Highlands and the impact of night collisions on rare Highland bird populations.

Scores of species of birds migrate through the New Jersey Highlands at night during complete darkness. They are at risk from the proposed PSE&G electric transmission line

⁶⁶ See <http://www.jstor.org/pss/3781197> ("Power transmission line collisions appear to aggravate botulism losses on this wetland, particularly if bird casualties are not cleaned up frequently").

⁶⁷ See <http://www.jstor.org/pss/3782794>

⁶⁸ See http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V5X-3TP5RMP-7&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=989373861&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=faafda53533dff146d2e21c1ccda98c4.

⁶⁹ See <http://www.jstor.org/pss/3781293> ("Powerlines should not be built over water unless alternate routes do not exist; lines should not cross where waterfowl concentrate").

structures that will be doubled in height and be accompanied by an increased number of multiple wires. Of these, 33 are rare, threatened or endangered bird species. Their habitat is allegedly protected by the New Jersey Highlands Act and the DEP Highlands rules. The APLIC biologists recognize that healthy populations of birds can absorb individual deaths without detriment to the survival of a local population, but losses via power line collisions can pose serious impacts to the probability of survival in declining populations (1994, Chapter 2, page 8). These impacts cannot be dismissed.

Aerial migratory habitat is a significant and integral component of habitat for any rare avian migratory species population. Protection of this habitat is essential.

New Jersey Conservation Foundation ecologist Dr. Emile DeVito has identified the rare birds that migrate at night through the New Jersey Highlands. Rare night-migrating birds are those that would be most endangered by the significantly increased height of the transmission towers and significantly increased number of wires strung between them. Currently, there are 33 rare night migrants, species that New Jersey has designated as Endangered, Threatened, or Rare (of "Special Concern"), but more species are poised to be added to the rare bird list, as the NJDEP Endangered and Non-game Species Program has endorsed numerous additions that are expected to be published soon in the New Jersey Register. Of the 33 rare night migrant species, 31 breed in the Highlands and would be highly likely to have their local populations impacted even if they interact only infrequently with the power line. Rare (SC), Threatened (T), and Endangered (E), 33 bird species that migrate through the New Jersey Highlands at night (31 species breed here) include:

- American Bittern
- Barn Owl
- Blackburnian Warbler
- Black-throated Blue Warbler
- Black-throated Green warbler
- Blue-headed Vireo
- Bobolink
- Brown Thrasher
- Canada Warbler
- Cerulean Warbler
- Common Moorhen
- Common Nighthawk
- Eastern Meadowlark
- Golden-winged Warbler
- Grasshopper Sparrow
- Gray-checked Thrush
- Hooded Warbler
- Horned Lark
- King Rail
- Least Bittern

- Least Flycatcher
- Nashville Warbler
- Northern Parula
- Pied-billed Grebe
- Sora
- Spotted Sandpiper
- Veery
- Virginia Rail
- Whip-poor-will
- Winter Wren
- Wood Thrush
- Worm-eating Warbler
- Yellow-breasted Chat

Source: NJ Endangered and Nongame Species Program: Special Concern – Species Status Listing (Oct. 2008).

The NPS must also study and evaluate the increased risk to these species posed by the proposed taller transmission line structures. Migration of particular species is concentrated by habitat and geographic features (EEI, 1994, Chapter 3, p. 17), and there will be locations along this route that will be “collision maxima” for certain rare species. Since the proposed route along the existing right-of-way cannot be moved away from trouble spots that are identified by research, should the project proceed, appropriate mitigation will need to be designed and implemented by the applicant. In order to fully evaluate the risks to migratory birds, ideally data should be collected for a considerable period of time, both along the existing structures in appropriately chosen critical locations and under existing structures as tall as those proposed in comparable critical locations, with as many wires as this project proposes, to determine appropriate mitigation requirements.

PSE&G has indicated a willingness to be guided by the Avian Management Protection Plan. Unfortunately, that document relies extensively on a study that is not relevant to Highlands avian protection issues. The “Avian Management Protection Plan” draws almost exclusively on a document that addresses the daytime electrocution of large raptors, “Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996.” Section B fails to address the significant Highlands avian issues associated with rare nocturnal migrant birds. Avian electrocution is not the issue with small birds. As a consequence, Section B lacks value as a management or protection plan related to birds of the Highlands.

For example, point 6 “Avian Reporting System,” would be impossible to implement in the Highlands, as small dead birds, which are rapidly eaten or disintegrate, are only detectable as a miniscule percentage of the actual mortality. The paragraph “Neo-tropical Migrants,” a general description, is valueless in terms of providing guidance for Highlands avian management. It includes no mention of Highlands nocturnal migration and mortality

among neo-tropical migrants. Inexplicably, the paragraph “Birds of Prey,” was clearly taken from a document describing a different part of the USA, listing species that are not found in New Jersey, and omitting New Jersey T & E species. Pg. 19.

Unique or Important Fish or Fish Habitat

We support NPS’s recognition of the impacts the Project will have on Van Campens Brook and its tributaries. Again, however, the scope is too narrow. The entire River is protected. Impacts in the watershed caused by the Project need to be examined. For example, all of the waterbodies in the Middle Delaware-Musconetcong Watershed – (HUC 02040105) need to be analyzed for impacts, including tributaries and wetlands. A list of municipalities in the Delaware River Basin can be found at <http://www.state.nj.us/drbc/mcdis.htm>.

Species of Special Concern

Please see the comments elsewhere in this letter about the need to study and evaluate the impacts to the numerous species of special concern. In addition to the species already discussed, particular attention should be paid to two species of sturgeon (Atlantic and Short-nosed), which are entitled to protection under the Endangered Species Act as either listed or candidate species. Furthermore, as noted by the ISR, there are a number of raptors (bald eagles and peregrine falcons, in particular), which are entitled to protection under federal laws as well.

Cultural Resources

Please evaluate the impacts on cultural resources in the DEIS, including disclosing the public the results of the required consultation under the National Historic Preservation Act (“NHPA”). The purpose of the NHPA is to preserve the history and prehistory of this country and protect for future generations the historical and cultural resources that are part of the Nation’s heritage. Section 106 requires federal agencies to consider the impact of their “undertakings” on historical properties:

Section 106 of NHPA is a “stop, look, and listen” provision that requires each federal agency to consider the effects of its programs. . . . Under NHPA, a federal agency must make a reasonable and good faith effort to identify historic properties; determine whether identified properties are eligible for listing on the National Register based on criteria in 36 C.F.R. § 60.4; assess the effects of the undertaking on any eligible historic properties found; determine whether the effect will be adverse; and avoid or mitigate any adverse effects. Muckleshoot Indian Tribe v. United States Forest Serv., 177 F.3d 800, 805 (9th Cir. 1999). This review must be “initiated early in the undertaking’s planning, so that a broad range of alternatives may be considered during the planning process for the undertaking.” 36 C.F.R. § 800.1(c) (emphasis added). In this regard, “NHPA is similar to NEPA except that it requires consideration of historic sites, rather than the environment.” United States v. 0.95

Acres of Land, 994 F.2d 696, 698 (9th Cir. 1993). Because the construction of the Project would be an “undertaking” for purposes of the NHPA, please discuss and evaluate the result of the NHPA consultation and any modifications to the Project or mandatory mitigation that should be required as a result of the consultation.

Archeological Resources

The scope of any site survey must include all areas in the entire ROW, all access roads, staging areas, and any other area used by the applicants. The impacts associated with increased greenhouse gas emissions and other air emissions from new generators that are driving the alleged need for the line should also be evaluated.

Prehistoric and Historic Structures

The scope of any site survey must include all areas in the entire ROW, all access roads, staging areas, and any other area used by the applicants. There are a number of these areas in the Highlands region of New Jersey that should be evaluated. The impacts associated with increased greenhouse gas emissions and other air emissions from new generators that are driving the alleged need for the line should also be evaluated.

Cultural Landscapes

Permanent impacts to cultural landscapes are unacceptable and cannot be mitigated. In addition to those areas listed in the ISR, the NPS should also study and evaluate impacts to other areas in the Highlands. The 500-kv project, including the heightened towers, the existing right-of-way, the new switching station and the construction access routes, impacts dozens of preserved lands – federal, state, county, and municipal public lands, plus non-profit preserved lands and preserved privately owned farmlands.

Specifically, and as noted elsewhere in this comment letter, the Highlands long-distance trails, historic trails systems and their scenic viewpoints will be severely impacted by the power line development, including parts of the Highlands Millennium Trail that are proposed for use as a construction access route. The Appalachian National Scenic Trail, the Highlands Millennium Trail, the Farny Highlands Trail Network, and trails in many parks, including Mahlon-Dickerson, Wildcat Wildlife Management Area, Farny State Park, Pyramid Mountain, and many others will be impacted by the proposed power line development. The Highlands Millennium Trail, a long-distance trail that extends some 150 miles from the Hudson River to the Delaware, received federal recognition in 2000 as New Jersey’s Millennium Trail. The Farny Highlands Trail Network is to consist of 50 miles of hiking trails that connect with the Highlands Trail. The Farny Highlands Trail, which extends from Route 23 south around Splitrock Reservoir to Hibernia, on Green Pond Road (Rt. 513), will be impacted, and views south across Splitrock Reservoir will include higher power line towers. Scenic viewpoints are an important part of the recreational experience in northern

New Jersey, and impacts from the doubled height of the proposed new towers will be severe.

Ethnographic Resources

Please study the impact to these resources. Many of them have already been discussed in other sections of this letter. The DEWA's 1984 Land Protection Plan identifies some of these resources, and indicates that a fully study is necessary.

Museum Collections

Please study the impact associated with archiving and cataloging, and then making such resources available, keeping them protected, and maintaining them.

Other Agency and Tribal Land Use Plans or Policies

Please see the comments elsewhere in this letter regarding the need to coordinate more carefully with agencies. Not only are we concerned about the omission of NMFS especially in light of sturgeon species at risk, but also by what appears to be an oversight by NPS that it did not contact the Mohawks, the Oneida, the Shawnee, and the Onondaga Tribes, all of which are interested in this project, but not on this list and did not receive formal notification from the NPS. This suggests that the understanding of the ethnographic, cultural, and archaeological resources may be limited and merits study.

Additionally, there is significant concern that activities related to the Project that will take place in and around the Picatinny Arsenal could have significant impacts to health, safety, and the environment. Notably, the Arsenal property, which has been admirably managed for certain threatened and endangered species for at least the past decade, is in close proximity to a number of Natural Heritage sites, as discussed in this letter.⁷⁰ The Arsenal, however, also contains stockpiles of explosive materials, and possibly buried munitions—the exact locations of which are unknown. As such, the Picatinny Arsenal must be included in the scope of the EIS and the governing agencies must be included in the scoping and evaluation processes. In particular, quantity distance arcs relationships to the right-of-way must be known and evaluated.

Socioeconomics

Please evaluate the socioeconomic impacts of the transmission and generation components of the Project. The socioeconomic impacts of transmission and generation of energy go far beyond the value of the electricity produced by such projects or the construction, operation and maintenance jobs that may be created. Transmission and industrial-scale development of energy (as is the case with all industrial development) will

⁷⁰ Integrated Natural Resources Management Plan for Picatinny Arsenal, June 2000

leave permanent impacts on the landscape—a landscape that is both iconic and an important economic driver in the region. The public lands that would be impacted by this proposed Project include places which are important and valuable to all Americans and which have been specially protected by Congress and by presidential decrees. Development of these lands for energy transmission should be considered carefully and should account for all their potential values—both market and non-market.

Several specific areas of analysis which we feel should be addressed in the DEIS include:

- In assessing the benefits of this transmission and generation Project, the NPS must account for all the potential costs and benefits associated with such development.
- The DEIS should address the potential benefits to the local area economies that arise from undeveloped public lands (federal, state, and local), and which will be impacted by the development of the transmission and generation Project.
- All opportunity costs of energy transmission and generation on public and federally-protected lands, should be fully examined in the DEIS to ensure that net socioeconomic value of the transmission project is maximized.
- The DEIS should include an assessment of the potential benefits of siting transmission projects on private lands compared with this development on public lands. The potential fiscal returns to the American public from siting transmission on public lands should be compared with the potential fiscal benefits that might accrue to a private landowner through siting transmission on private lands (ROW, rental fees).
- The DEIS should consider the benefits as well as mitigation of costs by siting energy transmission on brownfields (previously-developed, contaminated or degraded lands). By avoiding costs to the ecological integrity and outdoor opportunities, the net benefits of siting the transmission project on contaminated or degraded lands may be considerable.
- The DEIS should account for all conceivable non-market values, including significant non-use values and the impacts on local quality of life and the recreational and aesthetic opportunities on the federal, state and local lands that may be impacted by the development of this Project. One of the most important purposes of public lands, including those administered by NPS, is the provision of public goods or non-market goods. Opportunities for solitude, outdoor recreation, clean air, clean water, the preservation of wilderness and other undeveloped areas would be underprovided if left entirely to market forces. In the assessment of the socioeconomic impacts of the Project, the DEIS must account for the non-market values associated with preserved lands. The NPS has an inherent responsibility to see that these lands are not impaired in order to ensure that the public goods they produce continue to be provided and in quantities that meet the demand of all U.S. citizens. Non-market values have been measured and quantified for decades. There is a well-

established body of economic research on the measurement of non-market values, and the physical changes (which result in decreases in the source of these values) brought about by development are very easy to measure quantitatively. This analysis is especially important when considering actions that would degrade or damage lands with wilderness characteristics and extraordinary scenic and recreational values, since these lands produce benefits and values that are seldom captured in the existing market structure.

The literature on the benefits of wilderness and other undeveloped lands is well-established and should be used by NPS to estimate the potential value of the lands and protected areas where the Project is proposed. By way of example, Krutilla (1967) provides a seminal paper on the valuation of wilderness and has led the way for countless others who have done additional research all providing compelling evidence that these lands are worth much more in their protected state. Morton (1999), Bowker et al. (2005), Krieger (2001) and Loomis and Richardson (2000) provide overviews of the market and non-market, use and non-use values of wilderness and wildlands. See Walsh et al. (1984), Bishop and Welsh (1992), Gowdy (1997), Cordell et al. (1998), Loomis and Richardson (2001) and Payne et al. (1992) for several more examples.

- The socioeconomic analysis in the DEIS should avoid the use of IMPLAN and economic base models to assess the economic impacts of the proposed energy transmission project on local communities. If the use of such models is unavoidable, these should not be the sole analytical tool for assessing the economic impacts.

- The socioeconomic analyses should include an assessment of the potential impacts of the Project on all segments of the local economies (non-labor income, amenity driven development, tourism, etc) along with impacts to residential and other private property values.

Impact evaluation should include potential impacts to visitation to not only the national recreation area, the AT, and the SRR, but also the various county and state parks affected by the Project, and surrounding areas, on annual Migratory Bird Festivals, Eagle Fest, and other birding-related events, as well as Shad Fest and other fishing events. The DEIS must include a thorough examination of the full socioeconomic impacts likely to occur if the proposed transmission and generation Project impacts undeveloped and protected lands.

Potential degradation of roadways due to utilization by construction vehicles must be examined. The heavy construction machinery and high traffic volumes associated with construction activities could ruin roads. Tax payers would be left to pay the costs of road repair. Therefore changes to local tax bases if road reconstruction was necessary should be considered in weighing each alternative. The traffic created by the construction activities will impact visitor experience as portions of the park will be completely inaccessible or require detours. These impacts must be examined in light of visitation to the park and impacts to the economy of the local community.

Finally, the cost allocation scheme initially presented has been struck down by the Seventh Circuit Court of Appeals. As a result, it is unknown at this time how tax payers and ratepayers in the PJM region will be affected by the costs associated with the Project, as well as the other backbone projects. FERC is currently conducting a paper hearing and has asked PJM to justify its cost allocation and apportionment formulas. Until that proceeding is complete, it will be impossible to truly understand the costs to the public.

Minority and Low Income Population

These impacts should be studied and evaluated, particularly in light of the affordable recreational opportunities the impacted opportunities provide, and the fact that these areas provide recreational opportunities to nearly 60 million people, many of whom live in urban areas.

Real Estate Values

The ISR appears to recognize in this category of impacts and issues that the scope is much broader than the federal lands at issue. We support this recognition and request that the scope be broadened in all categories.

Additionally, significant concern was also raised by many about the ability to obtain FHA mortgages due to concerns about the narrowness of the ROW and the proximity to the fall zone. To the extent lenders are unwilling or less willing to lend money to acquire houses, those factors may further impact property values and should be studied and considered.

Visitor Experience

Please evaluate the impacts of the transmission and generation components of the Project on hiking, camping, hunting, fishing, star-gazing, and other non-motorized recreational activities on all of the federal, state and local lands in the project area. The presence of a transmission line and soaring 190' towers will have a significant impact to the recreational experience of residents and visitors to the area. Please evaluate whether construction of the Project will adversely affect game species on the mountain and thereby diminish opportunities for hunting.

Hikers and people enjoying the attractions and unspoiled vistas in the gorges, viewing areas, and scenic byways surrounding the area would be faced with visual and acoustic impacts from a large, industrial-scale transmission Project that is fundamentally at odds with non-motorized recreation and enjoyment of the solitude, darkness and relatively unbroken natural experience now available. Please thoroughly evaluate this impacts in the DEIS.

The enabling legislation for the DEWA (Public Law 89-158) states the purpose for the creation of the DEWA is “for public outdoor recreation use and enjoyment... and for the preservation of the scenic, scientific, and historic features contributing to public enjoyment of such lands and waters.” This project would have major impacts on the visitor experience and essentially stop public outdoor recreation use and enjoyment in sections of the Park. The internal scoping document notes these serious impacts stating, “Closures to roads, river, and trails are likely for safety and transport needs. Lost use to the public from closures both temporary and permanent could result from this project.” The primary goal of the park would be inhibited by granting the applicant permits and these impacts should be weighed heavily. Creation and expansion of access roads, increasing the height of the towers, and permanent closures of sections of the Park would have significant long term impacts on public enjoyment of the Park and an alternative that does not place the goals of the DEWA in jeopardy must be selected.

Viewshed Appreciation

Please evaluate the impacts of the transmission and generation components of the Project on the visual and scenic resources, including the daytime viewsheds and the incomparable nighttime darkness currently available in the area. Please include visual simulations, including moving-picture representations of how the flares from gas plants and IGCC coal plants, cooling towers from coal plants, and night-time beacons on tensioning towers would alter the current character of the lands where the transmission and generation infrastructure would be built. Please also include a determination whether the visual impacts of the Project are compatible with the purposes of the various pieces of federal and state legislation establishing these protected areas. We have serious concerns that development of industrial-scale transmission lines in this area would not be compatible with the purposes of those Acts with respect to viewshed and scenic resources.

To properly evaluate the potential visual impacts, the visual impact analysis should show and evaluate the combined effects of all four “backbone” transmission projects and all generation sites from several different vantage points. The impact of the transmission line should also be shown in simulations from NPS-designated scenic vantage points, including the Appalachian Trail. Visual impacts should also be evaluated from sites that are representative of non-motorized recreational uses, such as hiking trails or fishing areas.

The DEIS should also evaluate the impact of the transmission line and generation sites on viewsheds. A viewshed is the entire landscape seen from a single observation point. Unobstructed viewsheds contribute to the sense of solitude and remoteness that is an important quality to the visitor experience. Visual resource management (“VRM”) should be an integral planning consideration for transmission lines. NPS’s sister agency, the BLM, is required to manage all uses and activities consistent with an area’s VRM Management Class as established in the governing documents for any public land holding. NPS can consider using the same tool. To the greatest extent possible, viewshed areas designated as VRM Class II should be avoided, and Class I areas should be excluded from development

altogether. NPS should direct transmission line development to alternate locations away from sensitive viewshed areas that qualify as VRM Class II and areas identified as high quality viewsheds in public comments. These include all areas that are visible from the Appalachian Trail. NPS should exclude VRM Class I areas from development. Any impacts that are unavoidable should be minimized and mitigated to the greatest extent possible.

The Appalachian Trail is one of the most important scenic locations in the United States presenting unique opportunities to millions of citizens and visitors. This “unique opportunity” will disappear when a large industrial development cuts across the AT. Please evaluate these impacts thoroughly in the DEIS. It may well be that it is not feasible to design and operate the proposed transmission and generation facilities to be compatible with the surrounding, unique, and unparalleled scenic characteristics of the AT.

Silence and a sense of remoteness is another important aspect of scenic quality currently present on the AT, and in the Water Gap, as well as other areas within the Highlands.

NPS should prepare nighttime views of the transmission lines, which may bear several red strobe lights, flashing at frequencies of at least 20 times per minute. And a still image cannot simulate the experience of viewing a group of flashing lights on an otherwise dark landscape. Flashing lights are a very different experience than steady lights. A proper disclosure of visual impacts requires a realistic, moving-picture representation of the nighttime views of the proposed development, so that the public may have a better understanding of the aesthetic trade-offs that come with it.

Recreation Resources

Please study and evaluate these impacts, which have been discussed in other sections of this comment letter.

Aesthetic Resources

Please study and evaluate these impacts, which have been discussed in other sections of this comment letter.

Energy Resources, Conservation Potential, and Sustainability

In addition to the myriad health and safety issues raised in other sections of this comment letter, please study and evaluate the health and safety impacts associated with EMF emitted from the line on both humans, animals, and insects. Please also study and evaluate the impacts on hikers, residents, campers, anglers, boaters, and other recreationists associated with towers falling, swaying or sagging lines, snow and ice falling from towers and conductors, and other associated issues.

The introductory section of this comment letter discussed in great detail energy resources, generation, efficiency, conservation, demand response, smart grid technology, and a host of other issues that have not been adequately considered by PJM, the arbiter of the “need” for the Project. As noted above, it is due to the narrow mission of PJM to consider only transmission projects. As such, it is imperative that the NPS study, consider and evaluate all of those issues in the context of determining the impact of the Project and the proposed alternatives.

CONSIDER CONNECTED, CUMULATIVE, AND SIMILAR ACTIONS

In determining the scope of the EIS, NPS must consider “connected actions,” “cumulative actions,” and “similar actions.” 40 C.F.R. § 1508.25. Connected actions are actions that are “closely related” to the SR500. Closely related actions include any reasonably foreseeable electricity generation, transmission, and distribution projects that would not occur “but for” authorization of the SR500 provided by the NPS. Thus, the EIS should address each of these types of connected actions/projects in detail, and given the significant amount of historical data that exists for these types of actions/projects they are reasonably foreseeable and detailed consideration should be possible. Similar actions include authorizations for similar projects occurring on State and private lands in or adjacent to the geographic area of the NPS holdings, Forest Service plans and other analyses authorizing electricity generation, transmission, or distribution projects on nearby lands administered by the federal government. The scope of the EIS should include a detailed analysis of these similar actions so as to foster informed public participation.

The EIS must include an ecosystem-wide impacts study taking the direct, indirect, and cumulative impacts. This is of particular import with regard to the impacts on air quality, water quality, and wildlife. Similarly, the existing and future coal plants will have a major impact on the likelihood and scale of future development. Please also disclose and analyze the existing location and capacity of natural gas pipelines in determining new developments and the impact of new natural gas pipelines that are expected to be built with future energy development in the vicinity.

Cumulative actions are actions that, incrementally, have cumulatively significant impacts, even if the individual impacts are minor. Thus, NPS should define the scope of the EIS to include analysis of the cumulative effects of actions/projects that have impacts in common with those resulting from oil and gas development. Impacts and actions that should be addressed in a cumulative fashion include, but are not limited to: road construction effects, activities leading to soil and vegetation disturbance, activities leading to changed habitat structure, activities leading to habitat fragmentation, and activities causing air or water pollution. These cumulative impacts result from a number of cumulative actions, including other transmission line projects, and thus they must be addressed in a comprehensive manner.

Similarly, the scope of the EIS must include consideration of direct and indirect impacts of electric generation and transmission activities. 40 C.F.R. §1508.25.

An issue closely associated with the consideration of connected, similar, and cumulative actions and impacts is the Reasonably Foreseeable Development (RFD) scenario for this type of development. This issue will be addressed at length below. Suffice it to say here that development of a realistic, well supported, economically rational, and scientifically based RFD is crucial for a proper analysis and determination of connected, similar, and cumulative impacts.

Connected Actions

The NPS must analyze and determine whether private electricity generation projects are a connected action with this public lands proposal. We insist that they are, and the records in the proceedings before the two state public utility commissions make this clear.

The NPS must analyze how the various generators in the queue, detailed in the recent proceedings, are related to this proposal. Please also see the attached Exhibit A identifying more localized generation in the queue.

Cumulative Impacts

The NPS must closely scrutinize cumulative impacts. Environmental analyses must take a hard look at the "environmental impacts" of proposed actions, 40 C.F.R. § 1508.9(b), which include direct, as well as indirect and cumulative impacts. See 40 C.F.R. § 1508.8 (effects include ecological, aesthetic, historical, cultural, economic, social or health impacts, whether direct, indirect or cumulative); 40 C.F.R. § 1508.25(c) (EIS shall consider three types of impacts, including direct, indirect, and cumulative effects); 40 C.F.R. § 1508.25(a)(2) (EIS's must analyze the effects of actions "which when viewed with other proposed actions have cumulatively significant impacts"). Indirect effects "are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water quality and other natural systems, including ecosystems." 40 C.F.R. § 1508.8(b).

Federal caselaw amplifies that agencies must disclose the direct and indirect environmental effects a federal action will have on non-federal lands. See City of Davis v. Coleman, 521 F.2d 631, 677-81 (9th Cir. 1975) (where federal approval of highway project likely to have impacts on development of surrounding area, agency must analyze development impacts in EIS); Coalition for Canyon Preservation v. Bowers, 632 F. 2d 774, 783 (9th Cir. 1980) (same); Sierra Club v. Marsh, 769 F.2d 868, 877-89 (1st Cir. 1985) (striking down EA where agency failed to account for private development impacts likely to result from its approval of causeway and port facility); Mullin v. Skinner, 756 F. Supp 904, 920-22, (E.D. N.C. 1990) (striking down EA where agency failed to account for private

development impacts likely to result from agency approval of bridge). Such impacts must be disclosed, particularly where facilitating private development may be the project's "reason for being." See Citizens Comm. Against Interstate Route 675 v. Lewis, 542 F. Supp. 496, 562 (S.D. Ohio 1982).

In its EIS, an agency must also consider the proposed action along with other actions, "which when viewed with other proposed actions have cumulatively significant impacts." 40 C.F.R. § 1508.25(a)(2). A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such actions." Save the Yaak Comm., 840 F.2d at 721. Under NEPA, cumulative impacts include direct as well as indirect effects, "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(a). In analyzing the cumulative effects of a proposed action, an agency must do more than just catalogue "relevant past projects in the area." City of Carmel-by-the-Sea v. U.S. Dep't of Transp., 123 F.3d 1142, 1160 (9th Cir. 1997). The EIS "must also include a 'useful analysis of the cumulative impacts of past, present and future projects.'" Id. This means a discussion and an analysis in sufficient detail to assist "the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts." Id.

In addition to cumulative impacts described above, please discuss the following issues in the DEIS:

- Visual and scenic impacts

Please evaluate the cumulative impacts of past, present, proposed and reasonably foreseeable industrial-scale energy developments in the region that could alter the viewsheds and scenic resources of the undeveloped and wild areas of the mid-Atlantic and along the Eastern Seaboard (including existing electrical transmission lines) and evaluate the incremental impact of the transmission and generation components of the Project on these resources.

- Road construction

Please evaluate the cumulative impacts of past, present, proposed and reasonably foreseeable road construction or improvement on DEWA, SRR, and the AT. Please also evaluate how the cumulative impacts of road construction affects wildlife due to habitat fragmentation. Please indicate how the incremental impact of roads (including temporary roads) necessary for this Project would impact the resources in the area, including any impacts to waters or wetlands associated with road construction.

A cumulative impacts study within an environmental review document must be extensive. In Fritiofson v. Alexander, 772 F.2d 1225 (5th Cir. 1985) the court states that:

"cumulative impact analysis should consider 1) past and present actions without regard to whether they themselves triggered NEPA responsibilities and 2) future actions that are reasonably foreseeable even if they are not yet proposals and may never trigger NEPA review requirements. 40 C.F.R. § 1508.7 . . . Given the CEQ regulations a meaningful cumulative-effects study must identify: 1) the area in which effects of the proposed project will be felt; 2) the impacts that are expected in that area from the proposed project; 3) other actions - past, proposed, and reasonably foreseeable - that have had or are expected to have impacts in the same area; 4) the impacts or expected impacts from these other actions; and 5) the overall impacts that can be expected if the individual impacts are allowed to accumulate."

NPS should account for any future possibility that the transmission line carries non-renewable energy sources, such as coal, that produce greater GhG emissions. Department of the Interior Secretarial Order 3226, as amended in 2001, requires NPS to "consider and analyze potential climate change impacts. . . . when making major decisions." Federal case law also underscores the responsibility of federal agencies to scrutinize reasonably foreseeable cumulative environmental impacts from carbon dioxide emissions involving coal-fired power generation through the NEPA review process. See Mid-states Coalition for Progress v. Surface Transportation Board, 345 F.3d 520 (8th Cir. 2003) (finding NEPA violation by failing to consider emissions from increased coal consumption from new rail lines carrying coal); Border Power Plant Working Group v. Department of Energy, 260 F.Supp.2d 997 (S.D. Cal. 2003) (finding NEPA violation for failure to analyze reasonably foreseeable cumulative impacts from carbon dioxide with proposed transmission lines). In accordance with these decisions, and due to reasonably foreseeable GhG emissions and environmental impacts from power lines supporting coal-fired generation, NPS should consider options for allowing interconnection from only low-carbon generation (equal to or less than that of a combined-cycle natural gas fired power plant).

On the ground impacts are also important to consider when assessing cumulative and connected actions. Surface disturbance from the transmission lines should be considered in the EIS and minimized to the greatest extent possible. The need for new infrastructure to accommodate construction workers could be reduced or eliminated by giving special attention to where opportunities exist to utilize pre-existing roads or housing in close proximity to project locations.

In Border Power Plant v. Dept. of Energy, 260 F.Supp.2d 997 (S.D. Cal. 2003), the projects under immediate consideration for approval were federal rights-of-way to build power lines connecting coal power plants in Mexico with the power grid in Southern California. To help ensure that the connecting power plants would have the least impacts on regional air quality, the plaintiffs in Border Power Plant advanced a novel theory: condition the right-of-way permits "on the commitment of the project proponents to implementation of state-of-the-art emissions control systems, mitigation through offsets in existing sources, and the use of dry cooling or parallel dry-wet cooling." Border Power Plant, 260 F.Supp.2d

at 1029. The defendant permitting agencies argued that such a condition would frustrate the purpose and need of the proposed action, which only dealt with the construction of power lines in a right-of-way and not the operation of the connecting power plants.

The court agreed with the plaintiffs, and its analysis is worth quoting in full:

Here, the scope of the action relates only to the transmission lines, but the nature of the action includes the full scope of the analysis, including the effects of the action. The nature of the action therefore includes the importation of power generation in Mexico. Indeed, to leave out the secondary impacts would be at odds with the purpose of the alternatives analysis, which is to provide a way for an agency to calculate and compare the various predicted effects of alternative courses of action. The analysis would be arbitrary in itself if it did not take into account all effects of a proposed action. Accordingly, defendants' arguments that they need not consider alternatives related to the [coal power plant] facilities fails. Given this nature, the agencies were obligated to set forth in the EA 'the range of alternatives . . . sufficient to permit a reasoned choice.' Although defendants argue that 'international sensitivities' preclude conditioning the permits from being a reasonable and feasible alternative, such a discussion belongs in the EA's alternative analysis rather than a litigation brief.

Border Power Plant, 260 F.Supp.2d at 1030-31 (citations omitted).

Accordingly, there is judicial precedent for the proposition that NEPA approval processes for rights-of-way that will house power lines should consider alternatives that place performance-based conditions on the right to use public lands. For the Susquehanna-Roseland project, we ask NPS to develop this type of permit condition in order to ensure that America's public lands are being used to support a forward-thinking energy policy and are furthering climate change solutions. Fuel-neutral, a performance standard is an appropriate condition for the use of the country's public lands and allows the public assurances that support for a particular corridor or right-of-way will not result in future actions connecting polluting and carbon-heavy power sources to the electric grid.

Cumulative and connected actions, such as potential benefits from reducing greenhouse gas emissions from electricity generation, decreased impacts from climate change, and potential impacts from additional infrastructure and reasonably foreseeable development of renewable energy generation plants, should be accounted for in the Draft EIS.

Further, the agencies should comprehensively analyze the Project's net contributions to GhG emissions, including GhG emissions during manufacture, construction, operation, decommissioning, and reclamation and reasonably foreseeable energy development facilitated by the Project. The analysis should consider both the potential for the project to

reduce GhG emissions as well as potential for the project to increase GhG emissions, for example, by disturbing undisturbed land currently useful for carbon sequestration. The results of this analysis should then be compared to the same type of analysis for fossil-fuel based energy production, including combined-cycle natural gas fired and coal fired power plants.

ALTERNATIVE ANALYSIS

NEPA regulations and judicial interpretations mandate meaningful public involvement and require officials to consider and disclose the environmental impacts of the proposal before a decision is made. See, e.g. 40 C.F.R. §§ 1500.1(c), 1502.1, 1502.14. To that end, the DEIS must contain a range of reasonable alternatives, those alternatives must include the alternatives to be considered by the decision maker, the alternatives must be sharply defined and provide a clear basis for choice, and the environmental impacts of those alternatives must be evaluated and disclosed, and measures to mitigate impacts considered. 40 C.F.R. § 1500.2(e), 1502.1, 1502.9(a), 1502.14. In the EIS, an agency must “‘rigorously explore and objectively evaluate all reasonable alternatives’ to a proposed plan of action that has significant environmental effects.” NRDC v. U.S. Forest Serv., 421 F.3d 797, 813 (9th Cir. 2005) (citing 40 C.F.R. § 1502.14(a)). This discussion of alternatives is essential to NEPA’s statutory scheme and underlying purpose. See, e.g., Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228 (9th Cir. 1988), cited in Alaska Wilderness Recreation & Tourism Ass’n v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995); Muckleshoot Indian Tribe v. U.S. Forest Serv., 177 F.3d 800, 813 (9th Cir. 1999). Indeed, NEPA’s implementing regulations recognize that the consideration of alternatives is “the heart of the environmental impact statement.” 40 C.F.R. § 1502.14.

In addition, agencies must “‘exercise a degree of skepticism in dealing with self serving statements from a prime beneficiary of the project and to look at the general goal of the project rather than only those alternatives by which a particular applicant can reach its own specific goals.” Env’tl. Law & Policy Center, 470 F.3d at 683 (quoting Simmons, 120 F.3d at 666)). When the purpose and need of a project are overly narrow, the resulting range of alternatives is inadequate under NEPA. See id. at 684 (citing Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 199 (D.C. Cir. 1991)). An agency cannot define the purpose of a project in such a way as to foreclose the ability of any alternatives to meet the stated purpose. See Simmons, 120 F.3d at 669.

The applicant’s alternatives are not adequate to satisfy NEPA because they amount to minimal variations from a pre-selected route and do not represent all reasonable alternatives. NPS and USFWS should evaluate alternatives that include entirely avoiding the federally-protected land by routing the line elsewhere. NPS should carefully evaluate any impacts that such a route would have on federal lands that are crossed or impacted by construction access routes or by scenic, viewshed or other impacts on the way to an interconnection point with the grid in that direction.

In addition, NPS should evaluate alternative regional systems for generating and transmitting electrical power from sources that would not involve crossing protected areas. The DEIS should evaluate whether relying on or expanding other renewable energy alternatives would be a practicable alternative and adequately or accurately analyze the full range of reasonable project alternatives. See 40 C.F.R. § 1502.14(a); NRDC v. USFS, 421 F.3d 797 (9th Cir. 2005); Simmons v. U.S. Army Corps of Eng'rs, 120 F.3d 664 (7th Cir. 1997); Envtl. Law & Policy Center v. U.S. Nuclear Reg. Comm., 470 F.3d 676 (7th Cir. 2006); Davis v. Mineta, 302 F.3d 1104 (10th Cir. 2002). Please see the alternatives discussed in the introductory section that provided background on the Project and a discussion of energy alternatives.

In evaluating alternatives, the purpose and need for this Project, and its potential environmental impacts, please consider New Jersey's Energy Master Plan, Pennsylvania's Act 129, New Jersey's Global Warming Response Act, the Regional Greenhouse Gas Initiative, and applicable Renewable Portfolio Standards.

The alternatives analysis must be comprehensive. Council on Environmental Quality (CEQ) Regulations implementing the NEPA (40 CFR §1502.14.) require that agencies shall: "rigorously explore and objectively evaluate all reasonable alternatives."

Further, if the project will be required to obtain a New Jersey Stormwater Discharge Elimination System Permit pursuant to the Clean Water Act (CWA) (Section 404(b)(1) Guidelines [Part 203.10(a)]), the CWA states that the "discharge not be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the ecosystem."

The NPS must consider the public interest, not merely the applicant's desires. This includes consideration of alternatives that PSE&G and PPL may not feel are economically optimal. The Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 FR 18026, 18027 (March 23, 1981) clearly states that (emphasis original): "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant." As such, the NPS should examine the following alternatives in detail equal to or greater than the proposed action and no action alternatives:

- Alternative that upgrades busses, conductors, and particular circuits identified in technical documents as possibly subject to overload in the future that would obviate need for the Project
- Alternative that constructs localized generation in areas of alleged reliability violations to obviate need for the Project
- Alternative that relocates the project out of the Highlands
- Alternative that relocates the project out of Picatinny Arsenal
- Alternative sites for generating energy that do not require the construction of a "backbone" transmission line, which would involve less ecologically sensitive areas

- than the DEWA, AT and SSR, as well as the Highlands, including generation sites that are closer to existing transmission lines or distributed generation alternatives, energy efficiency, and conservation measures that would involve little or no additional new transmission line construction.
- Alternative that considers whether the lower efficiency and higher maintenance cost of fossil energy generation and long-distance extra-high voltage electricity transmission, compared to renewable generation alternatives (solar, geothermal, hydropower, distributed generation) would obviate any need for this Project.
 - Alternative that considers whether modernizing the grid, or implementing smart grid technologies, can address alleged reliability violations in the future to obviate the alleged need for the Project.

MITIGATION

NEPA also requires that NPS discuss mitigation measures to avoid or minimize environmental consequences from proposed actions in an EIS. 40 C.F.R. §§ 1502.14, 1502.16. NEPA's implementing regulations underscore this requirement by requiring agencies to "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a). This evaluation extends to considering more environmentally-protective alternatives and mitigation measures. *See, e.g.*, 40 C.F.R. § 1505.2(b); 40 C.F.R. § 1502.14(f). Please discuss in the DEIS all potential mitigation measures that could prevent unreasonable impacts to the lands and resources affected by the Project.

NPS is obligated to manage the public lands to protect their varied natural resources. In order for the agencies to rely on mitigation to reduce potentially significant impacts, NEPA requires that the agencies make a firm commitment to the mitigation and discuss the mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Communities, Inc. v. Busey*, 956 F.2d 619, 626 (6th Cir. 1992). NEPA defines "mitigation" of impacts to include:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- Compensating for the impact by replacing or providing substitute resources or environments.

40 C.F.R. § 1508.20. NPS must “analyze the mitigation measures in detail [and] explain how effective the measures would be . . . A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA.” N.W. Indian Cemetery Protective Ass’n v. Peterson, 764 F.2d 581, 588 (9th Cir. 1985), rev’d on other grounds, 485 U.S. 439 (1988).

The DEIS should evaluate and commit the agencies to specific mitigation measures based on the best available science and the agencies’ statutory obligations. The DEIS should clarify which impacts are possible to mitigate, and which cannot be mitigated except by not taking the action. Should it determine to grant a right-of-way, NPS must require certain mitigation measures on the generation component as a condition of that grant, including reductions in numbers of plants, fuel source, requiring closed cycle cooling on any facility, conditions and time of usage, lighting requirements, and other measures to reduce the impacts of the Project.

Also, NPS should consider imposing mandatory mitigation of nighttime light pollution by requiring installation of an Obstacle Collision Avoidance System that is activated by radar and only blinks when aircraft are in close proximity, minimizing or eliminating the nighttime impacts from the Project.⁷¹

In addition, please consider and incorporate appropriate mitigation recommendations of the Avian Power Line Interaction Committee’s Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006, available at www.aplic.org, as well as the earlier 1994 document. The earlier study, *Mitigating Bird Collisions With Power Lines: The State Of The Art in 1994*, is more relevant to the issue of transmission line upgrade impacts on smaller migratory birds, especially conservation of neo-tropical songbirds in the New Jersey Highlands and the Kitatinny Ridge and Valley regions impacted by the Project and the impact of night collisions on rare bird populations. However, in order to determine appropriate mitigation, we urge that an approach be developed to understand, analyze, evaluate and define the risk posed to populations of rare avian species created by the potential habitat degradation of the migratory flyway. Such an approach should include monitoring for a period of at least a year both the existing transmission lines and perhaps full size mockups of proposed transmission towers and wires in selected critical migratory habitats impacted by the Project to estimate the Project’s likely future impacts,

Respectfully submitted,



Julia LeMense, Esq.
Executive Director

⁷¹ See, e.g., <http://www.darksky.org/mc/page.do?sitePageId=84895>.

On behalf of:

Environment New Jersey
Attn: Dena Mottola Jaborska
143 East State Street, Suite 7
Trenton, NJ 08608

New Jersey Environmental Federation
Attn: David Pringle
1002 Ocean Ave.
Belmar, NJ 07719

New Jersey Highlands Coalition
Attn: Julia Somers
508 Main Street
Boonton, NJ 07005

Sierra Club – New Jersey
Attn: Jeff Tittel
145 West Hanover St.
Trenton, NJ 08618

Delaware Riverkeeper Network
Attn: Fred Stine
300 Pond Street
Second Floor
Bristol, PA 19007

Stop the Lines
Attn: David Slaperud
PO Box 398
Tranquility NJ 07879

Appalachian Mountain Club
Attn: Kristen Sykes
520 Long Street
Bethlehem, PA 18018

Highlands Coalition
Attn: Kristen Sykes
520 Long Street
Bethlehem, PA 18018

March 12, 2010
Eastern Environmental Law Center
Susquehanna-Roseland 500kV Transmission Line EIS Scoping Comments
Page 72 of 72

Rock the Earth
Attn: Marc A. Ross
1536 Wynkoop St.
Suite B200
Denver, CO 80202

Association of New Jersey Environmental Commissions
Attn: David Pfeifer
PO Box 157
Mendham, NJ 07945