Pursuant to Rule 207 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.207, and in accordance with the Commission’s Notice of Proposed Rulemaking on Promoting Transmission Investment Through Pricing Reform in Docket No. RM06-04-000 (“Incentive Pricing NOPR”), American Electric Power Service Corporation (“AEP”), on behalf of its newly-formed subsidiary, AEP Transmission Company LLC (hereinafter “AEP Transco”), hereby requests that the Commission issue a declaratory order approving proposed incentive rates for a new 765 kV transmission line that AEP Transco is proposing to build from west to east across PJM. The line is expected to run from the Amos Substation on AEP’s system in West Virginia to the Deans 500 kV Substation on the Public Service Electric & Gas Company system in New Jersey. The project will be known as the AEP Interstate Project (hereinafter “AEP Project” or the “Project”).

1 The Commission’s current regulation providing an opportunity to request innovative rate treatments for transmission is set forth at 18 C.F.R. § 35.34(e). The Incentive Pricing NOPR proposes to replace §35.34(e) with a new 18 C.F.R. § 35.35. Until such time as the Commission issues a final rule, AEP hereby requests that the Commission deem this declaratory order filing (Continued …)
In this filing, AEP asks that the Commission approve three incentive rate treatments in connection with the formation of AEP Transco and the construction of the AEP Project. First, AEP requests that the Commission declare that it will set the allowed return on equity (“ROE”) for the AEP Project capital costs at the high end of the zone of reasonableness, which would be established in a later Section 205 proceeding in which a range of methods for determining ROE would be considered. Alternatively, AEP requests that the Commission approve a 200 basis point adder above the ROE established in a future proceeding, consistent with its ruling in several other cases. Second, AEP requests that the Commission declare that AEP may at its option recover on a timely basis the cost of capital associated with construction work in progress (“CWIP”) for the Project as proposed in the Incentive Pricing NOPR. Third, AEP requests that the Commission offer it the option to expense and recover on a current basis the costs that AEP incurs during the pre-construction/pre-operating period. In addition, AEP seeks certain accounting authority for the deferral for future recovery of such costs not yet being recovered plus related carrying costs.

Each of the requested incentive rate treatments is consistent with proposals contained in the Incentive Pricing NOPR. In addition, proposed incentives two and three, to have been made pursuant to its existing regulations, but subject to consideration under new Section 35.35 when it is made effective. AEP believes that this filing demonstrates eligibility for rate incentives under either set of regulations. AEP will supplement this filing if necessary to make it conform to any relevant changes that the Commission may make in the final regulations promulgated in Docket No. RM06-04-000.

2 By requesting specific incentives, AEP does not intend to waive the right to seek additional incentives ultimately allowed in the final rule on Incentive Pricing that might not be currently applicable.
while improving AEP Transco’s cash flow before the Project enters service, do not entail an increase in the cost of the AEP Project to consumers and, coupled with timely recovery mechanisms, can actually reduce the ongoing Project costs.

I. Statement of Issues

In accordance with Order No. 663, the issue raised by this Petition is whether the Commission should approve incentive rate treatment for the new 765 kV transmission line that AEP Transco is proposing to build from west to east across PJM. The rate incentives requested by AEP are (i) an enhanced return on equity (ROE), which could include setting the ROE at the high end of the range of reasonableness or, alternatively, a 200 basis point adder, and the evaluation of ROE through methods in addition to the discounted cash flow, (ii) collection of 100 percent of the cost of capital on the CWIP associated with the Project, and (iii) the option to expense pre-operating costs incurred to, among other things, obtain regulatory and related approvals for the Project, as well as the ability to defer the recovery of such costs, including carrying costs reflecting the time value of the costs, pending future recovery in rates. In addition, AEP seeks accounting authority to defer pre-construction costs and other pre-operating costs, along with related carrying costs, pending Commission authorization of the recovery of these costs in rates.

II. Description of AEP Transco

AEP Transco has been formed as a wholly-owned subsidiary of American Electric Power Company, Inc. AEP Transco is the entity which will finance and own the AEP Project. AEP Transco is therefore a stand-alone transmission company. AEP does not intend for AEP Transco to engage in any business outside the business of financing,
constructing and owning transmission facilities and making transmission service available from those facilities. The Project is intended to be a utility project, subject to traditional rate of return regulation.

III. Description of AEP Project

The AEP Project consists of a new 765 kV transmission line and associated facilities originating at the Amos Substation in West Virginia (on the AEP system) through Allegheny Power Company’s Doubs Substation in Maryland, and terminating at Public Service Electric & Gas Company’s Deans Substation in New Jersey. At the Amos substation, the Project will connect with the existing AEP 765 kV network. The proposed 765 kV transmission line will be approximately 550 miles long, will employ available technological enhancements to optimize corridor performance, and is forecast to cost approximately $3 billion, assuming overhead construction and excluding any necessary related upgrades that may be made by AEP or existing transmission owners. AEP forecasts that it will take approximately eight years to complete this project, including the time required to obtain required regulatory approvals.

Contemporaneous with this declaratory order filing, AEP is submitting a request to PJM to include the AEP Project in the PJM Regional Transmission Expansion Plan (“RTEP”) process. AEP is attaching to this filing a copy of AEP’s filing with PJM requesting that the AEP Project be considered in the 2006 RTEP process (Attachment A). Attachment A sets forth additional detailed information concerning the design, scope and benefits of the Project, including the reasons for the proposed project route and the decision to employ 765 kV transmission technology. AEP will be providing further
detailed engineering information and economic and reliability assessments of the benefits of the Project to PJM as the RTEP process progresses.

AEP is also submitting a request to the Secretary of Energy to include the corridor through which the AEP Project will run on the DOE’s list of National Interest Electric Transmission Corridors designated pursuant to Section 216 of the Federal Power Act. A copy of that request is attached as Attachment B.

A map showing the proposed route of the AEP Transmission Project is included in the materials in Attachments A and B.

IV. Overview of AEP Project Benefits

The AEP Project will transform PJM. Although PJM West has become part of the PJM-wide market, the eastern and western parts of PJM were never planned as a single, integrated system. Transmission from west to east across PJM is limited. The AEP Project will be a major step forward in the integration of PJM West into the historical footprint of PJM in order to provide for more efficient and reliable operation of PJM as a single system and market area. The Project’s benefits will be enormous and multi-faceted. It will help fulfill the goal of a higher degree of transparency to enable our nation:

- To allow generators to compete head-to-head,
- To encourage siting of more fuel-diverse, newer technology, and environmentally friendly generators to achieve a stronger domestic energy position, and
- To provide a higher degree of reliability to foster enhanced national security.
1. AEP’s preliminary studies show that the AEP Project and associated improvements will increase the transfer capability between the western and eastern portions of PJM by approximately 5,000 MW. The existing AEP system is sufficiently robust to permit the delivery of this amount of power to the Amos substation, where the new 765 kV line will begin. The Project will therefore permit substantial additional amounts of low cost power in the Midwest to flow into the load centers in eastern PJM, thereby benefiting both regions. The enhanced competition among generators will constrain energy prices in eastern PJM and will improve reliability over a wide area. In addition to making more existing generation in the Midwest available in eastern PJM, utilities in the Midwest have announced plans to develop generation using new coal-gasification technology that will enable domestic coal resources to be used to produce electricity without adding to regulated air emissions. The Project will expand the geographic market for power using this new technology. Additional utilization of this new technology will advance national energy policy by creating additional domestic sources of supply and easing the demand for natural gas, thereby reducing the cost of power from natural gas-fired generation.

2. AEP expects PJM to report total gross congestion costs in PJM of well over $1 billion for 2005. AEP anticipates that construction of the AEP Project will eliminate a significant portion of these congestion costs. Since the Project will provide a significant alternative path to existing west-to-east transmission constraints across PJM, locational energy prices between western Maryland and the load centers along the Baltimore-Washington corridor should be less volatile. The Maryland PUC recently issued a ten-
year plan for the electric companies operating in Maryland which describes the impacts of this congestion. The Maryland PUC report shows that due to limitations in transfers across Maryland, locational prices can vary by more than $300/MWh between western and eastern portions of the state within fifty miles of one another. (Attachment C contains the relevant pages of the report.)

3. The Project will also create opportunities for others to build new transmission lines interconnecting with the new 765 kV transmission superhighway across PJM in order to reduce localized congestion costs and enhance reliability. AEP anticipates that over time, system planners will use this 765 kV transmission line to enhance system performance.

4. The AEP Project will reduce transmission losses by approximately 280 MW during peak loading conditions. This reduction in losses will produce two forms of savings to the system. First, the system will need less connected capacity to operate reliably. The loss savings over all hours would be similar to avoiding approximately $175 million (nominal) in capital investment for a combined cycle plant. Second, energy savings from the reduced losses should exceed $30 million annually.²

5. The Project will create an electrically strong platform for the interconnection of diverse sources of new generation along and near the path of the

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² Savings are estimated by multiplying the reduced loss amounts by the average quantity saved from losses by PJM’s average Locational Marginal Prices in affected zones. Using a 30% loss factor for the 280 MW peak (essentially 84 MW for all hours of the year), and PJM’s Market Monitor’s report for 2004 value of $42.40 per MWh, the market and its consumers would save more than $30 million annually. The eastern portion of PJM will experience the bulk of reduced losses. This region has historically experienced higher prices than used in this calculation.
The Project should cause the cost of enhancing the local transmission system to permit the interconnection of new generation development to be reduced.

The AEP Project is consistent with PJM’s vision for long-term transmission enhancements. In testimony before the Commission on May 13, 2005, Mr. Karl Pfirrmann, President, PJM Western Region, described what PJM has referred to as “Project Mountaineer.” Project Mountaineer was described as consisting of a 500-900 mile backbone 500 kV or 765 kV transmission project across PJM that would “significantly enhance the ability of coal based resources to reach eastern markets.” He noted a projected cost of $3.3 to $3.9 billion and stated that, “assuming such costs are spread to all customers in the PJM footprint, the cost to a typical retail customer would amount to only one mill/kWh.” Mr. Pfirrmann described this project as “an example of how the region can take coordinated regional planning to the next level” following the inclusion of AEP and other utilities in PJM. AEP’s proposed 765 kV Project will transform PJM’s conceptual proposal into reality.

The AEP Project will of course be examined in detail in the PJM RTEP process established under Schedule 6 of the PJM Operating Agreement. That process should also help identify other transmission-owning entities that may choose to become involved. In light of the enormous PJM-wide benefits the Project offers, and PJM’s prior endorsement

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4 Testimony of Karl Pfirrmann, President, PJM Western Region, PJM Interconnection, L.L.C., Executive Summary at 2, Promoting Regional Transmission Planning and Expansion to Facilitate Fuel Diversity Including Expanded Uses of Coal-Fired Resources, Docket No. AD05-3 (May 13, 2005) available at www.pjm.com (follow “Documents” hyperlink; then follow “Presentations” hyperlink).
of the similar “Project Mountaineer” in testimony before this Commission, AEP is confident that the AEP Project will be approved by the PJM Board for inclusion in the RTEP. The Commission will have authority to review the RTEP upon request of any interested party. Because the need for this Project will be considered in an open regional planning process run by an independent RTO, AEP submits that the Commission need not take evidence in this proceeding in order to consider the Project benefits for purposes of approving incentive rates.

V. Purpose For This Filing

AEP’s purpose in making the instant filing is to obtain Commission approval of incentive pricing mechanisms consistent with what the Commission has proposed for companies that make investments in new transmission infrastructure to benefit the public. In the Incentive Pricing NOPR, the Commission described the urgent need to stimulate investment in the transmission system and endorsed, consistent with Congressional intent as expressed in the 2005 Energy Policy Act, the use of incentive-based rates to help accomplish that objective. It then offered parties proposing to invest in transmission an opportunity to make declaratory order filings seeking incentive rate treatments.

As discussed above, the AEP Project represents precisely the kind of transmission upgrade project that the Commission intends to promote. This project is being proposed as a major enhancement to the PJM regional grid that will demonstrably further the integration of the PJM market, increase competitive opportunities, reduce congestion costs and losses, improve system reliability, and provide a platform for further efficient expansion of the transmission grid and the interconnection of new generation. AEP urges
the Commission not only to support incentive prices for this project, but to encourage prompt approval within PJM.

In order for the offer of incentive rates to achieve the desired results, AEP believes that entities like AEP Transco that are proposing to take on significant risks and burdens, and begin incurring significant costs, to get major new transmission facilities approved and constructed should be permitted to file for advance approval of incentive rate treatments at the outset of the project development process, so they can have reasonable certainty that they will in fact achieve the rate incentives and recovery that the NOPR offers. AEP believes that the Commission’s willingness to provide regulatory certainty early in the project development process -- when decisions to invest substantial amounts of capital and effort are made -- is critical to creating the level of transmission investment incentive effects that the Commission is hoping to stimulate.

The Commission has previously recognized the need to provide early approval of incentive rate treatments for new transmission projects. In *TransBay Cable*, the Commission approved incentive rates for a newly-established entity that proposed to design, finance and construct an underwater transmission line to serve the City of San Francisco. The Commission approved the incentive rates before that project was

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\[112\text{ FERC } \parallel 61, 095\text{ (2005)}.\]
approved for inclusion in the California ISO’s regional transmission plan in order to
assist TransBay in moving forward with the project.⁶

VI. Revenue Requirements Versus Rate Design

This declaratory order filing relates exclusively to the formulation of AEP
Transco’s revenue requirement. Under the Consolidated Transmission Owners
Agreement recently filed with the Commission,⁷ each PJM transmission owner has the
exclusive, unilateral right to make Section 205 filings to establish the revenue
requirement associated with its own transmission facilities. AEP Transco intends to
become a party to the Consolidated Transmission Owners Agreement and thereby
transfer functional control over the AEP Project facilities to PJM.⁸ Section 3.1 of the
Consolidated Transmission Owners Agreement provides that new transmission facility
owners in PJM may automatically become a party by providing notice to the other
transmission owners who are parties to such agreements, although it appears that AEP

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⁶ See also Western Area Power Administration, 99 FERC ¶ 61,306, reh’g denied, 100 FERC ¶ 61,331 (2002), aff’d, Public Utilities Commission of the State of California v. FERC, 367 F.3d 925 (D.C. Cir. 2004).

⁷ On January 17, 2006, PJM and the PJM Transmission Owners jointly submitted a filing pursuant to Section 205 to cancel the three separate transmission owner agreements currently in effect in PJM and replace them with a Consolidated Transmission Owners Agreement, PJM Rate Schedule No. 42, as the sole agreement between the Parties and PJM regarding functional control of all transmission facilities. The applicants requested an effective date of March 19, 2006, for the Consolidated Transmission Owners Agreement and the cancellation of the three prior agreements.

⁸ To the extent necessary, AEP expects to address agreed-upon allocation of functions between AEP Transco and PJM with respect to the AEP Project as contemplated by Appendix U to the PJM Open Access Transmission Tariff.
Transco cannot formally become a party until it owns or operates transmission facilities that have entered service.

After the AEP Project has been included in the regional plan, AEP will make a Section 205 rate filing, including the incentives granted in this proceeding, to enable AEP Transco to recover the cost of the Project and the costs of any transmission company established in connection with the Project. It is AEP’s understanding that PJM, as the Transmission Provider under the PJM OATT, will be required, as set forth in Schedule 6, Section 1.7(c) of the PJM Operating Agreement, to collect from transmission customers under the PJM OATT the costs incurred to compensate AEP Transco in accordance with its Commission-approved rates, including incentives.

This declaratory order filing does not request any specific rate design under which the costs associated with AEP Project will be recovered, although AEP suggests that a formula rate allowing for current cost recovery would best implement the proposed cost-of-service incentives. AEP believes that the rate design and cost allocation matters currently before the Commission will be decided in the current regional rate design proceeding in Docket No. EL05-121 and in additional proceedings that may be held in the future to determine the long-term rate design for regional rates in PJM and MISO. However, because the AEP Project will provide widespread benefits, AEP anticipates that a significant portion of the costs of this project will be allocated over a wide region. AEP intends that the AEP Project facilities constructed by AEP Transco will be treated for ratemaking purposes as regional transmission facilities that provide regional benefits.
VII. Description of Proposed Incentives

AEP is proposing an enhanced ROE incentive in order to compensate AEP Transco for the risks it will incur in getting the 765 kV Project approved and constructed, and for the effort and perseverance that completion of this Project will require. While this Project offers substantial benefits to the public, it would be naïve to believe that it will not encounter opposition or that the capital that AEP Transco invests in the Project will not be at considerable risk. Even if this Commission, at this time, expresses strong support for getting transmission built and costs recovered, the possibility of changes in the regulatory climate alone over a thirty- or forty-year cost recovery period produce considerable investment risk.

Moreover, it will take time, creativity, extraordinary effort and perseverance to face and overcome the obstacles that will almost certainly be placed in the way of completing this project and recovering its costs. AEP sees the vision of a fully-integrated PJM in which geographically-dispersed generators can compete without the significant transmission constraints that now separate PJM east and west. But, transmission has not typically been planned for these kinds of regional market needs in the past, and others with different interests may not share AEP’s (and we hope the Commission’s) viewpoint on building a robust infrastructure to improve reliability and support regional markets. AEP is prepared to make this vision a reality, and electric consumers will be the beneficiaries. In short, if any transmission project is eligible for incentive rate treatment, the AEP Project should be at the top of the list.
The Commission includes ROE incentives among the incentives that might be requested pursuant to the Incentive Pricing NOPR. AEP believes that an appropriate ROE incentive would set the ROE at the high end of the zone of reasonableness. The Commission has long realized that there is no single appropriate ROE for any utility, but rather that a fair return lies within a “range of reasonableness.” The Commission typically establishes a range of reasonableness in its rate proceedings and then sets the allowed ROE at the midpoint of the range. However, in circumstances where the Commission intends to provide an incentive to take on the construction of major transmission projects, the Commission should not be setting ROEs at a middle ground of the range of reasonableness, but rather at the high end of this range. This will ensure that the resulting rates are just and reasonable, as the Federal Power Act requires, but also appropriately incentivize companies to build by not limiting them to “midpoint” or some form of “average” return of companies in the same proxy group.

AEP also asks the Commission to affirm that, as suggested in the NOPR, it will evaluate the proposed ROE through methods in addition to the discounted cash flow.

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9 Transcontinental Gas Pipeline Corporation, 60 FERC ¶ 61,246 at 61,822 (1992) (”There is no single, scientifically correct rate of return, but a zone of reasonableness within which the regulator's judgment must be exercised.” See also Tennessee Gas Pipeline Company, 46 FERC ¶ 61,089 (1989); ISO New England, Inc., 109 FERC ¶ 61,147 at P 207 (2004). The Commission has broad discretion to set the ROE within the zone of reasonableness. Public Service Company of New Mexico v. FERC, 832 F.2d 1201, 1212 (10th Cir. 1987); NEPCO Municipal Rate Committee v. FERC, 668 F.2d 1327, 1345 (D.C. Cir. 1981) (”In fact, a return on equity is not susceptible to a precise calculation. It is based, rather, on a range of reasonable returns, which take into account a number of factors that may be both cost-related and policy-related, including business risk factors.”).
(DCF) for determination of the cost of equity and that it will entertain variations in the DCF as currently employed.

Although AEP believes that an ROE at the high end of the range of reasonableness provides the appropriate incentive, AEP also recognizes that the Commission has in the past chosen to award a 200 basis point adder above the allowed return established pursuant to the Commission’s conventional methodology for setting the ROE. The Commission has approved this adder both for traditional utilities constructing transmission to eliminate important transmission bottlenecks,\textsuperscript{10} and for stand-alone transmission companies.\textsuperscript{11} Should the Commission decide that a 200 basis point adder is the appropriate ROE incentive for companies constructing transmission in response to regional needs, AEP alternatively requests this ROE incentive adder.

The other two incentive treatments that AEP seeks herein do not increase the level of the return on investment that AEP Transco will receive from the Project. In the Incentive Pricing NOPR, the Commission states that it is considering offering a mechanism for recovery of the cost of capital associated with CWIP to improve cash flow. AEP requests that it be permitted to collect, on a timely basis, 100 percent of the cost of capital on the CWIP associated with the Project in order to improve its cash flow during the lengthy construction process for this large project. As noted above, AEP

\textsuperscript{10} Sierra Pacific Resources Operating Companies, 105 FERC ¶ 61,178, order on reh’g, 106 FERC ¶ 61,096 (2004).

\textsuperscript{11} TransBay Cable, 112 FERC ¶ 61,095 (2005); Western Area Power Administration, 99 FERC ¶ 61,306, reh’g denied, 100 FERC ¶ 61,331 (2002), aff’d, Public Utilities Commission of the State of California v. FERC, 367 F.3d 925 (D.C. Cir. 2004).
currently projects that the AEP Project will cost approximately $3 billion to construct and will take approximately eight years to complete. Without timely recovery of the cost of capital associated with CWIP, AEP Transco would not receive any cash return on its sizable investment for this lengthy time period. This will strain its finances and probably drive up the cost of capital for the company.

The recovery of a return on CWIP needs to closely track the increasing capital cost associated with an increasing CWIP balance on a timely basis and should be adjusted frequently to allow for timely recovery without regulatory lag. A formula rate or a tracker mechanism with a carrying cost on under-/over-recovered amounts would ensure timely recovery. Timely recovery is an important element of this incentive. The Commission has recognized previously that allowing utilities to collect the cost of capital associated with CWIP does not increase the rates paid by consumers in connection with an upgrade project, and that allowing CWIP recovery should not be treated as comparable to a price incentive that increases returns.12

The Commission also states in the Incentive Pricing NOPR that it is considering permitting companies that construct transmission to expense and recover pre-construction costs associated with new transmission projects. The Commission requested comments on what should be included in this cost category. In addition to pre-construction capital costs, AEP also requests permission to recover all other pre-operating costs of the Project and any transmission company formed to finance, manage and complete the Project.

AEP hereby requests that it be given the option to expense, once timely recovery begins, the pre-operating costs it incurs to educate the public about the AEP Project and to obtain the various regulatory and related approvals for the Project, including the cost of obtaining siting approvals, the cost of participation in the PJM RTEP process relating to this Project, and the cost of proceedings before this Commission to recover the costs of the Project. Recoverable pre-operating costs should include project and transmission company formation, start-up, organization, planning and project costs. AEP presently is incurring pre-operating costs prior to their recovery and requests permission to defer until recovered the costs it incurs in order to match the cost with the related revenue in the same accounting period and to track the costs that have not yet been recovered. AEP further proposes to be allowed to recover the time value of these deferred pre-operating costs by deferring a carrying cost on such costs pending future recovery. These deferred costs would be amortized to expense commensurate with their recovery prior to the AEP Project going into service. AEP would propose to recover these deferred pre-operating costs and related carrying costs through a formula rate or through a tracking mechanism that would regularly increase the surcharge rate to provide for full and timely recovery by the end of the construction period of all of the previously deferred and current pre-operating expenses and deferred carrying costs on the deferred pre-operating costs by the end of the construction period. The deferral of unrecovered pre-operating costs and related carrying costs would prevent any adverse effect on AEP’s earnings and compensate AEP for delays in recovery. The capital costs associated with the Project’s
pre-construction costs and CWIP should also be provided timely recovery in a similar manner without adversely affecting AEP’s earnings.

AEP requests accounting authority to defer pre-construction costs and other pre-operating costs not currently being recovered along with related carrying costs in Account 183, Survey and Investigation Costs, and in Account 182.3, Other Regulatory Assets. AEP currently is deferring such costs in the above Accounts for future recovery pending the Commission’s authorization.

VIII. Correspondence and Communications

Correspondence or communication regarding this matter should be sent to the following individuals:

Kevin F. Duffy
Assistant General Counsel
American Electric Power Service Corporation
1 Riverside Plaza, 29th Floor
Columbus, Ohio 43215
(614) 716-1617
(614) 716-2950 (Fax)
kfduffy@aep.com

David B. Raskin
Steptoe & Johnson LLP
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-6254
(202) 429-3902 (Fax)
draskin@steptoe.com

A copy of this petition has been served on each of the state commissions within the PJM footprint and on representatives of each of the PJM transmission owners. In addition, a complete copy of the filing will be posted on AEP’s website at www.aep.com. Finally, Attachment D includes a form notice for publication in the Federal Register (together with a diskette).
Given the importance of this matter, AEP requests the Commission to consider
and grant AEP’s requests in the most expeditious manner practicable.

Respectfully submitted,

Kevin F. Duffy
Assistant General Counsel
American Electric Power Service Corp.
1 Riverside Plaza, 29th Floor
Columbus, Ohio 43215

_______________________
David B. Raskin
Steven J. Ross
Steptoe & Johnson LLP
1330 Connecticut Ave., N.W.
Washington, D.C. 20036

Attorneys for
American Electric Power Service Corporation

Washington, D.C.
January 31, 2006
Attachment A
Mr. Phillip G. Harris  
President and Chief Executive Officer  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Valley Forge Corporation Center  
Norristown, PA 19403-2497

January 31, 2006

Dear Phil:

I submit the enclosed proposal for consideration in the PJM Regional Transmission Expansion Plan (RTEP) process. AEP proposes a major 765 kV interstate transmission project from West Virginia to New Jersey in alignment with the PJM Project Mountaineer. This project will provide substantial benefits to consumers, saving significant congestion costs after it is placed in service. To reap these benefits as soon as practical, I request that this project receive expedited treatment to the extent your process allows.

The United States economy demands a robust electric transmission interstate system for the 21st century. When President George W. Bush signed the Energy Policy Act on August 8, 2005, he said, “We have a modern interstate grid for our phone lines and our highways. With this bill, America can start building a modern 21st-century electricity grid, as well.”

AEP believes, as I know you do, that electric transmission should be developed into our nation’s next interstate system. We believe our highly efficient and reliable 765 kV network should be leveraged to this end. The goal for transmission development must be a higher degree of transparency to enable our nation:

- To allow generators to compete head-to-head, lowering costs to consumers,
- To encourage siting of more fuel-diverse, newer technology, and environmentally friendly generators to achieve a stronger domestic energy position, and
- To provide a higher degree of reliability to foster enhanced national security.
Toward this goal, AEP is proposing that its AEP Transmission Company, LLC, develop a 765 kV transmission line and associated facilities emanating from our Amos 765 kV station in West Virginia through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service Electric and Gas’ Deans Station in New Jersey. The line will be approximately 550 miles long, will employ all available technological advancements to optimize corridor performance, and will cost approximately $3 billion nominally (if built overhead, excluding necessary related upgrades by incumbent utilities). The projected in-service date is 2014 assuming three years to site and acquire rights-of-way, and five years to construct.

The benefit of this major transmission development will be substantial congestion relief as evidenced by our study conclusions: 1) midwest-to-east transfer capability improvement of approximately 5,000 MW, the published goal of PJM’s Project Mountaineer, and 2) reduction of transmission losses by approximately 280 MW during peak loading conditions. The line will also spawn the development of interim transmission investment by incumbents that will eventually integrate into the 765 kV transmission line once in service.

Thank you for your careful consideration of the proposal in the most expeditious manner possible. Mike Heyeck, AEP Vice President of Transmission, and his staff are committed to work with your staff, other transmission owners and stakeholders to further optimize this project and its benefits, and to bring it to fruition as an example of transmission development leadership in our nation.

Please note that we will also submit this proposal to the Department of Energy for expedited NIETC designation, and will submit a filing to FERC.

Sincerely,

Michael G. Morris
Chairman, President and Chief Executive Officer

Cc:  Ms. Audrey A. Zibelman, PJM Executive Vice President and Chief Operating Officer
     Mr. Carl L. English, AEP Utilities Group President
     Mr. Michael Heyeck, AEP Transmission Vice President
The AEP Interstate Project Proposal

A 765 kV Transmission Line From West Virginia to New Jersey

American Electric Power

January 31, 2006
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EXECUTIVE SUMMARY

The United States economy demands a robust electric transmission interstate system for the 21st century. When President George W. Bush signed the Energy Policy Act on August 8, 2005, he said, “We have a modern interstate grid for our phone lines and our highways. With this bill, America can start building a modern 21st-century electricity grid, as well.”

AEP believes that electric transmission should be developed into our nation’s next interstate system. We believe our highly efficient and reliable 765 kV network should be leveraged to this end. The goal for transmission development must be a higher degree of transparency to enable our nation:

- To allow generators to compete head-to-head, lowering costs to consumers,
- To encourage siting of more fuel-diverse, newer technology, and environmentally friendly generators to achieve a stronger domestic energy position, and
- To provide a higher degree of reliability to foster enhanced national security.

Towards this goal, AEP is proposing that its AEP Transmission Company, LLC, develop a 765 kV transmission line and associated facilities emanating from AEP’s Amos 765 kV station in West Virginia through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service Electric and Gas’ Deans Station in New Jersey (AEP Interstate Project). The line will be approximately 550 miles long, will employ all available technological advancements to optimize corridor performance, and will cost approximately $3 billion nominally (if built overhead, excluding necessary related upgrades by incumbent utilities). The projected in-service date is 2014 assuming three years to site and acquire rights-of-way, and five years to construct.

The benefit of this major transmission development will be substantial congestion relief as evidenced by our preliminary study conclusions: 1) midwest-to-east transfer capability improvement of approximately 5,000 MW, the published goal of PJM’s Project Mountaineer, and 2) approximately 280 MW peak-hour loss reduction. The line is also expected to reduce energy costs and enhance reliability in the mid-Atlantic area, and will facilitate the development of interim transmission investment by local utilities that will eventually integrate into the 765 kV transmission line once in service.

BACKGROUND

Policy makers and industry leaders have recognized transmission congestion as a major impediment to open competition in electricity markets, reliability and economic development. Calls for transmission improvements have been voiced by the federal government, PJM, and state regulators.

ENERGY POLICY ACT OF 2005 PROMOTES TRANSMISSION

issued its Notice of Proposed Rulemaking (NOPR) on incentive based (including performance-based) rate treatments for the transmission of electric energy that:

1. Promotes capital investments for the enlargement, improvement, operation and maintenance of transmission facilities, regardless of ownership;
2. Provides return on equity that attracts new investment in transmission;
3. Encourages deployment of advanced transmission technologies;
4. Allows the recovery of prudently incurred costs necessary to comply with Section 215, and all prudently incurred costs related to Section 216; and
5. Provides incentives and rate recovery to transmitting utilities that join a Transmission organization.

The Energy Policy Act of 2005 also requires DOE to study and develop a process to designate “National Interest Electric Transmission Corridors” (NIETCs) for FERC “backstop” siting authority. Siting is perhaps the most fundamental prerequisite to transmission development.

**PJM CALL FOR TRANSMISSION ENHANCEMENTS**

The issue of transmission congestion and possible mitigating measures were discussed in detail at the FERC Technical conference held on May 13, 2005. At that conference, Karl Pfirrmann, President, PJM Western Region, introduced the concept of major west-to-east transmission corridors by proposing “Project Mountaineer” in his filed testimony, the key points of which are summarized below.

1. “The ‘R’ in “RTO” means benefits for this region” - The integration of American Electric Power (“AEP”), Allegheny Energy, Commonwealth Edison, Duquesne Light and Dominion into PJM, most of which occurred during the last several months, has already increased market opportunities for the region’s generation resources. Interregional power flows have increased by approximately 35%, representing off-system sales that potentially benefit both the mid-Atlantic area and the consumers in the area;

2. “An unprecedented level of interregional coordination has commenced” - The agreement reached between PJM and the Midwest ISO, as well as between those two entities and TVA have established the foundation for an unprecedented level of coordinated planning and interregional coordination;

3. “Project Mountaineer is an example of how the region can take coordinated regional planning to the next level” - By way of example, PJM outlines the scope of transmission project that would be needed to significantly enhance the ability of coal based resources to reach eastern markets. Transmission enhancements include potentially 550 to 900 miles of new backbone 500 or 765 kV transmission at an approximate cost of $3.3 to $3.9 billion. Although a large number, if such cost is spread to all customers within the PJM footprint, the cost to a typical retail customer would amount to only one mill/kWh.
“In closing, PJM pledges to work with the Commission, the states and transmission owners in this region as well as with other interested persons to further explore the potential for enhancing interregional trade and finding solutions that pay benefits to consumers in this region as well as throughout the Eastern Interconnection.”

CALLS FROM STATE REGULATORS FOR TRANSMISSION IMPROVEMENTS

The Energy Policy Act of 2005 and the PJM testimony are clear calls for the urgent development of bulk transmission reinforcements that will benefit the nation. In addition, state regulators have recognized the need for transmission improvements. For example, a key statement from the Public Service Commission of Maryland demonstrates this concern:

"The upgrades listed above [Interim improvements proposed by PJM] are expected to improve transfer limits. However, most engineers concede that congestion between western PJM and central and eastern Maryland will continue until a new transmission line is built or substantial base load generation is installed."

AEP RESPONSE TO CALLS FOR TRANSMISSION ENHANCEMENTS

In response to overall goals of the Energy Policy Act of 2005, the call from PJM to enhance transfer capability from the Western Region to the Mid-Atlantic Region of PJM, and the concerns expressed by state regulators, AEP is proposing that its AEP Transmission Company, LLC, develop a 765 kV transmission line and associated facilities emanating from our Amos 765 kV station in West Virginia through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service Electric and Gas’ Deans Station in New Jersey (AEP Interstate Project). The technical details and performance characteristics of this proposed project are highlighted in the following sections of this report.

RATIONALE FOR PROJECT

Because of the strong 765 kV backbone within the existing AEP System, transmission capacity already exists to support increased power transfers from resources within MISO, AEP, and other systems interconnected with AEP, to the eastern border of AEP. What is lacking is sufficient transmission capacity east of the AEP System that can reliably and economically deliver that power to the eastern markets. The AEP Interstate Project will provide the needed transmission capacity to enable power resources to traverse the AEP System and reach the eastern markets.

In developing this proposal, several possible approaches to establish a new transmission path from the eastern border of the AEP System to the eastern markets were considered. The Amos 765 kV station was selected as the most appropriate connection point for the proposed 765 kV line for the following reasons:

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1 Excerpted from the Executive Summary of remarks of Karl Pfirrmann, President PJM Western Region.

2 Excerpted from the Ten Year Plan (2005-2014) of Electric Companies in Maryland prepared by the Public Service Commission of Maryland in December 2005.
1. Amos is the strongest and most reliable source near the eastern border of AEP, being the terminus of three existing 765 kV connections and the Amos generating facility.

2. The station provides an integral connection point to over 8,000 MW of generating resources in the area today, which are expected to be over 10,000 MW by the time the project is completed.

3. Due to the low impedance of the 765 kV network, even geographically distant generators are still electrically “close” to the Amos 765 kV station.

4. Amos is one of the terminals identified by PJM as part of its conceptual Project Mountaineer initiative.

The AEP Interstate Project will also bring 765 kV into the jurisdictions of many utilities for the first time. Using this new 765 kV foundation, other companies will have the opportunity to develop additional transmission in nearby areas. For example, the transmission additions may present the potential for connections that provide transmission support to the Baltimore and Washington, D.C. areas. This project is envisioned as a significant step in the development of a national interstate 765 kV transmission network.

RATIONALE FOR 765 kV

The AEP Interstate Project was weighed against other methods of power delivery, including HVDC, adding generation in eastern PJM, and lower voltage transmission. The many favorable characteristics of 765 kV transmission led to its selection as the best approach for large-scale support to eastern PJM. The advantages of 765 kV transmission are more fully described below by comparison to other alternatives.

1. **Localized Generation Addition**: Generation addition, in this particular situation, does not provide the same level of performance and flexibility and would cost much more to achieve comparable benefits. Typically, generation is available about 85% of the time as compared to the availability of over 99% for a 765 kV line. Other factors to be considered are: a generating facility offers a less rapid response when needed to respond to transmission emergencies; generation is unidirectional as compared to the transmission line that can freely allow power flow in either direction; generation does not provide the flexibility for local area support that could be realized with intermediate transmission stations.

2. **HVDC**: HVDC transmission facilities do not lend themselves to future connections. They are best suited to allow for point-to-point transfer of power over a long distance. To establish an intermediate station, either for system reliability or for economic development, the cost is prohibitive and in many cases such intermediate connections are not even technically feasible. Depending on the magnitude of AC/DC station conversion requirements, the cost ratio can be as high as three to four times the cost of a comparable AC station.
3. **Voltages Less Than 765 kV**: 765 kV transmission has significantly higher capacity than lower voltage classes for long distance transmission. For long distance transmission of over 100 miles, Surge Impedance Loading (SIL) is used to measure and compare power carrying capability. To illustrate this point, **Exhibit 1** compares the number of lines needed and the resulting right-of-way needs for the transmission of a large block of power (2,400 MW) over a distance of 100 miles or more. Additionally, lower voltage EHV (and even some 138 kV) lines would still require certification and acquisition of right-of-way. Because so much more right-of-way is required, even for 500 kV, the route selection and right-of-way acquisition process could be substantially more difficult than for 765 kV.

### TRANSMISSION LINES NEEDED TO TRANSMIT 2,400 MW OVER 100 MILES

<table>
<thead>
<tr>
<th>Phase Conductor</th>
<th>765 kV</th>
<th>500 kV</th>
<th>345 kV</th>
<th>138 kV (2-Circuits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIL</td>
<td>6-795 ACSR</td>
<td>3-954 ACSR</td>
<td>2-954 ACSR</td>
<td>1-795 ACSR</td>
</tr>
<tr>
<td>SIL</td>
<td>2400 MW</td>
<td>910 MW</td>
<td>390 MW</td>
<td>101 MW</td>
</tr>
<tr>
<td># Required</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>ROW Required</td>
<td>200 ft.</td>
<td>525 ft.</td>
<td>900 ft.</td>
<td>2400 ft.</td>
</tr>
<tr>
<td>Cost/Mile/Circuit</td>
<td>$2.3 M</td>
<td>$1.7 M</td>
<td>$1.04 M</td>
<td>$0.9 M</td>
</tr>
<tr>
<td>Total Cost (100 mi)</td>
<td>$230 M</td>
<td>$510 M</td>
<td>$624 M</td>
<td>$2,160 M</td>
</tr>
</tbody>
</table>

**Exhibit 1**: Lines required for 2,400 MW transmission over 100 miles for various voltages.

Additionally, 765 kV circuits are constructed using large/multiple conductors to obtain acceptable corona and audible noise performance. This conductor arrangement provides considerable power carrying capability. Summer normal ratings of typical 765 kV lines, including circuit terminal equipment, exceeds 4,000 MVA and virtually eliminates the risk of thermal overloads even under severe operating conditions.

In summary, 765 kV transmission has the following beneficial attributes:

- High electrical power carrying capability.
- Minimal right-of-way versus lower voltage lines for the same level of electric power carrying capacity.
- Maximizes economies of scale for the required capacity.
- Enhanced regional reliability and security.
- Ease of interconnectivity with lower voltage systems.
- Existing experience and expertise that will expedite implementation.
- Comparable or lower cost than alternatives.
- Leverages the existing 765 kV transmission infrastructure to facilitate future expansion.
PROJECT TECHNICAL DETAILS

LINE DETAILS (See Exhibit 2)

This section of the report provides technical details on the AEP Interstate Project. AEP is committed to work with PJM, the local transmission owners, and state and federal siting authorities to optimize the specific routing of the project.

States Traversed: West Virginia, Maryland, Pennsylvania, and New Jersey


Line Length: Amos – Doubs: Approx. 287 miles
             Doubs – Deans: Approx. 263 miles
             Total Length: Approx. 550 miles

Voltage: 765 kV

Right-Of-Way: 200 ft. width

Conductor: 6-795 mcm ACSR bundle per phase, 2-OPGW

Line Impedance (per mile in per unit): R = 0.0000034, X = 0.0000863, BC = 0.049923
Exhibit 2: Map of the Proposed AEP Interstate Project 765 kV Line Route.
(Line route is conceptual and subject to change under regulatory and PJM Regional Transmission Expansion Plan (RTEP) processes)
STATION DETAILS (See Exhibits 3-5)

This section of the report provides technical details on the three stations that will connect to the proposed 765 kV line.

**Amos Station (AEP):**
- 2-765 kV circuit breakers
- 1-600 MVAr 765 kV line shunt reactor (2-100 MVAr per phase) and associated circuit breaker

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**Exhibit 3: Proposed simplified one-line for Amos Station (AEP).**
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
**Doubs Station (AP):**
1-2250 MVA 765/500 kV transformer
765 kV SVC (+1000/-500 MVAr)
6-765 kV circuit breakers
1-500 kV circuit breaker
2-600 MVAr line shunt reactors (2-100 MVAr per phase)
and associated circuit breakers

Transformer Impedance (per unit): \( R = 0.00007, X = 0.00728 \)

---

**Exhibit 4: Proposed simplified one-line for Doubs Station (AP).**
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
**Deans Station (PSE&G):**

- 2-2250 MVA 765/500 kV transformers
- 765 kV SVC (+1000/-500 MVAr)
- 6-765 kV circuit breakers
- 2-500 kV circuit breakers
- 1-600 MVAr line shunt reactor (2-100 MVAr per phase)
- and associated circuit breaker

**Transformer Impedance (per unit):** \( R = 0.00007, X = 0.00728 \)

**Exhibit 5: Proposed simplified one-line for Deans Station (PSE&G).**
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
PERFORMANCE CHARACTERISTICS

The proposed AEP Interstate Project is being submitted for consideration under the PJM Regional Transmission Expansion (RTEP) process. Consequently, the performance characteristics of the project were evaluated from that perspective. Based on this evaluation, the proposed project was found to increase power transfer capability from the Western Region to the Mid-Atlantic Region of PJM by approximately 5,000 MW as shown in Exhibits 6a and 6b. The improved power transfer capability across these regions that have experienced significant and frequent congestion should provide significant economic benefits to the retail customers.

Specifically, Exhibit 6a illustrates the transfer capability from the Western Region to the Mid-Atlantic Region of PJM, without the proposed project in service. Incremental transfers are expected to be limited to 700 MW for the conditions modeled in the PJM RTEP 2010 power flow base case. The next two limits are also shown to better illustrate impediments that are likely to be encountered when transferring power from west-to-east across the PJM system. In developing this table, limits that were not responsive to this transfer or are not along its west-to-east path are not shown in Exhibit 6a. Limits involving transmission facilities that are expected to be upgraded in the near future are also not shown.

<table>
<thead>
<tr>
<th>FCITC (MW)</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>Rating (MVA)</th>
<th>PTDF (%)</th>
<th>LODF (%)</th>
<th>OTDF (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Black Oak-Bedington 500 kV</td>
<td>Pruntytown-Mt. Storm 500 kV</td>
<td>2744</td>
<td>8.4</td>
<td>30.7</td>
<td>11.7</td>
</tr>
<tr>
<td>1500</td>
<td>Mt. Storm-Dubs 500 kV(1)</td>
<td>Mt. Storm-Meadowbrook 500 kV</td>
<td>2598</td>
<td>10.5</td>
<td>34.7</td>
<td>12.4</td>
</tr>
<tr>
<td>1900</td>
<td>Hatfield-Black Oak 500 kV</td>
<td>Pruntytown-Mt. Storm 500 kV</td>
<td>2744</td>
<td>7.3</td>
<td>26.4</td>
<td>10.1</td>
</tr>
</tbody>
</table>

(1) This facility can overload under other contingencies at power transfers lower than the next limit.

Exhibit 6a: Transfer capabilities without the AEP Interstate Project.

Exhibit 6b illustrates the transfer capability for the same transfer scenario (from the Western Region to the Mid-Atlantic Region of PJM), but with the proposed project in service. The incremental transfers are now expected to be limited to 5,600 MW. The transfer capability improvement of approximately 5,000 MW is also reflected in the next two limits that are documented in Exhibit 6b.
Exhibit 6b: Transfer capabilities with the AEP Interstate Project.

In addition to the improvement in transfer capability, the efficiency of the entire PJM Region will also be greatly enhanced since transmission losses across PJM are expected to be reduced by over 280 MW during peak load conditions as shown in Exhibit 7. This reduction in transmission losses will not only reduce overall energy consumption across PJM, but also the need for generating capacity additions, resulting in a significant reduction in capital requirements and fuel consumption.

As previously noted, these performance characteristics were determined using the 2010 PJM RTEP power flow base case that was made available by PJM in late 2005. It is recognized that more detailed analyses will need to be conducted under the PJM RTEP process using the latest system models and study assumptions. All analyses conducted by AEP will be made available for review in the PJM RTEP process.

PROJECT COST AND TIMELINE

The costs and timeline noted in this section of the report were prepared by AEP using the latest information from AEP’s most recent 765 kV project in West Virginia and Virginia. These estimates are considered nominal dollars and conceptual since several variables and assumptions still need to be addressed.
The following are cost estimates for each component of the project:

- **Amos Station**: Station Equipment & Construction $30,000,000
- **Doubs Station**: Station Equipment & Construction $154,000,000, Property $2,500,000
- **Deans Station**: Station Equipment & Construction $169,000,000, Property $2,500,000
- **765 kV Line**: Siting and Certification $94,000,000, Right-Of-Way $516,000,000, Line Equipment & Construction $1,968,000,000

TOTAL PROJECT COST (ROUNDED): $3,000,000,000

The project is expected to require eight years to complete. The first three years are set aside primarily for line siting, certification, and to obtain the majority of the required right-of-way. Station and line work is projected to begin in year three, predominantly with engineering and equipment ordering. The construction of the station and line facilities will commence and continue for another five years until all facilities are completed in year eight. The year-by-year cost projection is shown in Exhibit 8.

### Exhibit 8: Yearly projection of cost allocations for the AEP Interstate Project.
IMPACT ON OTHER TRANSMISSION OWNERS

AEP recognizes that the project could impact the local utilities at or near the Doubs and Deans connecting points. Short circuit duties on existing circuit breakers and thermal overloads on local facilities will have to be addressed through more detailed studies to be conducted in cooperation with PJM and the impacted local utilities. AEP is committed to work with PJM and the impacted local utilities through the PJM RTEP process to ensure the viability of this project. AEP expects that local utilities will benefit from the knowledge that the AEP Interstate Project will be built because they can direct improvements in the intervening years to integrate well with the eventual completion of the 765 kV line.

DEPLOYMENT OF ADVANCED TECHNOLOGIES

Being a leader in transmission technologies, AEP is committed to deploy state of the art technologies to maximize the performance and benefits of the proposed project. Some of the technologies that may be utilized to further improve the performance of the project may include:

1. Single-phase switching – this will enhance the availability and stability of the line by only interrupting one phase to clear temporary single line-to-ground faults, which make up over 98% of the faults experienced by 765 kV lines;
2. Single-phase static VAr compensators – this will permit phase voltage balancing, boost line loadability, and improve the overall voltage performance of the line;
3. Fiber-optic wire(s) – facilitates the use of differential line protection;
4. Open ground wire to reduce line losses; and
5. Switchable shunt reactors to improve voltage control.

AEP does not preclude the consideration of higher AC voltages as AEP has conducted extensive tests of voltages beyond 765 kV that indicate the viability of developing transmission systems operating at voltages up to 2,000 kV.

PROJECT BENEFITS

Completion of the AEP Interstate Project will significantly improve transfer capability from the Western Region to the Mid-Atlantic Region of PJM. PJM anticipates several billion dollars in congestion costs over the next several years. The AEP Interstate Project, given the improvement to transfer capability and line losses, will likely reduce congestion costs substantially, thus lowering consumer costs. This new line will also provide a significant backbone transmission platform to integrate new technology generation having a diversity of fuel characteristics that may be developed across the broad geographic area traversed by the project, thus improving the nation’s energy position.

As Exhibit 9 illustrates, the eastern AEP Transmission System, in addition to being highly integrated internally, is also the most interconnected transmission system in the Eastern Interconnection. It is directly connected to eighteen neighboring utility transmission systems at
127 interconnection points, of which 50 are at or above 345 kV. The total capability of the 127 interconnections is over 71,000 MVA, of which over 59,000 MVA is at 345 kV and above.

Through these interconnections, the eastern AEP Transmission System provides highly diversified access to the PJM, MISO, and non-RTO portions of the Eastern Interconnection. Specifically,

- There are 37 interconnections (12 at or above 345 kV) with five PJM-Member utilities, with a total capability of over 20,300 MVA (over 17,400 MVA at or above 345 kV);
- There are 63 interconnections (27 at or above 345 kV) with eight MISO-Member utilities, with a total capability of over 34,300 MVA (over 28,800 MVA at or above 345 kV); and
- There are 27 interconnections (11 at or above 345 kV) with five non-RTO-member utilities, with a total capability of over 16,300 MVA (over 12,500 MVA at or above 345 kV).

These interconnections serve as an electric highway system to strongly integrate the AEP System with these surrounding utilities, thus providing access to off-system resources, as well as a delivery mechanism to adjacent companies.

The AEP Interstate Project will also provide a significant opportunity to improve the reliability of local utilities along its path. This 765 kV line could be tapped to provide a strong and dependable transmission source to mitigate reliability concerns in major load centers. For example, this new line could be tapped and extended to provide additional transmission reliability to major metropolitan areas such as Washington, D.C., Philadelphia and Baltimore to support additional load growth or to mitigate retirement of local generation that may no longer be economically or environmentally viable. Specifically, the Doubs Station, located in Maryland, could be used as a potential source to reinforce the Baltimore and Washington, D.C. area transmission system. This reinforcement might become more critical as the economic or environmental viability becomes questionable.
CONCLUSION

AEP believes that the proposed project will effectively address the objectives outlined in the Energy Policy Act of 2005, the conceptual goals stated by PJM, and the concerns expressed by state regulators. Consequently, AEP stands ready to cooperatively work with other transmission owning utilities, federal, state, and local authorities, and PJM and its stakeholders to bring the AEP Interstate Project to fruition.
GLOSSARY OF TERMS

ACSR ______ Aluminum Conductor Steel Reinforced
AEP ______ American Electric Power
AP ______ Allegheny Power
EPAAct _____ Energy Policy Act of 2005
DOE ______ Department of Energy
FCITC ______ First Contingency Incremental Transfer Capability
FERC ______ Federal Energy Regulatory Commission
HVDC _____ High Voltage Direct Current
LODF _____ Line Outage Distribution Factor
MISO _____ Midwest Independent System Operator
NIETC _____ National Interest Electric Transmission Corridors
NOPR_____ Notice of Proposed Rulemaking
OPGW_____ Optical Ground Wire
OTDF_____ Outage Transfer Distribution Factor
PJM_______ PJM Interconnection, LLC
PSE&G_______ Public Service Electric & Gas
PTDF_____ Power Transfer Distribution Factor
RTEP_______ Regional Transmission Expansion Plan
RTO_______ Regional Transmission Organization
SIL_______ Surge Impedance Loading
SVC_______ Static VAr compensator
TVA_______ Tennessee Valley Authority
Attachment B
The Honorable Samuel Bodman
Secretary
Department of Energy
1000 Independence Ave., SW
Washington, D.C. 20585

January 31, 2006

Dear Secretary Bodman:

I submit the enclosed proposal for consideration by your Agency as a National Interest Electric Transmission Corridor (NIETC). AEP proposes a major 765 kV interstate transmission project from West Virginia to New Jersey in alignment with the PJM Project Mountaineer. This project will provide substantial benefits to consumers, saving significant congestion costs after it is placed in service. To reap these benefits as soon as practical, I request that this project receive expedited treatment to the extent your process allows.

The United States economy demands a robust electric transmission interstate system for the 21st century. When President George W. Bush signed the Energy Policy Act on August 8, 2005, he said, “We have a modern interstate grid for our phone lines and our highways. With this bill, America can start building a modern 21st-century electricity grid, as well.”

AEP believes, as I know you do, that electric transmission should be developed into our nation’s next interstate system. We believe our highly efficient and reliable 765 kV network should be leveraged to this end. The goal for transmission development must be a higher degree of transparency to enable our nation:

- To allow generators to compete head-to-head, lowering costs to consumers,
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- To provide a higher degree of reliability to foster enhanced national security.
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Thank you for your careful consideration of the proposal in the most expeditious manner possible. Mike Heyeck, AEP Vice President of Transmission, and his staff are committed to work with your staff; other transmission owners and stakeholders to further optimize this project and its benefits, and to bring it to fruition as an example of transmission development leadership in our nation.

Please note that we will also submit this proposal to PJM for consideration in the Regional Transmission Expansion Plan (RTEP) process, and will submit a filing to FERC.

Sincerely,

[Signature]

Michael G. Morris
Chairman, President and Chief Executive Officer

Cc: Mr. Kevin Kolevar, Director, DOE Office of Electricity Delivery and Energy Reliability
    Mr. Carl L. English, AEP Utilities Group President
    Mr. Michael Heyeck, AEP Transmission Vice President
The AEP Interstate Project Proposal

A 765 kV Transmission Line From West Virginia to New Jersey

American Electric Power

January 31, 2006
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EXECUTIVE SUMMARY

The United States economy demands a robust electric transmission interstate system for the 21st century. When President George W. Bush signed the Energy Policy Act on August 8, 2005, he said, “We have a modern interstate grid for our phone lines and our highways. With this bill, America can start building a modern 21st-century electricity grid, as well.”

AEP believes that electric transmission should be developed into our nation’s next interstate system. We believe our highly efficient and reliable 765 kV network should be leveraged to this end. The goal for transmission development must be a higher degree of transparency to enable our nation:

- To allow generators to compete head-to-head, lowering costs to consumers,
- To encourage siting of more fuel-diverse, newer technology, and environmentally friendly generators to achieve a stronger domestic energy position, and
- To provide a higher degree of reliability to foster enhanced national security.

Towards this goal, AEP is proposing that its AEP Transmission Company, LLC, develop a 765 kV transmission line and associated facilities emanating from AEP’s Amos 765 kV station in West Virginia through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service Electric and Gas’ Deans Station in New Jersey (AEP Interstate Project). The line will be approximately 550 miles long, will employ all available technological advancements to optimize corridor performance, and will cost approximately $3 billion nominally (if built overhead, excluding necessary related upgrades by incumbent utilities). The projected in-service date is 2014 assuming three years to site and acquire rights-of-way, and five years to construct.

The benefit of this major transmission development will be substantial congestion relief as evidenced by our preliminary study conclusions: 1) midwest-to-east transfer capability improvement of approximately 5,000 MW, the published goal of PJM’s Project Mountaineer, and 2) approximately 280 MW peak-hour loss reduction. The line is also expected to reduce energy costs and enhance reliability in the mid-Atlantic area, and will facilitate the development of interim transmission investment by local utilities that will eventually integrate into the 765 kV transmission line once in service.

BACKGROUND

Policy makers and industry leaders have recognized transmission congestion as a major impediment to open competition in electricity markets, reliability and economic development. Calls for transmission improvements have been voiced by the federal government, PJM, and state regulators.

ENERGY POLICY ACT OF 2005 PROMOTES TRANSMISSION

As required by the Transmission Infrastructure Investment provisions of the Energy Policy Act of 2005 (“EPAct 2005”), the Federal Energy Regulatory Commission on November 18, 2005...
issued its Notice of Proposed Rulemaking (NOPR) on incentive based (including performance-based) rate treatments for the transmission of electric energy that:

1. Promotes capital investments for the enlargement, improvement, operation and maintenance of transmission facilities, regardless of ownership;
2. Provides return on equity that attracts new investment in transmission;
3. Encourages deployment of advanced transmission technologies;
4. Allows the recovery of prudently incurred costs necessary to comply with Section 215, and all prudently incurred costs related to Section 216; and
5. Provides incentives and rate recovery to transmitting utilities that join a Transmission organization.

The Energy Policy Act of 2005 also requires DOE to study and develop a process to designate “National Interest Electric Transmission Corridors” (NIETCs) for FERC “backstop” siting authority. Siting is perhaps the most fundamental prerequisite to transmission development.

**PJM CALL FOR TRANSMISSION ENHANCEMENTS**

The issue of transmission congestion and possible mitigating measures were discussed in detail at the FERC Technical conference held on May 13, 2005. At that conference, Karl Pfirrmann, President, PJM Western Region, introduced the concept of major west-to-east transmission corridors by proposing “Project Mountaineer” in his filed testimony, the key points of which are summarized below.

1. “*The ‘R’ in “RTO” means benefits for this region*” - The integration of American Electric Power (“AEP”), Allegheny Energy, Commonwealth Edison, Duquesne Light and Dominion into PJM, most of which occurred during the last several months, has already increased market opportunities for the region’s generation resources. Interregional power flows have increased by approximately 35%, representing off-system sales that potentially benefit both the mid-Atlantic area and the consumers in the area;

2. “*An unprecedented level of interregional coordination has commenced*” - The agreement reached between PJM and the Midwest ISO, as well as between those two entities and TVA have established the foundation for an unprecedented level of coordinated planning and interregional coordination;

3. “*‘Project Mountaineer’ is an example of how the region can take coordinated regional planning to the next level*” - By way of example, PJM outlines the scope of transmission project that would be needed to significantly enhance the ability of coal based resources to reach eastern markets. Transmission enhancements include potentially 550 to 900 miles of new backbone 500 or 765 kV transmission at an approximate cost of $3.3 to $3.9 billion. Although a large number, if such cost is spread to all customers within the PJM footprint, the cost to a typical retail customer would amount to only one mill/kWh.
“In closing, PJM pledges to work with the Commission, the states and transmission owners in this region as well as with other interested persons to further explore the potential for enhancing interregional trade and finding solutions that pay benefits to consumers in this region as well as throughout the Eastern Interconnection.”

CALLS FROM STATE REGULATORS FOR TRANSMISSION IMPROVEMENTS

The Energy Policy Act of 2005 and the PJM testimony are clear calls for the urgent development of bulk transmission reinforcements that will benefit the nation. In addition, state regulators have recognized the need for transmission improvements. For example, a key statement from the Public Service Commission of Maryland demonstrates this concern:

"The upgrades listed above [Interim improvements proposed by PJM] are expected to improve transfer limits. However, most engineers concede that congestion between western PJM and central and eastern Maryland will continue until a new transmission line is built or substantial base load generation is installed."  

AEP RESPONSE TO CALLS FOR TRANSMISSION ENHANCEMENTS

In response to overall goals of the Energy Policy Act of 2005, the call from PJM to enhance transfer capability from the Western Region to the Mid-Atlantic Region of PJM, and the concerns expressed by state regulators, AEP is proposing that its AEP Transmission Company, LLC, develop a 765 kV transmission line and associated facilities emanating from our Amos 765 kV station in West Virginia through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service Electric and Gas’ Deans Station in New Jersey (AEP Interstate Project). The technical details and performance characteristics of this proposed project are highlighted in the following sections of this report.

RATIONALE FOR PROJECT

Because of the strong 765 kV backbone within the existing AEP System, transmission capacity already exists to support increased power transfers from resources within MISO, AEP, and other systems interconnected with AEP, to the eastern border of AEP. What is lacking is sufficient transmission capacity east of the AEP System that can reliably and economically deliver that power to the eastern markets. The AEP Interstate Project will provide the needed transmission capacity to enable power resources to traverse the AEP System and reach the eastern markets.

In developing this proposal, several possible approaches to establish a new transmission path from the eastern border of the AEP System to the eastern markets were considered. The Amos 765 kV station was selected as the most appropriate connection point for the proposed 765 kV line for the following reasons:

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1 Excerpted from the Executive Summary of remarks of Karl Pfirrmann, President PJM Western Region.

2 Excerpted from the Ten Year Plan (2005-2014) of Electric Companies in Maryland prepared by the Public Service Commission of Maryland in December 2005.
1. Amos is the strongest and most reliable source near the eastern border of AEP, being the terminus of three existing 765 kV connections and the Amos generating facility.
2. The station provides an integral connection point to over 8,000 MW of generating resources in the area today, which are expected to be over 10,000 MW by the time the project is completed.
3. Due to the low impedance of the 765 kV network, even geographically distant generators are still electrically “close” to the Amos 765 kV station.
4. Amos is one of the terminals identified by PJM as part of its conceptual Project Mountaineer initiative.

The AEP Interstate Project will also bring 765 kV into the jurisdictions of many utilities for the first time. Using this new 765 kV foundation, other companies will have the opportunity to develop additional transmission in nearby areas. For example, the transmission additions may present the potential for connections that provide transmission support to the Baltimore and Washington, D.C. areas. This project is envisioned as a significant step in the development of a national interstate 765 kV transmission network.

RATIONALE FOR 765 kV

The AEP Interstate Project was weighed against other methods of power delivery, including HVDC, adding generation in eastern PJM, and lower voltage transmission. The many favorable characteristics of 765 kV transmission led to its selection as the best approach for large-scale support to eastern PJM. The advantages of 765 kV transmission are more fully described below by comparison to other alternatives.

1. Localized Generation Addition: Generation addition, in this particular situation, does not provide the same level of performance and flexibility and would cost much more to achieve comparable benefits. Typically, generation is available about 85% of the time as compared to the availability of over 99% for a 765 kV line. Other factors to be considered are: a generating facility offers a less rapid response when needed to respond to transmission emergencies; generation is unidirectional as compared to the transmission line that can freely allow power flow in either direction; generation does not provide the flexibility for local area support that could be realized with intermediate transmission stations.

2. HVDC: HVDC transmission facilities do not lend themselves to future connections. They are best suited to allow for point-to-point transfer of power over a long distance. To establish an intermediate station, either for system reliability or for economic development, the cost is prohibitive and in many cases such intermediate connections are not even technically feasible. Depending on the magnitude of AC/DC station conversion requirements, the cost ratio can be as high as three to four times the cost of a comparable AC station.
3. **Voltages Less Than 765 kV:** 765 kV transmission has significantly higher capacity than lower voltage classes for long distance transmission. For long distance transmission of over 100 miles, Surge Impedance Loading (SIL) is used to measure and compare power carrying capability. To illustrate this point, Exhibit 1 compares the number of lines needed and the resulting right-of-way needs for the transmission of a large block of power (2,400 MW) over a distance of 100 miles or more. Additionally, lower voltage EHV (and even some 138 kV) lines would still require certification and acquisition of right-of-way. Because so much more right-of-way is required, even for 500 kV, the route selection and right-of-way acquisition process could be substantially more difficult than for 765 kV.

### Exhibit 1: Lines required for 2,400 MW transmission over 100 miles for various voltages.

Additionally, 765 kV circuits are constructed using large/multiple conductors to obtain acceptable corona and audible noise performance. This conductor arrangement provides considerable power carrying capability. Summer normal ratings of typical 765 kV lines, including circuit terminal equipment, exceeds 4,000 MVA and virtually eliminates the risk of thermal overloads even under severe operating conditions.

In summary, 765 kV transmission has the following beneficial attributes:

- High electrical power carrying capability.
- Minimal right-of-way versus lower voltage lines for the same level of electric power carrying capacity.
- Maximizes economies of scale for the required capacity.
- Enhanced regional reliability and security.
- Ease of interconnectivity with lower voltage systems.
- Existing experience and expertise that will expedite implementation.
- Comparable or lower cost than alternatives.
- Leverages the existing 765 kV transmission infrastructure to facilitate future expansion.
PROJECT TECHNICAL DETAILS

LINE DETAILS (See Exhibit 2)

This section of the report provides technical details on the AEP Interstate Project. AEP is committed to work with PJM, the local transmission owners, and state and federal siting authorities to optimize the specific routing of the project.

States Traversed: West Virginia, Maryland, Pennsylvania, and New Jersey


Line Length: Amos – Doubs: Approx. 287 miles
Doubs – Deans: Approx. 263 miles
Total Length: Approx. 550 miles

Voltage: 765 kV

Right-Of-Way: 200 ft. width

Conductor: 6-795 mcm ACSR bundle per phase, 2-OPGW

Line Impedance (per mile in per unit): R = 0.0000034, X = 0.0000863, BC = 0.049923
Exhibit 2: Map of the Proposed AEP Interstate Project 765 kV Line Route.
(Line route is conceptual and subject to change under regulatory and PJM Regional Transmission Expansion Plan (RTEP) processes)
STATION DETAILS (See Exhibits 3-5)

This section of the report provides technical details on the three stations that will connect to the proposed 765 kV line.

Amos Station (AEP): 2-765 kV circuit breakers
1-600 MVAr 765 kV line shunt reactor (2-100 MVAr per phase) and associated circuit breaker

Exhibit 3: Proposed simplified one-line for Amos Station (AEP).
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
**Doubs Station (AP):**
1-2250 MVA 765/500 kV transformer
765 kV SVC (+1000/-500 MVar)
6-765 kV circuit breakers
1-500 kV circuit breaker
2-600 MVar line shunt reactors (2-100 MVar per phase)
and associated circuit breakers

**Transformer Impedance (per unit):**  \( R = 0.00007, \, X = 0.00728 \)

---

**Exhibit 4: Proposed simplified one-line for Doubs Station (AP).**
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
**Deans Station (PSE&G):**
- 2-2250 MVA 765/500 kV transformers
- 765 kV SVC (+1000/-500 MVAr)
- 6-765 kV circuit breakers
- 2-500 kV circuit breakers
- 1-600 MVAr line shunt reactor (2-100 MVAr per phase)
  and associated circuit breaker

**Transformer Impedance (per unit):** \( R = 0.00007, \ X = 0.00728 \)

---

**Exhibit 5: Proposed simplified one-line for Deans Station (PSE&G).**
(Station configuration is conceptual and subject to change under the PJM Regional Transmission Expansion Plan (RTEP) process)
PERFORMANCE CHARACTERISTICS

The proposed AEP Interstate Project is being submitted for consideration under the PJM Regional Transmission Expansion (RTEP) process. Consequently, the performance characteristics of the project were evaluated from that perspective. Based on this evaluation, the proposed project was found to increase power transfer capability from the Western Region to the Mid-Atlantic Region of PJM by approximately 5,000 MW as shown in Exhibits 6a and 6b. The improved power transfer capability across these regions that have experienced significant and frequent congestion should provide significant economic benefits to the retail customers.

Specifically, Exhibit 6a illustrates the transfer capability from the Western Region to the Mid-Atlantic Region of PJM, without the proposed project in service. Incremental transfers are expected to be limited to 700 MW for the conditions modeled in the PJM RTEP 2010 power flow base case. The next two limits are also shown to better illustrate impediments that are likely to be encountered when transferring power from west-to-east across the PJM system. In developing this table, limits that were not responsive to this transfer or are not along its west-to-east path are not shown. Limits involving transmission facilities that are expected to be upgraded in the near future are also not shown.

<table>
<thead>
<tr>
<th>FCITC (MW)</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>Rating (MVA)</th>
<th>PTDF (%)</th>
<th>LODF (%)</th>
<th>OTDF (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Black Oak-Bedington 500 kV</td>
<td>Pruntytown-Mt. Storm 500 kV</td>
<td>2744</td>
<td>8.4</td>
<td>30.7</td>
<td>11.7</td>
</tr>
<tr>
<td>1500</td>
<td>Mt. Storm-Doubs 500 kV(1)</td>
<td>Mt. Storm-Meadowbrook 500 kV</td>
<td>2598</td>
<td>10.5</td>
<td>34.7</td>
<td>12.4</td>
</tr>
<tr>
<td>1900</td>
<td>Hatfield-Black Oak 500 kV</td>
<td>Pruntytown-Mt. Storm 500 kV</td>
<td>2744</td>
<td>7.3</td>
<td>26.4</td>
<td>10.1</td>
</tr>
</tbody>
</table>

(1) This facility can overload under other contingencies at power transfers lower than the next limit.

Exhibit 6a: Transfer capabilities without the AEP Interstate Project.

Exhibit 6b illustrates the transfer capability for the same transfer scenario (from the Western Region to the Mid-Atlantic Region of PJM), but with the proposed project in service. The incremental transfers are now expected to be limited to 5,600 MW. The transfer capability improvement of approximately 5,000 MW is also reflected in the next two limits that are documented in Exhibit 6b.
### Limiting Facility Contingency Rating

<table>
<thead>
<tr>
<th>FCITC (MW)</th>
<th>Limiting Facility</th>
<th>Contingency</th>
<th>Rating (MVA)</th>
<th>PTDF (%)</th>
<th>LODF (%)</th>
<th>OTDF (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5600</td>
<td>Mt. Storm-Doubs 500 kV</td>
<td>Amos-Doubs 765 kV</td>
<td>2598</td>
<td>8.0</td>
<td>17.8</td>
<td>12.3</td>
</tr>
<tr>
<td>5700</td>
<td>Black Oak-Bedington 500 kV</td>
<td>Amos-Doubs 765 kV</td>
<td>2744</td>
<td>6.7</td>
<td>16.5</td>
<td>10.5</td>
</tr>
<tr>
<td>6400</td>
<td>Doubs-Brighton 500 kV</td>
<td>Doubs-Deans 765 kV</td>
<td>2684</td>
<td>16.8</td>
<td>32.2</td>
<td>24.2</td>
</tr>
</tbody>
</table>

(1) This facility can overload under other contingencies at power transfers lower than the next limit.

**Exhibit 6b: Transfer capabilities with the AEP Interstate Project.**

In addition to the improvement in transfer capability, the efficiency of the entire PJM Region will also be greatly enhanced since transmission losses across PJM are expected to be reduced by over 280 MW during peak load conditions as shown in **Exhibit 7**. This reduction in transmission losses will not only reduce overall energy consumption across PJM, but also the need for generating capacity additions, resulting in a significant reduction in capital requirements and fuel consumption.

<table>
<thead>
<tr>
<th>CASE</th>
<th>TOTAL LOSSES (MW)</th>
<th>CHANGE (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITHOUT PROJECT</td>
<td>17661</td>
<td>-</td>
</tr>
<tr>
<td>WITH PROJECT</td>
<td>17375</td>
<td>-286</td>
</tr>
</tbody>
</table>

**Exhibit 7: Losses without and with the AEP Interstate Project.**

As previously noted, these performance characteristics were determined using the 2010 PJM RTEP power flow base case that was made available by PJM in late 2005. It is recognized that more detailed analyses will need to be conducted under the PJM RTEP process using the latest system models and study assumptions. All analyses conducted by AEP will be made available for review in the PJM RTEP process.

**PROJECT COST AND TIMELINE**

The costs and timeline noted in this section of the report were prepared by AEP using the latest information from AEP’s most recent 765 kV project in West Virginia and Virginia. These estimates are considered nominal dollars and conceptual since several variables and assumptions still need to be addressed.
The following are cost estimates for each component of the project:

Amos Station: Station Equipment & Construction $30,000,000
Doubs Station: Station Equipment & Construction $154,000,000
Property $2,500,000
Deans Station: Station Equipment & Construction $169,000,000
Property $2,500,000
765 kV Line: Siting and Certification $94,000,000
Right-Of-Way $516,000,000
Line Equipment & Construction $1,968,000,000

TOTAL PROJECT COST (ROUNDED): $3,000,000,000

The project is expected to require eight years to complete. The first three years are set aside primarily for line siting, certification, and to obtain the majority of the required right-of-way. Station and line work is projected to begin in year three, predominantly with engineering and equipment ordering. The construction of the station and line facilities will commence and continue for another five years until all facilities are completed in year eight. The year-by-year cost projection is shown in Exhibit 8.

765 kV PROJECT COST ASSUMPTIONS (3% INFLATION ADJUSTED)

<table>
<thead>
<tr>
<th>Year</th>
<th>Line Certification &amp; Siting</th>
<th>R/W &amp; Property Acquisition</th>
<th>Station Equipment &amp; Construction</th>
<th>Line Equipment &amp; Construction</th>
<th>SUM YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$74,000,000</td>
<td></td>
<td></td>
<td></td>
<td>$74,000,000</td>
</tr>
<tr>
<td>2008</td>
<td>$20,000,000</td>
<td>$219,000,000</td>
<td></td>
<td></td>
<td>$239,000,000</td>
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<tr>
<td>2009</td>
<td>$225,000,000</td>
<td>$56,000,000</td>
<td>$248,000,000</td>
<td></td>
<td>$529,000,000</td>
</tr>
<tr>
<td>2010</td>
<td>$77,000,000</td>
<td>$92,000,000</td>
<td>$499,000,000</td>
<td></td>
<td>$668,000,000</td>
</tr>
<tr>
<td>2011</td>
<td>$66,000,000</td>
<td>$513,000,000</td>
<td>$513,000,000</td>
<td></td>
<td>$579,000,000</td>
</tr>
<tr>
<td>2012</td>
<td>$61,000,000</td>
<td>$529,000,000</td>
<td>$529,000,000</td>
<td></td>
<td>$590,000,000</td>
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<tr>
<td>2013</td>
<td>$39,000,000</td>
<td>$114,000,000</td>
<td>$114,000,000</td>
<td></td>
<td>$153,000,000</td>
</tr>
<tr>
<td>2014</td>
<td>$39,000,000</td>
<td>$65,000,000</td>
<td>$65,000,000</td>
<td></td>
<td>$104,000,000</td>
</tr>
<tr>
<td>TOTALS</td>
<td>$94,000,000</td>
<td>$521,000,000</td>
<td>$353,000,000</td>
<td>$1,968,000,000</td>
<td>$2,936,000,000</td>
</tr>
</tbody>
</table>

Exhibit 8: Yearly projection of cost allocations for the AEP Interstate Project.
IMPACT ON OTHER TRANSMISSION OWNERS

AEP recognizes that the project could impact the local utilities at or near the Doubs and Deans connecting points. Short circuit duties on existing circuit breakers and thermal overloads on local facilities will have to be addressed through more detailed studies to be conducted in cooperation with PJM and the impacted local utilities. AEP is committed to work with PJM and the impacted local utilities through the PJM RTEP process to ensure the viability of this project. AEP expects that local utilities will benefit from the knowledge that the AEP Interstate Project will be built because they can direct improvements in the intervening years to integrate well with the eventual completion of the 765 kV line.

DEPLOYMENT OF ADVANCED TECHNOLOGIES

Being a leader in transmission technologies, AEP is committed to deploy state of the art technologies to maximize the performance and benefits of the proposed project. Some of the technologies that may be utilized to further improve the performance of the project may include:

1. Single-phase switching – this will enhance the availability and stability of the line by only interrupting one phase to clear temporary single line-to-ground faults, which make up over 98% of the faults experienced by 765 kV lines;
2. Single-phase static VAr compensators – this will permit phase voltage balancing, boost line loadability, and improve the overall voltage performance of the line;
3. Fiber-optic wire(s) – facilitates the use of differential line protection;
4. Open ground wire to reduce line losses; and
5. Switchable shunt reactors to improve voltage control.

AEP does not preclude the consideration of higher AC voltages as AEP has conducted extensive tests of voltages beyond 765 kV that indicate the viability of developing transmission systems operating at voltages up to 2,000 kV.

PROJECT BENEFITS

Completion of the AEP Interstate Project will significantly improve transfer capability from the Western Region to the Mid-Atlantic Region of PJM. PJM anticipates several billion dollars in congestion costs over the next several years. The AEP Interstate Project, given the improvement to transfer capability and line losses, will likely reduce congestion costs substantially, thus lowering consumer costs. This new line will also provide a significant backbone transmission platform to integrate new technology generation having a diversity of fuel characteristics that may be developed across the broad geographic area traversed by the project, thus improving the nation’s energy position.

As Exhibit 9 illustrates, the eastern AEP Transmission System, in addition to being highly integrated internally, is also the most interconnected transmission system in the Eastern Interconnection. It is directly connected to eighteen neighboring utility transmission systems at
127 interconnection points, of which 50 are at or above 345 kV. The total capability of the 127 interconnections is over 71,000 MVA, of which over 59,000 MVA is at 345 kV and above.

Through these interconnections, the eastern AEP Transmission System provides highly diversified access to the PJM, MISO, and non-RTO portions of the Eastern Interconnection. Specifically,

- There are 37 interconnections (12 at or above 345 kV) with five PJM-Member utilities, with a total capability of over 20,300 MVA (over 17,400 MVA at or above 345 kV);
- There are 63 interconnections (27 at or above 345 kV) with eight MISO-Member utilities, with a total capability of over 34,300 MVA (over 28,800 MVA at or above 345 kV); and
- There are 27 interconnections (11 at or above 345 kV) with five non-RTO-member utilities, with a total capability of over 16,300 MVA (over 12,500 MVA at or above 345 kV).

These interconnections serve as an electric highway system to strongly integrate the AEP System with these surrounding utilities, thus providing access to off-system resources, as well as a delivery mechanism to adjacent companies.

The AEP Interstate Project will also provide a significant opportunity to improve the reliability of local utilities along its path. This 765 kV line could be tapped to provide a strong and dependable transmission source to mitigate reliability concerns in major load centers. For example, this new line could be tapped and extended to provide additional transmission reliability to major metropolitan areas such as Washington, D.C., Philadelphia and Baltimore to support additional load growth or to mitigate retirement of local generation that may no longer be economically or environmentally viable. Specifically, the Doubs Station, located in Maryland, could be used as a potential source to reinforce the Baltimore and Washington, D.C. area transmission system. This reinforcement might become more critical as the economic or environmental viability becomes questionable.
CONCLUSION

AEP believes that the proposed project will effectively address the objectives outlined in the Energy Policy Act of 2005, the conceptual goals stated by PJM, and the concerns expressed by state regulators. Consequently, AEP stands ready to cooperatively work with other transmission owning utilities, federal, state, and local authorities, and PJM and its stakeholders to bring the AEP Interstate Project to fruition.
GLOSSARY OF TERMS

ACSR____Aluminum Conductor Steel Reinforced
AEP____American Electric Power
AP____Allegheny Power
DOE____Department of Energy
FCITC____First Contingency Incremental Transfer Capability
FERC____Federal Energy Regulatory Commission
HVDC____High Voltage Direct Current
LODF____Line Outage Distribution Factor
MISO____Midwest Independent System Operator
NIETC____National Interest Electric Transmission Corridors
NOPR____Notice of Proposed Rulemaking
OPGW____Optical Ground Wire
OTDF____Outage Transfer Distribution Factor
PJM______PJM Interconnection, LLC
PSE&G____Public Service Electric & Gas
PTDF____Power Transfer Distribution Factor
RTEP____Regional Transmission Expansion Plan
RTO______Regional Transmission Organization
SIL______Surge Impedance Loading
SVC______Static VAr compensator
TVA______Tennessee Valley Authority
Attachment C
PUBLIC SERVICE COMMISSION
OF MARYLAND

TEN-YEAR PLAN
(2005 – 2014)
OF ELECTRIC COMPANIES
IN MARYLAND

Prepared for the
Maryland Department of Natural Resources
In compliance with Section 7-201
of the Maryland Public Utility Companies Article
December 2005
[The Commission’s Integrated Resource Planning Division (John O. Sillin, Director) produced this report in cooperation with the Engineering Division (J. Richard Schafer, Chief Engineer). Electric companies under the Commission’s jurisdiction provided most of the data in the Appendix.]
E. Transmission Congestion in Maryland

During the summer of 2005, the Commission monitored the locational marginal prices (LMPs) being experienced in Maryland. As a result, the Commission has determined that the LMPs for central Maryland appear to be higher than for any other region in the PJM system. The Eastern Shore has only marginally lower LMPs. The LMPs for both are significantly higher than average LMP for the entire PJM system and the regions to the west, served by Allegheny Power Systems (APS) and American Electric Power (AEP).

Included are two charts (see next page) comparing the LMPs for BGE and Pepco (serving central Maryland), and Delmarva Power & Light (serving the Delmarva Peninsula, including the Eastern Shore), with the PJM system as a whole and the APS and AEP systems. The charts compare the LMPs by hour, and are weighted to include all days of the month. The results for June, August, and September are nearly identical to July’s.

Note that the difference among the LMPs is relatively narrow in the nighttime and early morning hours. But as load builds during the day, the LMP differential widens substantially. The explanation for this is that during the off-peak hours, there is relatively little congestion in PJM, but during the daytime when usage builds, eastern PJM tries to import more energy from the west. At this point, congestion increases, and the differentials among LMPs increase.

In effect, the PJM transmission system cannot support the energy imports that eastern PJM, and central and eastern Maryland in particular, desire to receive. This results in the out of merit dispatch of generation, with oil and natural gas fired units operated at increased levels despite their high fuel costs.

Maryland is vulnerable to a further widening in this LMP gap. Factors that could adversely affect the differential include:

- The shutdown of the Potomac River Station has decreased the capability to import energy into Maryland by over 100 MW.
- Further reduction in the level of generating capacity that serves Maryland would result in increased operation of expensive oil and natural gas fired generation, and a lower capability to import lower cost coal-based energy.
- The cost of oil and natural gas has risen substantially since the end of summer. If these price increases were sustained, Maryland’s LMPs would increase further, as would the differential with many other load deliverability areas (LDAs) in PJM. Several other LDAs are served on the margin by coal-fired generation; for Maryland, the marginal capacity is oil and natural gas fired units.

A near-term effect of these higher LMPs is that both spot and contract electricity prices will increase in Maryland. In addition, the higher LMPs appear to support the need for both

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22 Locational marginal pricing is the cost of providing the last incremental amount of electricity required to meet electrical demand and ensure reliability at any point of time. LMP includes the cost of producing the electricity and delivering to where it is needed. LMPs may vary significantly among locations, even among locations in proximity to one another. Transmission constraints can result in load pockets, and severely limit the pocket’s ability to access lower cost generation resources elsewhere.
more cost-effective generation in Maryland and increased transmission facilities to import more cost-effective energy from outside the state.

The PJM 2004 State of the Market Report identified restrictions along the Bedington-Black Oak 500 kV transmission line as a leading cause for congestion in central and eastern Maryland. Other facilities that contribute to congestion in Maryland include the Doubs Substation, Wylie Ridge substation, Doubs-Mt. Storm 500 kV circuit, Hatfield-Black Oak 500 kV circuit, and Fort Martin–Pruntytown 500 kV circuit. PJM has included the Bedington-Black Oak transmission line in the economic planning review process.
PJM is proposing some interim solutions for the constraints. PJM expects to implement the following changes by the end of 2007:

- One of the four 500 kV transformers at Doubs has been a limiting factor for power flows through Doubs. This transformer is scheduled to be replaced during the fall of 2005.
- A Static VAR Compensator (SVC) will be installed on the Bedington-Black Oak Line during the 2007-2008 timeframe. This will help to mitigate the voltage limit.
- No specific upgrade has been proposed for the thermal limit on the Pruntytown-Mount Storm 500 kV transmission line, but analysis is continuing.
- The Doubs - Mount Storm 500 kV transmission line reaches its sag limit when heavily loaded. This is scheduled to be adjusted in the fall of 2005.

The upgrades listed above are expected to improve transfer limits. However, most engineers concede that congestion between western PJM and central and eastern Maryland will continue until a new transmission line is built or substantial base load generation is installed.

PJM has initiated an evaluation of Long Term Transmission Planning which would be required for a new line due to the long lead-time needed for such a large project. The kick-off meeting was July 25, 2005. The Long Term Transmission Planning initiative will extend the Regional Transmission Planning Process (RTEP) out to ten years instead of five. PJM has also launched a proposal for new lines through the constrained area called Project Mountaineer.

A new transmission line for the area would be a long-term project. Therefore, it is important to support PJM’s efforts for expanding the planning horizon. It is also important to review any short-term fixes that are available. The Commission will continue to monitor the observed congestion between western PJM and Maryland, and participate in the efforts being made by PJM to alleviate the problems.

The next page shows two typical LMP maps as displayed on PJM’s eData site during the summer of 2005. The first map shows August 15, 2005, at 10:25 in the morning and indicates a load of about 105,000 MW. This pattern was typical of normal days in the summer where congestion was present – the highest LMPs in all of PJM have a bulls-eye centered near Frederick County, Maryland, on this day being approximately $300/MWh. Thus, Central Maryland’s BGE and Pepco territories have higher spot wholesale prices than the transmission-constrained Delmarva Peninsula and Northern New Jersey regions, where LMPs range between $150-200/MWh (still higher than most of PJM, however). Further, notice that there is also a circular region in Western Maryland and Eastern West Virginia that actually has negative LMPs, due to the west to east transmission constraints that prevent sufficient low-cost power from crossing the Allegheny Mountains. This map clearly shows that within a range of less than fifty miles, LMPs can range from over $300/MWh to negative values. The second map shows one of the hottest days of the year, July 18, 2005, at 4:05pm when peak load had just exceeded 130,000 MW (one of the top three demand days in PJM history). On this day, the congestion and high LMPs stretch from Northern Virginia, through Central Maryland and the Delmarva Peninsula, and into Southeastern Pennsylvania and all of New Jersey. Once again, LMPs are much lower just west of the Allegheny Mountains – on this day, LMPs vary between about $170-230/MWh on the high side and $0-40/MWh on the low side, a less extreme range of LMPs than on the lower demand day.
Attachment D
NOTICE OF FILING

(February _, 2006)

Take notice that on January 31, 2006, American Electric Power Service Corporation (AEP) submitted a petition requesting that the Commission issue a declaratory order approving proposed incentive rates for a new 765 kV transmission project that newly-formed AEP Transmission Company LLC proposes to construct from west to east across PJM. AEP states that the proposed lines is expected to run from West Virginia to New Jersey.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission’s Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.


This filing is accessible on-line at http://www.ferc.gov, using the “eLibrary” link and is available for review in the Commission’s Public Reference Room in Washington, D.C. There is an “eSubscription” link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email FERCONlineSupport@ferc.gov, or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: 5:00 pm Eastern Time on February __, 2006

Magalie R. Salas
Secretary