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Terry Boston  
President and CEO, PJM Interconnection  
955 Jefferson Avenue  
Valley Forge Corporate Center  
Norristown, PA 19403-2497

Howard Schneider  
Chairman, PJM Board of Managers  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403

**Re: Incorporation of Advanced High Voltage Direct Current Technology Into  
Mid-Atlantic Power Pathway Project**

Dear Mr. Boston and Board of Managers:

This letter is prompted by several letters that you and your colleagues recently received raising questions about the use of advanced High-Voltage Direct Current ("HVDC") technology for the most environmentally-sensitive segment of the Mid-Atlantic Power Pathway ("MAPP"). MAPP was approved in PJM's 2007 Regional Transmission Expansion Plan ("RTEP") as Network Upgrade B0512. It is my understanding that consideration of the use of HVDC technology in MAPP has been deferred in anticipation of additional information to support the proposal. As outlined below, HVDC has many benefits which clearly justify its cost, and PHI is eager to work with PJM staff and others to provide additional justification and articulate in greater detail why this advanced technology -- which would represent a first for PJM's backbone network -- is the best option for this crucial RTEP project and should be included promptly as a key component.

While PHI appreciates the Board's need to weigh the interests of various PJM stakeholders, we hope that you and your colleagues will give further and prompt consideration to the PJM Staff's proposal, so that MAPP, which must meet a challenging in-service schedule, may proceed with the best design at the outset. Indeed, MAPP is critically important to the reliable and efficient operation of the PJM system, and a positive decision should be reached as soon as possible on the deployment of HVDC technology so as to meet the current RTEP timetable.

The use of HVDC technology on the 70-mile portion of MAPP that crosses Chesapeake Bay and the lower portion of the Delmarva Peninsula will substantially increase reliability across eastern PJM by giving PJM more control over the operation of the interconnected system, and will increase overall market efficiency by alleviating significant congestion in the Mid-Atlantic region. Although an all-AC line can be constructed without adversely affecting the environment, the use of HVDC technology will further minimize the environmental impacts of the line, and thus will facilitate the siting and construction

of this vital project. MAPP was included as a baseline project in PJM's 2007 RTEP<sup>1</sup> because of the substantial number of anticipated contingency overloads that MAPP resolves on the PJM grid, including anticipated overloads as far away as western Pennsylvania. PJM also recognized that MAPP provides a major new transmission corridor linking congested portions of New Jersey to generator-rich areas to the south and west -- including areas with substantial wind and nuclear generation -- and substantially increases the reliability of power supplies on the Delmarva Peninsula, a growing area in which there has been insufficient transmission infrastructure investment to date. Indeed, MAPP will be the first PJM "backbone" facility to traverse the Delmarva Peninsula.

The basic details of MAPP, including size and route, have remained unchanged since PHI first proposed the line to PJM in 2006. PJM stakeholders have had a full and fair opportunity to examine, comment, and to challenge the conclusions of PJM staff that the project should be included as a baseline upgrade in the 2007 RTEP. The only proposed revision, one anticipated in the approval of the project to receive further consideration, has been whether the portion of the line crossing the Chesapeake Bay and the lower portion of the Delmarva Peninsula should, for engineering and environmental reasons, use advanced HVDC technology instead of standard AC technology. That is the issue that was under discussion last week.

PHI underscores that it is committed to constructing the most beneficial, reasonable and cost effective system to improve the reliability of the transmission system. As we note below, PHI continues to investigate, refine and analyze the HVDC design and cost alternatives with the assistance of recognized experts and welcomes all input and suggestions.

However, several letters addressed to you and your colleagues last week by representatives of Exelon, American Electric Power, and FPL Energy in response to the proposal to incorporate HVDC into MAPP demonstrate a fundamental misunderstanding of the projects. In addition, these responses raise issues that have been previously decided, either by the Board itself, through the RTEP Process, or, in the case of cost allocation, by FERC. Although MAPP was approved as a project having broad regional benefits, these parties are using the limited PJM Staff recommendation at the TEAC meeting as an opportunity to protect their parochial interests. PHI would like to offer the following additional comments to the Board to address various issues raised by these letters and to demonstrate the misguided nature of the assertions made therein.

Exelon's assertion that MAPP will be a local radial line shows a fundamental misunderstanding of the project. It also stops just short of a prohibited attempt to re-open the Board's decision taken almost a year ago approving MAPP's inclusion in the RTEP. In fact, the portion of the line that will cross the Chesapeake Bay and the Delmarva Peninsula traverses three states (the entire MAPP crosses four states) and will be capable of carrying thousands of megawatts not only to PHI's loads in eastern Maryland, Delaware, and New Jersey, but also to loads farther to the north in regions that are severely transmission-constrained.

Similarly, FPL's assertions regarding the use of HVDC technology severely understate the benefits of that technology and dismiss the environmental and reliability benefits of the technology. As FPL's letter acknowledges, the use of HVDC technology will (1) require a narrower right-of-way across the Chesapeake Bay, (2) avoid the construction of a substation where the line makes landfall on the eastern side of the Bay, (3) provide the ability to operate the three planned HVDC circuits independently, thus providing extra reliability if one of the three circuits experiences an outage, and (4) increase transfer capability and minimize redispatch by permitting PJM to have increased control over the HVDC circuits. These are very substantial benefits for PJM as a whole and for the Mid-Atlantic region. Indeed, PHI

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<sup>1</sup> See PJM Interconnection, L.L.C., 122 FERC ¶ 61,130 (2008).

strongly disagrees with FPL's apparent perspective that reducing the impact of the MAPP Project on the environment is only a minimal benefit as compared with the cost of the HVDC technology. PHI believes that environmental impacts should be minimized wherever possible, particularly in sensitive areas such as Chesapeake Bay and the wetlands of the Maryland Eastern Shore. The reduction of the project's overall footprint and environmental impacts also will enable this vital to be more readily sited and built. Moreover, this environmental benefit is not, as we have discussed previously, the only benefit to justify the increased cost of HVDC technology.

FPL's assertion that HVDC technology should not be incorporated into the MAPP Project because the PJM grid today has no DC technology is entirely without merit. Under this logic, no advanced technology would ever be incorporated into the PJM grid, and PJM would be cut off from the efficiency and environmental benefits that are necessary today, and that will be even more necessary in the future. Furthermore, FPL's perspective runs counter to the current trend in the construction of underwater crossings, which has been moving toward the use of advanced HVDC technology.

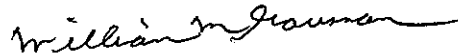
In addition, FPL's criticisms of the HVDC technology on the ground that DC converters have large losses are without merit. To fully understand the total losses of a system, it is necessary to evaluate the reduced losses within the DC line and the increased power flow that can be obtained with a DC system. It is misleading to say the least to discuss one component without considering the whole system. Also, FPL's suggestion to construct the AC system as three independent systems was not considered because the only way to achieve that goal would be to construct three circuits from the Calvert Cliffs substation to the Vienna substation (*i.e.*, the portion of the line that crosses the Chesapeake Bay and the southern portion of the Delmarva Peninsula). Especially given the difficulties of right-of-way acquisition, this solution is utterly impractical; it is difficult to foresee how and when necessary permits would be granted for such an approach.

In introducing its comments, AEP properly recognizes that MAPP "will improve reliability and increase market efficiency." However, AEP's recommendation to conduct additional studies or a technical conference to review the HVDC option are unnecessary and will only serve to delay the in-service date of the line, and therefore, delay the reliability and market efficiency benefits of the project. Regular TEAC meetings provide the appropriate forum to consider and do consider information bearing on the need for a project as well as the reliability or economic benefits expected to be obtained upon completion of a new transmission facility. Since MAPP would incorporate the first DC transmission within the PJM control area, PHI has worked with PJM staff to identify some of the major permitting and construction benefits that would be gained by using DC technology. We will continue this effort. Nevertheless, studies to evaluate the potential impact of resonance, harmonics or reactive power flow are performed only after projects have regulatory approvals and route and design are nearly completed. If it were otherwise, the lead time to construct backbone transmission lines would be significantly extended and the cost of the project increased.

PHI clearly recognizes that the HVDC option is more costly. It is for this reason we are eager to support PJM staff in its review of additional studies that may be desired to identify additional reliability benefits or to determine the appropriate phasing of the construction of the individual converter units. As our conceptual studies have shown, a conversion of the AC portion of this project crossing the Bay to HVDC technology will not only improve reliability and increase market efficiency, but also will significantly increase the power flow potential across this line and provide ever greater reliability to the entire PJM transmission system within the mid Atlantic region. PHI is committed to continue to work closely with PJM planning engineers to complete all necessary studies, and to ensure that this important technology is able to be incorporated into the MAPP.

Although study is important, you and your colleagues are aware that time is of the essence. In order to incorporate the advanced HVDC technology into the MAPP Project, PHI must order the materials years in advance of installation. Furthermore, whether the line will use HVDC or AC technology may be a significant issue in upcoming regulatory proceedings in which PHI will seek approvals of the MAPP Project. If PHI must proceed with a less than optimal design for MAPP, at the behest of parties making arguments that are not based on sound design principles and engineering realities, PHI will lose valuable time in its efforts to construct MAPP and place it in-service when it will be most needed. Accordingly, we urge that the additional review called for be completed shortly and that the Board act to approve the use of HVDC technology as soon as possible. Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script, reading "William M. Gausman".

William M. Gausman