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James W. Boone
Assistant General Counsel

April 23, 2009

M. Brent Hare
Brent A. Bolea
Assistant Attorneys General
Maryland Energy Administration
1623 Forest Drive, Suite 300
Annapolis, Maryland 21401

Re: DNR Data Request No. 1 – MAPP CN 9179

Dear Messrs. Hare and Bolea:

Attached are the Applicant's responses to DNR Data Request No. 1. Please let me know if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink that reads "James Boone / ALB". The signature is written in a cursive, flowing style.

James Boone

Enclosure

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/09

Question No. 1-1

Q. In Volume II of the Needs Determination, Mr. Mitchell (p. 17) testified that "PJM incorporated the MAPP Project and several other large scale projects as part of the 2007 RTEP in order to resolve reliability problems originally identified at the April 2006 TEAC meeting". Mr. Mitchell (p. 16) also testifies that "PJM considered approximately 30 transmission alternatives including the MAPP Project."

a. Please indicate whether the approximately 30 transmission alternatives reviewed by PJM in the 2006 and 2007 time frame were exclusively alternatives to the MAPP Project.

b. If the 30 transmission options reviewed were alternatives to the MAPP Project, please reconcile this assertion with the Direct Testimony of Mr. Mitchell at page 16.

c. Please list each reliability problem originally identified at the April 2006 TEAC meeting.

d. Please explain how the MAPP Project helps resolves or does not resolve each of these reliability problems.

e. Please provide maps showing the location of equipment that is associated with each reliability problem, including the origination and termination points for any transmission lines that are associated with any reliability problems. Multiple reliability problems can be combined onto a single map to minimize the number of maps required to respond to this request provided that the location of equipment that is associated with each reliability problem is clearly identifiable by the naked eye.

f. Please provide maps showing the location of the approximately 30 transmission system alternatives referred to in this testimony. Multiple alternatives can be combined onto a single map to minimize the number of maps required to respond to this request provided that the location of each alternative is clearly identifiable by the naked eye.

RESPONSE:

- A. Through the performance of the RTEP analysis each year, PJM identifies numerous future violations of reliability criteria. In the course of developing the RTEP, PJM identifies a number of transmission system enhancement options for consideration with respect to their ability to resolve one or more violations of reliability criteria. In some cases, multiple transmission system enhancement options will address the same criteria violations and may be considered as alternatives to one another. In many cases involving backbone transmission system enhancements, individual options will resolve different subsets of the violations identified in the RTEP analyses. As such, individual options cannot necessarily be considered as alternatives to one another. Rather, a package of options must be assembled to resolve all of the identified violations. Consistent with the established regional transmission planning process, in 2006 and 2007 PJM reviewed approximately 30 transmission alternatives to ensure a reliable transmission system that identified the MAPP Project as part of the solution to resolve a variety of reliability criteria violations across PJM. PJM undertook an exhaustive process to determine the most efficient, optimal set of solutions to reliability problems and MAPP is an essential part of the overall solution. The 30 alternatives or combination of transmission solutions were solutions to regional reliability criteria violations that included the violations that MAPP resolved.
- B. See response to Data Request PRPP 1-1A. The testimony of witness Mitchell quoted in this data request question is consistent with the PJM process of evaluating alternatives transmission projects on a regional basis.
- C. The reliability problems noted in the April 26, 2006 TEAC material that led to the development of approximately 30 alternatives are noted on pages 5, 7, and 9 of that presentation, which can be accessed at: <http://www.pjm.com/committees-and-groups/committees/teac.aspx> under "Past Meeting Material"
- D. The analysis performed by PJM for the April 26, 2006 TEAC was based on a load flow model developed for the five year analysis being performed at the time without any of the backbone projects in service. Some of the reliability violations shown in the April 2006 TEAC were resolved by the three other backbone projects recommended by PJM. Some of the violations however were still problems in the 2013 analysis done by PJM and referenced in Mr. McGlynn's Direct Testimony. PJM's 2013 analysis included revised load and generation forecasts from what was used in the April 2006 analysis. The overloads shown in exhibits PFM-1 and PFM-2 for the 15-year period through 2023 which are resolved by MAPP include some of the violations originally shown in the April 2006 TEAC presentation which were not resolved by other projects proposed by PJM.
- E. Assuming the phrase "each reliability problem" in subpart 1-1C are the same identified in subpart 1-1D, see the April 26, 2006 TEAC presentation pages 6, 8, 10 and 11, which can be accessed at the web site referenced in the response to part C of this question.

- F. Maps showing the approximate location of the transmission system alternatives referred to can be found in the TEAC presentations from July 11, 2006 (pages 21-57) and August 30, 2006 (pages 13-61) which can be accessed at:

<http://www.pjm.com/Media/committees-groups/committees/teac/20060711/20060711-teac-presentation.pdf> and
<http://www.pjm.com/Media/committees-groups/committees/teac/20060830/20060830-teac-presentation.pdf>

SPONSOR: Steven R. Herling and William C. Mitchell

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-2

Q. Please provide hardcopies and electronic copies of all documents presented at PJM committee or sub-committee meetings between 2005 and the present that addressed the MAPP Project.

RESPONSE:

Presentations addressing the MAPP Project, or transmission upgrades which would later be called part of the MAPP Project, were provided at TEAC meetings and those meeting dates and pertinent pages are:

5/23/06	65, 72
7/11/06	18, 40-42 (Alternative 8)
8/30/06	10, 20-22, 32-37, 53-61 (Alternatives 17, 21, 22, 27-29)
10/30/06	49, 56 (Alternative 8)
4/5/07	8-9
4/16/07	28
5/9/07	20-24, 27-28 (DPL, PEP violations), 52 (reliability in DC area), 57 (backbone projects under consideration), 58 (next steps)
8/22/07	16 (retool of 2012), 21-26 (MAPP Project)
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6/12/08	1-11 (MAPP Project update)
7/16/08	2-7 (MAPP Project update)
8/20/08	3
10/15/08	2-27 (MAPP alternatives analyzed)
11/05/08	28-35

These presentations can be found at: <http://www.pjm.com/committees-and-groups/committees/teac.aspx> (Select "Past Meeting Material")

PJM is conducting a search for additional presentations, and to the extent that any additional material is found, it will be made available.

SPONSOR: William C. Mitchell and Paul McGlynn

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
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Question No. 1-3

Q. In Volume II of the Needs Determination, Mr. Mitchell testifies (p. 6) that “the facilities comprising the MAPP Project are needed to address 25 electric reliability criteria violations, arising from overloaded transmission facilities. In addition, Paul McGlynn has identified, and Pepco and Delmarva have verified, several voltage collapse scenarios that would occur beginning in 2013 if the MAPP Project is not constructed.” In Volume I of the Needs Determination, Mr. Gausman (p. 4) testifies that the MAPP Project will “[r]esolve at least 36 “Reliability Violations” some anticipated to occur as soon as 2013, including an unacceptable risk of voltage collapse and a resulting widespread unscheduled outage or “blackout”.” Mr. Gausman (p. 25) also testifies that “[t]he MAPP Project provides a solution to a large number of potential violations identified in PJM’s 15-year planning horizon.” The Application to Establish the Overall Need of the Project (Volume I, p. 9) states that “PJM conducted both short term and long term analyses and found that numerous reliability violations will occur beginning in 2013 absent significant transmission enhancements. PJM sought transmission solutions to address these issues. PJM evaluated over 30 alternatives to address the expected reliability violations.”

a. Please indicate if any of these references to “reliability violations” or “issues” are to a set of reliability violations other than those shown in Exhibits PFM-1 and PFM-2 attached to Mr. McGlynn’s testimony.

b. For any references to a set of reliability criteria violations other than those shown in Exhibits PFM-1 and PFM-2, e.g., Mr. Mitchell’s statement on page 17 of his Direct Testimony, please provide a list of the reliability violations to which the Application or Direct Testimony refers.

RESPONSE:

A. The reference “reliability violations” quoted in PPRP Data Request 1-3 from witness Gausman’s Direct Testimony and the Application to establish the overall need of the project refer to the reliability criteria violations in Exhibits PFM-1 and PFM-2 in witness McGlynn’s Direct Testimony and in Exhibit WMG-7C and the 2007 RTEP.

- B. The reference to “reliability criteria violations” on page 17, line 14 of witness Mitchell’s Direct Testimony is to the list of violations presented at the April 26, 2006 TEAC and listed in response to PPRP 1-1C.

SPONSOR: William C. Mitchell

POTOMAC ELECTRIC POWER COMPANY
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Question No. 1-4

Q. In Volume I of the Needs Determination, Mr. Gausman (p. 4) testifies that the MAPP Project will "[p]rovide, from the perspective of system operations now and into the foreseeable future, the most robust, economic and flexible solution to known and expected reliability and operational challenges." What are the known and expected operational challenges to which Mr. Gausman refers? Please fully describe why these operational challenges are important to consider when evaluating the MAPP Project.

RESPONSE:

The operational challenges that are referenced in the quoted testimony in PPRP Data Request 1-4 deal with the ability to deliver energy into the Mid Atlantic region with the known limitations within the existing transmission systems. The existing transmission interfaces limit the amount of energy that can be moved across the interface to meet demand without loss of load. This limitation reduces the reliability of the system by limiting the amount of west to east transfer capability. It is important to understand and evaluate these limitations as they result in failure of the transmission system to meet established planning criteria. Without additional transmission that will allow the transfer of higher levels of energy to the east from the west and reliability of the transmission system will decrease until it can no longer meet the energy needs of the Mid-Atlantic region. The ultimate result will be load shedding on any high load days. MAPP will solve this problem and allow significant increase in transfer capacity. In addition to the transfer capacity, MAPP will also improve the reactive performance of the system and prevent low voltage situations that could also result in the need to shed load.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-5

Q. Page 9 of the Application (Volume I) states that "PJM evaluated over 30 alternatives to address the expected reliability violations." In Volume I of the Needs Determination, Mr. Gausman (p. 25) testifies that "PJM reviewed approximately 30 transmission alternatives, and two other 500 kV transmission solutions." In Volume III of the Needs Determination, Mr. Herling (p. 30-31) testifies that "[i]n June and October 2007, the PJM Board formally approved three additional backbone transmission facilities as a result of the 2007 RTEP process analysis and findings. These three backbone projects were the PATH line, the Susquehanna – Roseland line and the MAPP Project." Mr. Herling goes on to testify that "[t]ransmission system options were considered in approximately 30 alternative combinations and yielded a number of key conclusions that guided selection of the upgrades submitted to and approved by the PJM Board in 2007. Additional details are presented in the testimony of Paul McGlynn."

- a. Please list the 30 transmission alternatives to which these statements refer.
- b. What were the two other 500 kV transmission solutions to which Mr. Gausman refers?
- c. Please indicate whether the 30 alternative combinations of transmission system options referred to by Mr. Herling that were considered in arriving at the PJM recommendations that went to the PJM Board in June and October 2007 were all exclusively considered as alternatives to the MAPP Project.
- d. Please identify where in Mr. McGlynn's testimony he discusses the 30 alternative combinations of transmission system options that are discussed by Mr. Herling as referred to above.
- e. Please list each "key conclusion" to which Mr. Herling is referring. Also, please explain how each key conclusion "guided" selection of the upgrades.

RESPONSE:

- A. The transmission solutions considered in approximately 30 alternatives can be found on page 18 of the July 11, 2006 TEAC presentation (alternatives 1 through 13) and on page 10 of the August 30, 2006 TEAC presentation (alternatives 14 through 29 and there is a 25a and 25b, making a total of 30 alternatives). These presentations can be accessed at:

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Question No. 1-1

Q. In Volume II of the Needs Determination, Mr. Mitchell (p. 17) testified that "PJM incorporated the MAPP Project and several other large scale projects as part of the 2007 RTEP in order to resolve reliability problems originally identified at the April 2006 TEAC meeting". Mr. Mitchell (p. 16) also testifies that "PJM considered approximately 30 transmission alternatives including the MAPP Project."

a. Please indicate whether the approximately 30 transmission alternatives reviewed by PJM in the 2006 and 2007 time frame were exclusively alternatives to the MAPP Project.

b. If the 30 transmission options reviewed were alternatives to the MAPP Project, please reconcile this assertion with the Direct Testimony of Mr. Mitchell at page 16.

c. Please list each reliability problem originally identified at the April 2006 TEAC meeting.

d. Please explain how the MAPP Project helps resolves or does not resolve each of these reliability problems.

e. Please provide maps showing the location of equipment that is associated with each reliability problem, including the origination and termination points for any transmission lines that are associated with any reliability problems. Multiple reliability problems can be combined onto a single map to minimize the number of maps required to respond to this request provided that the location of equipment that is associated with each reliability problem is clearly identifiable by the naked eye.

f. Please provide maps showing the location of the approximately 30 transmission system alternatives referred to in this testimony. Multiple alternatives can be combined onto a single map to minimize the number of maps required to respond to this request provided that the location of each alternative is clearly identifiable by the naked eye.

RESPONSE:

- A. Through the performance of the RTEP analysis each year, PJM identifies numerous future violations of reliability criteria. In the course of developing the RTEP, PJM identifies a number of transmission system enhancement options for consideration with respect to their ability to resolve one or more violations of reliability criteria. In some cases, multiple transmission system enhancement options will address the same criteria violations and may be considered as alternatives to one another. In many cases involving backbone transmission system enhancements, individual options will resolve different subsets of the violations identified in the RTEP analyses. As such, individual options cannot necessarily be considered as alternatives to one another. Rather, a package of options must be assembled to resolve all of the identified violations. Consistent with the established regional transmission planning process, in 2006 and 2007 PJM reviewed approximately 30 transmission alternatives to ensure a reliable transmission system that identified the MAPP Project as part of the solution to resolve a variety of reliability criteria violations across PJM. PJM undertook an exhaustive process to determine the most efficient, optimal set of solutions to reliability problems and MAPP is an essential part of the overall solution. The 30 alternatives or combination of transmission solutions were solutions to regional reliability criteria violations that included the violations that MAPP resolved.
- B. See response to Data Request PRPP 1-1A. The testimony of witness Mitchell quoted in this data request question is consistent with the PJM process of evaluating alternatives transmission projects on a regional basis.
- C. The reliability problems noted in the April 26, 2006 TEAC material that led to the development of approximately 30 alternatives are noted on pages 5, 7, and 9 of that presentation, which can be accessed at: <http://www.pjm.com/committees-and-groups/committees/teac.aspx> under "Past Meeting Material"
- D. The analysis performed by PJM for the April 26, 2006 TEAC was based on a load flow model developed for the five year analysis being performed at the time without any of the backbone projects in service. Some of the reliability violations shown in the April 2006 TEAC were resolved by the three other backbone projects recommended by PJM. Some of the violations however were still problems in the 2013 analysis done by PJM and referenced in Mr. McGlynn's Direct Testimony. PJM's 2013 analysis included revised load and generation forecasts from what was used in the April 2006 analysis. The overloads shown in exhibits PFM-1 and PFM-2 for the 15-year period through 2023 which are resolved by MAPP include some of the violations originally shown in the April 2006 TEAC presentation which were not resolved by other projects proposed by PJM.
- E. Assuming the phrase "each reliability problem" in subpart 1-1C are the same identified in subpart 1-1D, see the April 26, 2006 TEAC presentation pages 6, 8, 10 and 11, which can be accessed at the web site referenced in the response to part C of this question.

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SPONSOR: Steven R. Herling and William C. Mitchell

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Question No. 1-2

Q. Please provide hardcopies and electronic copies of all documents presented at PJM committee or sub-committee meetings between 2005 and the present that addressed the MAPP Project.

RESPONSE:

Presentations addressing the MAPP Project, or transmission upgrades which would later be called part of the MAPP Project, were provided at TEAC meetings and those meeting dates and pertinent pages are:

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4/16/07	28
5/9/07	20-24, 27-28 (DPL, PEP violations), 52 (reliability in DC area), 57 (backbone projects under consideration), 58 (next steps)
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6/12/08	1-11 (MAPP Project update)
7/16/08	2-7 (MAPP Project update)
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10/15/08	2-27 (MAPP alternatives analyzed)
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SPONSOR: William C. Mitchell and Paul McGlynn

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Question No. 1-3

Q. In Volume II of the Needs Determination, Mr. Mitchell testifies (p. 6) that "the facilities comprising the MAPP Project are needed to address 25 electric reliability criteria violations, arising from overloaded transmission facilities. In addition, Paul McGlynn has identified, and Pepco and Delmarva have verified, several voltage collapse scenarios that would occur beginning in 2013 if the MAPP Project is not constructed." In Volume I of the Needs Determination, Mr. Gausman (p. 4) testifies that the MAPP Project will "[r]esolve at least 36 "Reliability Violations" some anticipated to occur as soon as 2013, including an unacceptable risk of voltage collapse and a resulting widespread unscheduled outage or "blackout"." Mr. Gausman (p. 25) also testifies that "[t]he MAPP Project provides a solution to a large number of potential violations identified in PJM's 15-year planning horizon." The Application to Establish the Overall Need of the Project (Volume I, p. 9) states that "PJM conducted both short term and long term analyses and found that numerous reliability violations will occur beginning in 2013 absent significant transmission enhancements. PJM sought transmission solutions to address these issues. PJM evaluated over 30 alternatives to address the expected reliability violations."

a. Please indicate if any of these references to "reliability violations" or "issues" are to a set of reliability violations other than those shown in Exhibits PFM-1 and PFM-2 attached to Mr. McGlynn's testimony.

b. For any references to a set of reliability criteria violations other than those shown in Exhibits PFM-1 and PFM-2, e.g., Mr. Mitchell's statement on page 17 of his Direct Testimony, please provide a list of the reliability violations to which the Application or Direct Testimony refers.

RESPONSE:

A. The reference "reliability violations" quoted in PPRP Data Request 1-3 from witness Gausman's Direct Testimony and the Application to establish the overall need of the project refer to the reliability criteria violations in Exhibits PFM-1 and PFM-2 in witness McGlynn's Direct Testimony and in Exhibit WMG-7C and the 2007 RTEP.

- B. The reference to “reliability criteria violations” on page 17, line 14 of witness Mitchell's Direct Testimony is to the list of violations presented at the April 26, 2006 TEAC and listed in response to PPRP 1-1C.

SPONSOR: William C. Mitchell

POTOMAC ELECTRIC POWER COMPANY
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Question No. 1-4

Q. In Volume I of the Needs Determination, Mr. Gausman (p. 4) testifies that the MAPP Project will “[p]rovide, from the perspective of system operations now and into the foreseeable future, the most robust, economic and flexible solution to known and expected reliability and operational challenges.” What are the known and expected operational challenges to which Mr. Gausman refers? Please fully describe why these operational challenges are important to consider when evaluating the MAPP Project.

RESPONSE:

The operational challenges that are referenced in the quoted testimony in PPRP Data Request 1-4 deal with the ability to deliver energy into the Mid Atlantic region with the known limitations within the existing transmission systems. The existing transmission interfaces limit the amount of energy that can be moved across the interface to meet demand without loss of load. This limitation reduces the reliability of the system by limiting the amount of west to east transfer capability. It is important to understand and evaluate these limitations as they result in failure of the transmission system to meet established planning criteria. Without additional transmission that will allow the transfer of higher levels of energy to the east from the west and reliability of the transmission system will decrease until it can no longer meet the energy needs of the Mid-Atlantic region. The ultimate result will be load shedding on any high load days. MAPP will solve this problem and allow significant increase in transfer capacity. In addition to the transfer capacity, MAPP will also improve the reactive performance of the system and prevent low voltage situations that could also result in the need to shed load.

SPONSOR: William M. Gausman

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Q. Page 9 of the Application (Volume I) states that "PJM evaluated over 30 alternatives to address the expected reliability violations." In Volume I of the Needs Determination, Mr. Gausman (p. 25) testifies that "PJM reviewed approximately 30 transmission alternatives, and two other 500 kV transmission solutions." In Volume III of the Needs Determination, Mr. Herling (p. 30-31) testifies that "[i]n June and October 2007, the PJM Board formally approved three additional backbone transmission facilities as a result of the 2007 RTEP process analysis and findings. These three backbone projects were the PATH line, the Susquehanna – Roseland line and the MAPP Project." Mr. Herling goes on to testify that "[t]ransmission system options were considered in approximately 30 alternative combinations and yielded a number of key conclusions that guided selection of the upgrades submitted to and approved by the PJM Board in 2007. Additional details are presented in the testimony of Paul McGlynn."

- a. Please list the 30 transmission alternatives to which these statements refer.
- b. What were the two other 500 kV transmission solutions to which Mr. Gausman refers?
- c. Please indicate whether the 30 alternative combinations of transmission system options referred to by Mr. Herling that were considered in arriving at the PJM recommendations that went to the PJM Board in June and October 2007 were all exclusively considered as alternatives to the MAPP Project.
- d. Please identify where in Mr. McGlynn's testimony he discusses the 30 alternative combinations of transmission system options that are discussed by Mr. Herling as referred to above.
- e. Please list each "key conclusion" to which Mr. Herling is referring. Also, please explain how each key conclusion "guided" selection of the upgrades.

RESPONSE:

- A. The transmission solutions considered in approximately 30 alternatives can be found on page 18 of the July 11, 2006 TEAC presentation (alternatives 1 through 13) and on page 10 of the August 30, 2006 TEAC presentation (alternatives 14 through 29 and there is a 25a and 25b, making a total of 30 alternatives). These presentations can be accessed at:

<http://www.pjm.com/Media/committees-groups/committees/teac/20060711/20060711-teac-presentation.pdf>

<http://www.pjm.com/Media/committees-groups/committees/teac/20060830/20060830-teac-presentation.pdf>

- B. The Conastone and Peach Bottom 500 kv line and the Peach Bottom and Keeney 500 kv line.
- C. The approximately 30 transmission alternatives reviewed by PJM in the 2006 time frame were tested to determine the extent to which they could resolve a variety of reliability criteria violations across PJM. See response to PPRP Data Request 1-1A.
- D. Witness McGlynn makes a general reference to the selection of the MAPP Project transmission alternatives when the witness states at p. 27 of his Direct Testimony, beginning at line 12, “ultimately, the MAPP Project was selected as the best alternative to resolve the multiple reliability criteria violations that were identified throughout the 15-year planning horizon.”; again at p. 30, beginning at line 1, witness McGlynn testifies, “based on a review of all the alternatives considered, PJM recommended the construction of the MAPP Project as the best solution because the MAPP solution was the most effective at resolving the multiple reliability criteria violations.”; again at p. 30, beginning at line 7, witness McGlynn testifies regarding specific alternative circuits considered; and again in response to the question on p. 31, at line 15, witness McGlynn testifies about alternatives considered that included upgrading or expanding existing transmission facilities.
- E. The key conclusions to the 30 alternative combinations of transmission system options are noted in the July 11, 2006 TEAC material and the August 30, 2006 TEAC material. For example, alternative 1 on slide 20 of the July 11, 2006 TEAC material indicates that the “majority of the northern New Jersey overloads are resolved through 2021 with this alternative” and “the western and central interface overloads were resolved with this alternative.” In addition, summary conclusions for alternatives 1-13 are noted on slides 62 and 63 of the July 11, 2006 TEAC material and alternatives 14–29 are noted on slides 66 and 67 of the August 30, 2006 TEAC material.

SPONSOR: Steven R. Herling and Paul McGlynn

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Question No. 1-6

Q. Within the Needs Determination, Volume 1, Gausman testimony, exhibit WMG-7C, provides the 2007 RTEP. Under section heading "3.2.3 – Alternatives Considered" for the Susquehanna – Lackawanna – Jefferson – Roseland 500 kV line (p. 60), the 2007 RTEP explains that "PJM considered various transmission alternatives to the Susquehanna – Roseland line. One main alternative considered was a circuit from Bossards through Jefferson to Roseland." Under a section heading "3.3.3 – Alternatives Considered" for the Amos – Bedington – Kempton line (p. 65), the 2007 RTEP explains that "[s]everal transmission alternatives were evaluated prior to selecting the Amos – Bedington – Kempton solution" and then lists seven different transmission lines that were considered. Under a section heading "3.3.4 – Alternatives Considered" for the Project (p. 72), the 2007 RTEP explains that "[t]he MAPP transmission project was considered in two pieces, as noted. The first section – "MAPP I" – included the portion of the line between Possum Point and Calvert Cliffs. The second section – "MAPP II" – included the remaining portion of the line from Calvert Cliffs to Salem."

a. Will Mr. Herling confirm that multiple transmission alternatives to the Susquehanna – Lackawanna – Jefferson – Roseland 500 kV line were considered by PJM as part of the 2007 RTEP, as is clearly shown in the 2007 RTEP in Section 3.2.3?

b. Will Mr. Herling confirm that multiple transmission alternatives to the Amos – Bedington – Kempton line were considered by PJM as part of the 2007 RTEP, as is clearly shown in the 2007 RTEP in Section 3.3.3?

c. Will Mr. Herling confirm that first section of the MAPP Project and the second section of the MAPP Project are, in total, the MAPP Project? If not, please explain why not.

d. Please indicate whether the transmission alternatives listed in Section 3.4.3 of the 2007 RTEP, which is the section of the 2007 RTEP that describes the alternatives to the MAPP Project that were considered by PJM, actually are transmission alternatives to the MAPP Project? If so, please explain why.

RESPONSE:

Objection

A. Applicants object to Data Request 1-6A, as it does not make a request for discovery from Applicants and, instead, seeks to cross examine a specific witness by asking for

confirmation of the meaning of a public document that speaks for itself. Without waiving Applicants' objection, Applicants state that yes, multiple transmission alternatives to the Susquehanna-Roseland 500 kV line were considered by PJM as part of the 2007 RTEP.

- B. Applicants objects to Data Request 1-6B. as it does not make a request for discovery from Applicants and, instead, seeks to cross examine a specific witness by asking for confirmation of the meaning of a public document that speaks for itself. Without waiving Applicants' objection, Applicants state that yes, multiple transmission alternatives to the Amos-Bedington-Kempton line were considered by PJM as part of the 2007 RTEP.
- C. Yes, the first and second sections of the MAPP Project are, in total, the MAPP Project.
- D. See the response to PPRP 1-1A.

SPONSOR: Steven R. Herling

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Date of Response: 04/23/2009

Question No. 1-7

Q. Table 3.1 (p. 58) in the 2007 RTEP lists the reliability criteria violations driving the need for the Susquehanna – Lackawanna – Jefferson – Roseland 500 kV line. Tables 3.7 and 3.8 (p. 70) list the impact of the MAPP Project on load deliverability criteria violations.

a. Will Mr. Herling confirm that no reliability criteria violations shown on Tables 3.7 and 3.8 also appear on Table 3.1?

b. Is it then fair to conclude that transmission alternatives to the Susquehanna – Lackawanna – Jefferson – Roseland 500 kV line considered by PJM during the 2007 RTEP process cannot also be legitimately considered as transmission alternatives to the MAPP Project? If this is not a fair conclusion to reach, please explain.

RESPONSE:

- A. No reliability criteria violations shown on Tables 3.7 and 3.8 of the 2007 RTEP Report also appear on Table 3.1 of the same report.
- B. No. The addition of a new backbone transmission line can have impacts across a broad portion of the transmission grid. Thus, there may be instances where a new backbone transmission line being considered to resolve a set of reliability criteria violations in one region may also positively impact reliability criteria violations in another region of the grid. The Susquehanna – Roseland 500 kV line and the MAPP Project are both part of a package of transmission upgrades to resolve a wide range of criteria violations identified in the 2006 and 2007 RTEPs. They are not meant to be alternatives to each other. However, it is possible that other transmission expansion options could serve as an alternative to the Susquehanna – Roseland 500 kV line with respect to one or more criteria violations and as an alternative to the MAPP Project with respect to some other criteria violation.

SPONSOR: Steven R. Herling

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Question No. 1-8

Q. Table 3.4 in the 2007 RTEP (p. 65) lists the reliability criteria violations driving the need for the Amos – Kempton line. Tables 3.7 and 3.8 (p. 70) list the impact of the MAPP Project on load deliverability criteria violations.

a. Will Mr. Herling confirm that only three reliability criteria violations shown on Tables 3.7 and 3.8 also appear on Table 3.4, and these three reliability criteria violations are: Keystone – Airydale 500 kV, Airydale – Juniata 500 kV #1, and Airydale – Juniata 500 kV #2?

b. Regarding the Keystone – Airydale 500 kV reliability criteria violation, Table 3.4 indicates that this facility will be overloaded in 2012, and Table 3.7 indicates that this facility will be overloaded in 2020 without the MAPP Project. Please confirm that the information presented in Table 3.7 reflects the assumption that the Amos – Kempton line is already in service.

c. Is it then fair to conclude that transmission alternatives to the Amos – Kempton line considered by PJM during the 2007 RTEP process cannot also be legitimately considered as transmission alternatives to the MAPP Project? If this is not a fair conclusion to reach, please explain.

d. What transmission alternatives or combinations of transmission alternatives did PJM review during the 2007 RTEP process to resolve the seven reliability criteria violations listed in Table 3.7 that do not involve the Keystone – Airydale 500 kV line or the Airydale – Juniata 500 kV lines?

e. What transmission alternatives or combinations of transmission alternatives did PJM review during the 2007 RTEP process to resolve the eight reliability criteria violations listed in Table 3.8 for the Delmarva Peninsula?

RESPONSE:

A. Yes, 3 reliability criteria violations shown on Tables 3.7 and 3.8 of the 2007 RTEP also appear on Table 3.4 of the 2007 RTEP.

B. The information presented in Table 3.7 regarding the impact of the MAPP Project on the Keystone-Airydale 500 kV line assumes that the Amos-Kempton line is in service.

- C. No. The addition of a new backbone transmission line can have impacts across a broad portion of the transmission grid. Thus, there may be instances where a new backbone transmission line being considered to resolve a set of reliability criteria violations in one region may also positively impact reliability criteria violations in another region of the grid. The Amos – Kemptown 765 kV line and the MAPP Project are both part of a package of transmission upgrades to resolve a wide range of criteria violations identified in the 2006 and 2007 RTEPs. They are not meant to be alternatives to each other. However, it is possible that other transmission expansion options could serve as an alternative to the Amos – Kemptown 765 kV line with respect to one or more criteria violations and as an alternative to the MAPP Project with respect to some other criteria violation.
- D. PJM did not develop specific solutions to the seven reliability criteria violations selected as a part of this question. PJM approved the MAPP Project because it was the transmission solution which resolved all of the violations, across a broad geographic area, and for a wide variety of transmission problems not only on the *Delmarva Peninsula* but also around the Baltimore/Washington area and across the Eastern Interface. The regional focus of the PJM planning process is to develop transmission solutions to all problems. Individual local solutions would not have addressed the wider range of criteria violations identified. As noted in Table 3.7, PJM considered a line from Possum Point to Calvert Cliffs as an alternative and the entire MAPP line as an alternative as part of the 2007 RTEP. PJM also considered Conastone-Peach Bottom, Peach Bottom-Keeney and the combination of these two circuits as alternatives in the 2008 RTEP.
- E. See response to PPRP 1-8D.

SPONSOR: Steven R. Herling

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Question No. 1-9

Q. In Volume III of the Needs Determination, Mr. McGlynn (p. 30) testifies that "[i]n addition to the MAPP solution that was selected, consideration was also given to installing voltage support equipment to correct the low voltage and voltage collapse conditions" and "[a] new 500 kV circuit from Conastone to Peach Bottom, a new 500 kV circuit from Peach Bottom to Keeney as well as a 500 kV circuit that combined each of these alternatives from Conastone to Peach Bottom to Keeney were also considered." Mr. McGlynn also testifies (p. 31) that "[c]onsideration was given to installing new conductors so that the overloaded facilities were capable of transporting more power."

a. Would Mr. McGlynn agree that voltage support equipment and a 500 kV line from Conastone to Peach Bottom to Keeney, described on page 30 of his Direct Testimony, and the alternative of installing new conductors on overloaded facilities, described on page 31 of his Direct Testimony, are the only transmission alternatives to the MAPP Project presented in the Application and the supporting testimony and exhibits in this case? If not, please explain.

b. Please list any combination of transmission alternatives to the MAPP Project, in addition to the alternatives described in Mr. McGlynn's testimony at pages 30 and 31, that PJM personnel considered prior to recommending the MAPP Project to the PJM Board.

c. If there were any other combinations of transmission alternatives that PJM considered as an alternative to the MAPP Project, please explain why PJM witnesses Herling and McGlynn did not include a discussion of these alternatives in the Application and the supporting testimony and exhibits in this case?

RESPONSE:

- A. No. Refer to the response to PPRP Data Request 1-1A. The Application and Direct Testimony make numerous references to other alternatives to address regional reliability issues of which MAPP is a part of the overall solution, including the 30 transmission alternatives referenced in the testimony of witnesses Herling, Gausman, and Mitchell, alternatives referenced in Section 3.1.3 of Exhibit WMG-7C, and alternatives referenced in Section 3 of the 2007 RTEP.
- B. See response to PPRP Data Request 1-9A.

C. There are no additional transmission alternatives considered in detail beyond those specified in the question and response to PPRP Data Request 1-9A.

SPONSOR: Paul McGlynn

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Question No. 1-10

Q. In Volume II of the Needs Determination, Mr. Mitchell (p. 15) testifies that “[t]he number of overloads projected to occur on numerous transmission facilities and the system voltage problems identified throughout the Mid-Atlantic Region indicates an extra-high voltage (“EHV”) path is necessary.” Mr. Mitchell concludes in his testimony (pp. 15-16) that “[t]his EHV line needs to start west of the Mid-Atlantic Region in Dominion Virginia Power’s territory and traverse the entire Mid-Atlantic Region to terminate at the Salem substation in southern New Jersey.”

a. What is the basis for the conclusion that the referenced reliability violations require a solution involving construction of an extra-high voltage transmission line that needs to start in Dominion Virginia Power’s territory?

b. Are there no points west of PJM’s Eastern Transfer Interface (see McGlynn Direct, p. 24) other than in Dominion Virginia Power’s territory that would serve as an origination point for an extra-high voltage transmission line designed to address the referenced reliability violations? Please explain.

c. Are there no points east of PJM’s Eastern Transfer Interface (see McGlynn Direct, p. 24) other than the Salem substation in southern New Jersey that would serve as a termination point for an extra-high voltage transmission line designed to address the referenced reliability violations? Please explain.

d. What long term transmission solutions to the referenced reliability violations did Mr. Mitchell review as alternatives to the MAPP Project?

e. What were the origination and termination points for any transmission lines reviewed by Mr. Mitchell as alternatives to the MAPP Project?

RESPONSE:

A. The basis for the conclusion is the 2007 RTEP and the PJM analysis associated therewith, as supplemented by the Siemens study attached to witness Mitchell’s Direct Testimony.

B. As stated in response to Data Request PPRP 1-1A, the MAPP Project was selected as part of a package of upgrades required to resolve a number of criteria violations identified through the 2006 and 2007 RTEP analyses. With respect to the drivers underlying the choice of the MAPP project, there are no points west of PJM’s eastern transfer interface that would serve as a more effective origination point for the MAPP project. Having

identified the MAPP project as an option for consideration in the RTEP, the availability of an existing right-of-way and, in particular, the availability of an existing double circuit tower line with an open side made Possum Point the obvious choice for the origination point of the project.

- C. As stated in response to Data Request PPRP 1-1A, the MAPP Project was selected as part of a package of upgrades required to resolve a number of criteria violations identified through the 2006 and 2007 RTEP analyses. With respect to the drivers underlying the choice of the MAPP project, there are no points east of PJM's eastern transfer interface that would serve as a more effective termination point for the MAPP project. Having identified the MAPP project as an option for consideration in the RTEP, the only effective termination point for the project is the Salem/Hope Creek station. The only other 500 kV buses that could serve as a termination point for the project are Keeney and Red Lion. However, termination at these stations would exacerbate system limitations between those stations and the Salem/Hope Creek station.
- D. See the answer to PPRP Data Request 1-11.A.
- E. See the answer to PPRP Data Request 1-11.A.

SPONSOR: Steven R. Herling, Paul McGlynn and William C. Mitchell

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Question No. 1-11

Q. In Volume II of the Needs Determination, Mr. Mitchell testifies (p. 15) that “[a]fter reviewing the studies performed by PJM and the studies commissioned by Pepco and Delmarva and performed under my direction by Siemens, it is clear that the MAPP Project provides the best long term solution to the reliability violations and voltage collapse scenarios that are expected to begin occurring in 2013 and beyond if these facilities are not constructed.”

a. Please list each alternative transmission solution that Mr. Mitchell reviewed as an alternative to the MAPP Project, and please explain why Mr. Mitchell concludes that the MAPP Project is superior to each of these alternatives

b. Please list each study performed by PJM that Mr. Mitchell reviewed and which Mr. Mitchell used as a basis to formulate his opinion that the MAPP Project provides the best long-term solution to reliability violations and voltage collapse scenarios presented in this case. Please also explain how each study reviewed by Mr. Mitchell helped him formulate his opinion.

c. Please explain how the Siemens study helped Mr. Mitchell formulate his opinion that the MAPP Project provides the best long-term solution to reliability violations and voltage collapse scenarios presented in this case.

d. Please list all alternatives to the MAPP Project that Mr. Mitchell directed Siemens to study, and why Mr. Mitchell directed Siemens to study these alternatives.

RESPONSE:

A. Witness Mitchell reviewed the 2007 RTEP and the alternatives discussed therein to address the regional reliability criteria violations. In addition, witness Mitchell reviewed the alternatives PJM presented at the October 15, 2008 TEAC meeting. There were two alternatives to the MAPP project that PJM examined at the October 2008 meeting. Those alternatives were a new 500 line from Conastone to Peach Bottom and a new 500 kV line from Peach Bottom to Keeney. In addition, PJM examined a third alternative which is the combination of these two lines and results in a new 500 kV line from Conastone to Peach Bottom to Keeney. The analysis that PJM presented at this TEAC meeting shows that the MAPP project relieves all of the thermal overloads and voltage problem. Also shown on page 24 of the October 2008 TEAC presentation, the MAPP project relieves the voltage problems for the sensitivity of the retirement of the Indian River #3 and #4 generating units whereas the other two alternatives do not.

- B. Witness Mitchell reviewed the 2007 RTEP and the alternatives discussed therein. In addition, the studies reviewed are those outlined in the October 15, 2008 PJM TEAC presentation. These studies show that the MAPP project solves the thermal reliability problems and also addresses the voltage collapse scenarios as outlined in the October 2008 TEAC presentation and also in witness McGlynn's Direct Testimony.
- C. The Siemens study looked at the benefits of the MAPP project in the form of increased import capability into the PJM zones and subzones as outlined in witness Mitchell's testimony on page 11, Table 3-3 referenced therein, and the determination that the MAPP project would alleviate certain voltage collapse scenarios as outlined in witness Mitchell's testimony on pages 11 and 12. The combination of the PJM studies referenced in the response to part B of this question and review of the results of the Siemens study as outlined above led witness Mitchell to the conclusion that the MAPP project provides the best long-term solution to address the reliability violations and voltage collapse scenarios.
- D. As stated in the response to C above, Pepco and Delmarva retained Siemens to perform independent studies to determine the reliability benefits of the MAPP line and not to compare alternative transmission projects.

SPONSOR: William C. Mitchell

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Question No. 1-12

Q. In Volume I of the Needs Determination, Mr. Gausman testifies (p. 4) that the MAPP Project will “[p]rovide, from the perspective of system operations now and into the foreseeable future, the most robust, economic and flexible solution to known and expected reliability and operational challenges.”

a. Define “robust” as used by Mr. Gausman in this testimony.

b. In Mr. Gausman’s opinion, why is the MAPP Project the most robust transmission solution to known and expected reliability and operational challenges? Please explain.

1) What alternative transmission solutions, or combinations of transmission alternatives, did Mr. Gausman consider before arriving at this conclusion?

2) Which of these alternative transmission solutions, or combinations of alternatives, does Mr. Gausman consider as coming closest to providing the robust transmission solution, which Mr. Gausman believes the MAPP Project provides?

c. Define “economic” as used by Mr. Gausman in this testimony.

d. In Mr. Gausman’s opinion, why is the MAPP Project the most economic transmission solution to known and expected reliability and operational challenges? Please explain.

1) What alternative transmission solutions, or combinations of alternatives, did Mr. Gausman consider before arriving at this conclusion?

2) Which of these alternative transmission solutions, or combinations of alternatives, does Mr. Gausman consider as coming closest to providing the most economic transmission solution, which Mr. Gausman believes the MAPP Project provides?

e. Define “flexible” as used by Mr. Gausman in this testimony.

f. In Mr. Gausman’s opinion, why is the MAPP Project the most flexible transmission solution to known and expected reliability and operational challenges? Please explain.

1) What alternative transmission solutions, or combinations of alternatives, did Mr. Gausman consider before arriving at this conclusion?

2) Which of these alternative transmission solutions, or combinations of alternatives, does Mr. Gausman consider as coming closest to providing the most flexible transmission solution, which Mr. Gausman believes the MAPP Project provides?

RESPONSE:

- A. Robust means that with the addition of MAPP the entire eastern transmission system will be able to deliver increased energy and will be able to react to unexpected outages or events better than it can today. The addition of a HVDC system will provide PJM the ability to control the flow of energy across many different lines unlike any other facility within PJM. Robust as used in this sentence also includes the statement that the future transmission system will not be operating at the margin of its capability and will not be as sensitive to individual line or generating unit outages.
- B. The MAPP Project is the most robust transmission solution for the reasons stated in response to PPRP Data Request 1-12.A.
- (1) Witness Gausman reviewed the data and presentations presented by PJM and the individual analysis as presented by witness Mitchell.
 - (2) Witness Gausman does not consider any of the alternative transmission solutions as providing close to the same robust and flexible transmission system provided by MAPP. The alternate solutions solve individual problems but do not solve the same number of problems as MAPP. In addition, none of the solutions provide the same level of operating control as the HVDC system utilized by the MAPP project.
- C. Economic refers to the cost of congestion that results when the transmission system is limited during periods of high demand and PJM can not operate the lowest cost generators. The resulting impact on customers is higher cost of energy due to operating more expensive generating units to meet the energy demands.
- D. See the response to PPRP Data Request 1-12.C.
- (1) See the response to PPRP Data Request 1-12B(1).
 - (2) An economic comparison of different transmission projects was not performed, as the alternatives did not address the same number of reliability violations.
- E. Flexible means that the MAPP line will allow PJM to manage the transmission system under both normal and emergency conditions so that it will be able to adjust to changing conditions without the loss of load to maintain the continuity of electricity supply and system reliability. As a secondary benefit, with the increasing wind generation coming into PJM, the transmission system must also be able to respond to significant swings in generation patterns over short periods of time. With the HVDC system PJM will be able to control the flow of energy not only across the MAPP line but also across other west to east transmission lines into the eastern mid Atlantic region.
- F. See the responses to PPRP Data Requests 1-12.A and 1-12.E.
- (1) See the response to PPRP Request 1-12B.
 - (2) See the response to PPRP Request 1-12B.

SPONSOR: William M. Gausman

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Question No. 1-13

Q. In Volume I of the Needs Determination, Mr. Gausman testifies (p. 25) that "the MAPP Project is the most efficient, optimal solution to rectify expected reliability violations."

a. Define "efficient" as used by Mr. Gausman in this testimony.

b. Please explain why the MAPP Project is the most efficient solution to rectify the expected reliability violations to which Mr. Gausman refers.

1) What alternative transmission solutions, or combinations of alternatives, did Mr. Gausman consider before arriving at this conclusion?

2) Which of these alternative transmission solutions, or combinations of alternatives, does Mr. Gausman consider as coming closest to the MAPP Project in terms of providing the most efficient transmission solution?

c. Define "optimal" as used by Mr. Gausman in this testimony.

d. Please explain why the MAPP Project is the optimal solution to rectify the expected reliability violations to which Mr. Gausman refers.

1) What alternative transmission solutions, or combinations of alternatives, did Mr. Gausman consider before arriving at this conclusion?

2) Which of these alternative transmission solutions, or combinations of alternatives, does Mr. Gausman consider as coming closest to the MAPP Project in terms of providing the optimal transmission solution?

RESPONSE:

A. Efficient means productive without waste.

B. The MAPP line will resolve identified reliability violations and increase the transfer capabilities of the transmission system within the Mid-Atlantic region. See page 25, lines 8 through 15 of witness Gausman's testimony. The increased transfer capability of the system within the Mid-Atlantic region is shown in witness Mitchell's testimony on page 11, Table 3-3.

(1) Witness Gausman reviewed the alternative transmission options described in the data and presentations presented by PJM and the individual analysis as presented by witness Mitchell.

(2) The need for the MAPP project is based significantly on the reliability violations that it resolves. The line provides significant benefits in addition to increased reliability,

including the ability to control energy flows from the west to eastern PJM. Witness Gausman has not identified any other project that provides the same results as the addition of MAPP or comes close to resolving the reliability violations addressed by MAPP.

- C. Optimal, as used in witness Gausman's Direct Testimony, means most desirable or satisfactory within the scope of the major decisional parameters.
- D. The major decisional parameters are resolving reliability violations, increasing transfer capability, and making maximum use of existing rights-of-way and transmission infrastructure. The MAPP line will resolve identified reliability violations and increase the transfer capabilities of the transmission system within the Mid-Atlantic region.
 - (1) Witness Gausman reviewed the alternative transmission options described in the data and presentations presented by PJM and the individual analysis as presented by witness Mitchell.
 - (2) The need for the MAPP project is based significantly on the reliability violations that it resolves. The line provides significant benefits in addition to increased reliability, including the ability to control energy flows from the west to eastern PJM. Witness Gausman has not identified any other project that provides the same results as the addition of MAPP or comes close to resolving the reliability violations addressed by MAPP and uses existing transmission infrastructure for a major portion of the project.

SPONSOR: William M. Gausman

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Question No. 1-14

Q. Mr. Gausman testifies (Volume 1, p. 4) that the MAPP Project will “[r]eflect sensitivity to the environment by performing detailed studies and evaluation prior to construction and use of state of the art construction techniques during construction.” Does Mr. Gausman believe that PHI’s proposed state of the art construction techniques are a factor that should be considered when evaluating the MAPP Project versus other transmission alternatives that address the reliability violations at issue in this case? Please explain.

RESPONSE:

Applicants object to Data Request 1-14 to the extent it calls for a legal conclusion as to what constitute factors to be considered by the Hearing Examiner and Commission in evaluating a CPCN. Without waiving that objection, Applicants state that the sentence quoted in the request from Mr. Gausman’s testimony summarizes efforts that reflect the MAPP Project’s sensitivity to the environment in general. The Application identifies construction techniques to minimize and avoid impacts to sensitive environmental resources. Various state-of-the-art construction techniques during construction are fully detailed in the Applications and attachments. The techniques used during construction should be evaluated on any transmission project. In addition, state-of-the-art technology to be used in the MAPP Project includes use of HVDC lines for a portion of the project that allow the flow of electricity in both directions and more flexibility in addressing reliability needs, which are benefits not provided by other alternatives proposed to PJM that attempted to address the reliability violations.

SPONSOR: William M. Gausman

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Question No. 1-15

Q. Mr. Gausman testifies (Volume 1, p. 25) that “[a]ny combination of other transmission alternatives to address the pressing violations would be less reliable, less comprehensive, and more expensive to Maryland customers.”

a. Define “less reliable” as used by Mr. Gausman in this testimony.

b. Is it Mr. Gausman’s testimony that there exists no possible combination of transmission alternatives to address the pressing violations that would be more reliable than the MAPP Project? Please explain.

c. Define “less comprehensive” as used by Mr. Gausman in this testimony.

d. Is it Mr. Gausman’s testimony that there exists no possible combination of transmission alternatives to address the pressing violations that would be more comprehensive than the MAPP Project? Please explain.

e. Is it Mr. Gausman’s testimony that there exists no possible combination of transmission alternatives to address the pressing violations that would be less expensive to Maryland customers than the MAPP Project? Please explain.

f. Please list each “combination of other transmission alternatives” that Mr. Gausman reviewed prior to concluding that the MAPP Project would be more reliable, more comprehensive, and less expensive to Maryland customers in addressing pressing violations than any combination of other transmission alternatives. For each combination of other transmission alternatives, please list all information that Mr. Gausman relied upon to formulate the position he has stated here in his testimony.

RESPONSE:

- A. In the electric planning context less reliable means that it does not provide the same level of protection against the possible interruption of electricity service.
- B. There is no other single transmission project that will resolve the same number of reliability violations. In order to resolve these violations in the short run, multiple transmission upgrades or additions would have to be performed and, if all violations were resolved, then the transmission system should meet, in the short run, the same level of reliability as if the single MAPP line were constructed.

- C. It generally means less inclusive, or not covering as broadly.
- D. Other transmission upgrades will solve individual problems within the transmission system but individual transmission projects are not as comprehensive of a solution as the MAPP project. MAPP solves the identified reliability violations, provides economic benefits and provides operational and control benefits to PJM. Addition of numerous individual transmission upgrades is not as comprehensive of a solution as MAPP as stated in the response to PPRP Data Request 1-15B.
- E. Yes. Performing numerous local upgrades and additions would not be less expensive to Maryland customers than MAPP and the impact of cost allocations to Maryland customers could be larger since projects under 500KV will have a different cost allocation process.
- F. See response to PPRP Data Request 1-13.B. Witness Gausman relied upon the PJM identified violations and the large number of individual transmission upgrades and additions that would have to be performed to solve these violations if MAPP was not constructed.

SPONSOR: William M. Gausman

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Question No. 1-16

Q. Mr. Gausman testifies (Volume 1, p. 35) that “[t]he MAPP Project, as well as the other large-scale transmission projects that I have referenced above, will ensure that wind power is able to reach loads in the Mid-Atlantic region, and that LSEs in the Mid-Atlantic are able to satisfy their RPS obligations.

a. Please list the other large-scale transmission projects to which Mr. Gausman refers.

b. Is it Mr. Gausman’s testimony that there exists no possible combination of transmission alternatives to the MAPP Project that are at least equally as capable as the MAPP Project in ensuring that wind power is able to reach loads in the Mid-Atlantic region? Please explain.

RESPONSE:

- A. The other projects are PATH and TrAIL.
- B. The ability of the transmission system to deliver wind power to reach the load in the Mid-Atlantic region is a function of the total transmission system. MAPP will resolve various reliability violations and, due to its location within the PJM system, will allow wind energy to be delivered across the PJM eastern interface into the Mid-Atlantic region. The RTEP analysis is intended to evaluate solutions to projected reliability violations. A secondary but important benefit of the MAPP project is that it will facilitate the delivery of wind resources.

SPONSOR: William M. Gausman

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Question No. 1-17

Q. Mr. Gausman testifies (Volume 1, p. 38) that “[l]arge base load generation is likely to be located further from major eastern load centers, and all states in the region will continue to increase their reliance on renewable energy. The transmission system must tie these needs together and ensure the overall reliability of the electric system. As PJM has found, the MAPP Project must be a significant and necessary part of that overall trend.” Is it Mr. Gausman’s testimony that the MAPP Project must be a significant and necessary part of that overall trend or, rather, is it Mr. Gausman’s testimony that the MAPP Project is one of various alternative solutions that can tie these needs together and ensure the overall reliability of the electric system? Please explain.

RESPONSE:

The MAPP project has been determined to be the best solution to resolve the reliability violations identified by PJM. In addition, due to the location of the MAPP Project within an area identified with significant congestion, MAPP increases the capacity to transfer energy across the PJM eastern interface and is located within a region with high RPS state requirements, as well as a number of older generating units potentially facing retirement with little advance notice. As a result, MAPP must be part of the solution.

SPONSOR: William M. Gausman

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Question No. 1-18

Q. Mr. Gausman testifies (Volume 1, p. 44) that "if this Commission rejects this application for the MAPP Project, electric reliability throughout PJM's Mid-Atlantic region and especially within Maryland will be unacceptably compromised."

a. Is it Mr. Gausman's contention that there are no alternatives to address electric reliability throughout PJM's Mid-Atlantic region and especially within Maryland other than the MAPP Project? Please explain.

b. Does Mr. Gausman believe it would be prudent to immediately initiate the review of the second and possibly third best alternatives to the MAPP Project to potentially avoid compromising the reliability of electric service in PJM's Mid-Atlantic region if it is determined that the MAPP Project should be indefinitely delayed? Please explain.

RESPONSE:

- A. MAPP is the best solution to ensure the continued reliability of the electric system within the region and Maryland. If MAPP is not timely built, upgrades would have to be performed on lower voltage lines to remove any reliability violations that occur in the immediate future. These upgrades would be shorter term solutions and additional upgrades would be required until eventually new bulk transmission facilities are constructed.
- B. No. As discussed in the response to PPRP Data Request 1-18a above, MAPP is the best solution to ensure continued reliability of the electric system within the region and Maryland, and no second or third best alternatives were identified. Additional transmission projects, including the upgrades referenced in response to 1-18a., should not be started until the need for MAPP has been evaluated. The construction of any new transmission is a long process and our efforts should be focused on the project that will provide the longest term solution.

SPONSOR: William M. Gausman

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Question No. 1-19

Q. In Volume III of the Needs Determination, Mr. McGlynn testifies (p. 31) that “[t]he line from Conastone to Peach Bottom and the line from Peach Bottom to Keeney were each dismissed as alternatives because they would not resolve the low voltage and voltage collapse criteria violations and were not effective at reducing the thermal violations that were expected to occur throughout the 15-year planning horizon. The combined Conastone to Peach Bottom to Keeney line was dismissed as an alternative because it was not as effective at reducing the flow on the overloaded facilities throughout the 15-year planning horizon.”

a. In this testimony, Mr. McGlynn makes no mention of whether or not a new 500 kV circuit from Conastone to Peach Bottom to Keeney would resolve the low voltage and voltage collapse criteria violations listed in Mr. McGlynn’s Exhibit PFM-1. Please confirm that a new 500 kV circuit from Conastone to Peach Bottom to Keeney would resolve the low voltage and voltage collapse criteria violations identified in that exhibit.

b. What is the length of the existing 500 kV transmission line between Conastone and Peach Bottom?

c. What is the length of the existing 500 kV transmission line between Peach Bottom and Keeney?

d. Is it true that the alternative of a new 500 kV transmission line from Conastone to Peach Bottom to Keeney would need to be on separate structures from the existing 500 kV circuit for PJM to consider this alternative as a resolution of the low voltage and voltage collapse criteria violations identified in Exhibit PFM-1? Please explain.

e. What is PJM’s estimate of the current cost to construct this new 500 kV circuit? Please provide any workpapers used to develop this estimate.

f. What is PJM’s estimate of the time it would take to construct this new 500 kV circuit?

g. In PJM’s opinion, which transmission owners would be involved in constructing this line? h. Did any of these transmission owners bring a proposal for this new 500 kV circuit to PJM? If so, please provide the information that was presented to PJM when this proposal was made.

RESPONSE:

- A. A new 500 kV circuit from Conastone to Peach Bottom to Keeney is a less effective long term solution than the MAPP project particularly for voltage support and for relieving thermal overloads. Conastone to Peach Bottom to Keeney would not completely resolve all of the long term reliability problems identified in the analysis.

This 500 kV line would resolve the immediate low voltage and voltage collapse violations shown in Exhibit PFM-1, however sensitivity studies that analyzed the impact of the retirement of the Indian River #3 and #4 generating units showed that there was widespread voltage collapse for numerous contingencies that the Conastone to Peach Bottom to Keeney line did not resolve. Also the Conastone to Peach Bottom to Keeney 500 kV line was less effective than the MAPP project at relieving thermal violations throughout the planning horizon. In addition to the limited effectiveness of the Conastone to Peach Bottom to Keeney line at resolving thermal and voltage violations, it has been estimated that the line would take eight years to build. The Conastone to Peach Bottom to Keeney 500 kV line would not be able to be placed in service soon enough to address all of the reliability criteria violations shown in Exhibit PFM-1.

- B. The Conastone-Peach Bottom line is approximately 16.5 miles long.
- C. The Peach Bottom-Keeney line is approximately 11.3 miles long.
- A. The contingencies driving the voltage violations include the loss of Conastone – Peach Bottom or Rock Springs – Keeney. While having both circuits on the same structure would technically resolve the n-1 NERC reliability criteria violation, it would not resolve the NERC reliability criteria violations which would occur for the contingency loss of the tower line structure.
- B. The estimated cost of a new Conastone-Peach Bottom-Keeney 500 kV line as provided to PJM by PHI, Exelon and BGE is \$295 million.
- C. Based on the estimate provided to PJM by PHI, Exelon and BGE, the line would take eight years to build.
- D. PHI, Exelon and BGE likely would be involved in the construction of this line.
- E. Stakeholders suggested that a parallel line from PB to Keeney be considered. This was later expanded to include a line from Conastone to PB to address the voltage violations from that contingency as discussed in the response to PPRP Data Request 1-19A.

SPONSOR: Steven R. Herling and Paul McGlynn

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-20

Q. Please provide hardcopies and electronic copies of any studies prepared by or for PJM or any of the PHI companies since 2000 that address the need to expand the transmission capability into or on the Delmarva Peninsula.

RESPONSE:

PJM studies were conducted as a part of each year's RTEP analysis and the results were reported in the annual RTEP Reports. All these reports are quite voluminous and thus, only links to electronic copies of this material have been provided.

Reports for 2005-2008 can be accessed at:

<http://www.pjm.com/documents/reports/rtep-report.aspx> (2008)

<http://www.pjm.com/documents/reports/rtep-report/2007-rtep.aspx>

<http://www.pjm.com/documents/reports/rtep-report/2006-rtep.aspx>

<http://www.pjm.com/documents/reports/rtep-report/2005-rtep.aspx>

Prior to 2005, the "RTEP Report" consisted of the combination of a Baseline Report and any Addendums. All Baseline Reports plus any Addendums for the period 2003-2008 can be accessed at:

<http://www.pjm.com/planning/rtep-development/baseline-reports.aspx>

Reports for periods prior to 2003 can be accessed at:

2002 RTEP Baseline Report

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/2002-rtep-baseline-report.ashx>

2002 Addendum Reports (7)

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/20030505-addendum-rtep.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/second-addendum-to-2002-rtep-baseline-report.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/2002-3rd-addendum-baselin.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/fourth-addendum-2002-rtep-baseline.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/fifth-addendum-2002-rtep-baseline.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/sixth-addendum-2002-rtep-baseline.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/seventh-addendum-2002-rtep-baseline.ashx>

2001 RTEP Baseline Report

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/20021119-rtep-baseline-2001results.ashx>

2000 RTEP Baseline Report

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/2000-baseline.ashx>

2000 Addendum Reports (2)

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/20011219-addendum-rtep.ashx>

<http://www.pjm.com/~media/planning/rtep-dev/baseline-reports/2000-baseline-report-2nd-addendum.ashx>

Attached are the impact studies conducted for generating interconnections proposed for the Delmarva Peninsula.

Pepco and Delmarva are conducting a search for additional presentations, and to the extent that any additional material is found, it will be made available.

SPONSOR: William C. Mitchell and Paul McGlynn

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-21

Q. Please provide a map or multiple maps that show the transmission facilities on the Delmarva Peninsula that are at or in excess of 69 kV, including the location and names of any switching stations or substations.

RESPONSE:

PPRP Data Request 1-21 requests highly confidential information designated as CEII (Critical Energy Infrastructure Information) documents. Said information will be made available for inspection at times mutually agreeable to the PPRP and Applicants once an appropriate Confidentiality Agreement is entered into.

SPONSOR: William C. Mitchell

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-22

Q. The Application (Volume 1, p. 2) states that “[i]n order to schedule outages for construction of the circuit, a decision on this initial phase is requested by December 2009.”

a. What circuit is being referenced?

b. Provide the outage schedule for transmission facilities required for the circuit. Include the proposed construction start and finish dates for each phase. Describe the construction to be performed during each phase.

c. Describe how the outage schedule for “construction of the circuit” will affect the overall schedule for the MAPP Project.

d. Provide the construction schedule for each phase of the MAPP Project concluding with the termination of the 500 kV line at the Salem substation. Please include the proposed cable crossing under the Chesapeake Bay, the DC line to Vienna, the DC line to Indian River, and the 500 kV line from Indian River to the Salem substation.

RESPONSE:

A. The circuit being referenced in Volume 1, page 2 is the entire second 500kV circuit from Possum Point to Calvert Cliffs.

B. The outage schedule for the section of the project from Possum Point to Calvert Cliffs is:

- a. Burches Hill to Chalk Point is scheduled for an outage from 10/1/09 through 3/31/10. Clearing may start during September, 2009. Pre-clearing contracting and material ordering has already begun. Construction work also includes clearing, hanging new insulators and stringing new conductor, removing the existing static wire and installing new OPGW static, repainting the existing tubular steel poles, installing climbing ladders and ladder clips, and placing temporary matting.
- b. Possum Point to Burches Hill, including the Potomac River crossing, is scheduled for an outage from 3/22/10 through 5/31/10 and again from 9/15/10 through 12/31/10. Pre-clearing contracting and material ordering will take place well before the construction work. Additional work to be performed includes clearing, hanging new insulators and stringing new conductor, removing the existing static wire and installing new OPGW static, repainting the existing tubular steel poles, installing

- climbing ladders and ladders clips, placing temporary matting, and installing the new Potomac River foundations, crossing structures and conductor and static wires.
- c. Chalk Point to Calvert Cliffs is scheduled for an outage from 1/1/11 through 5/31/11 and again from 9/15/11 through 12/31/11. Pre-clearing contracting and material ordering will take place well before the construction work. Additional construction work includes removing the existing structures and conductors and installing new double circuit tubular steel pole structures, conductors and static wires, and placing temporary matting. A parallel crossing will be added at the Patuxent River.
 - C. The MAPP project construction timeline has been scheduled to be constructed in a continuous construction process established from west to east. This was done in an effort to balance internal and external design and construction resources and allow for timely ordering, manufacture and delivery of material. All of the project can not be designed and constructed at the same time, so the work to Calvert Cliffs must be completed by the end of 2011 to allow the overall completion to Indian River by June, 2013.
 - D. The proposed cable crossing of the Chesapeake Bay is scheduled to begin in 2012 and be completed during 2013. Exact construction dates will be determined by the successful contractor and other factors such as timing restrictions. The portion of the line from the eastern shore of the Chesapeake Bay across Dorchester County, Maryland to the Vienna Substation is scheduled to begin in 2011 and be completed by June 2013. Construction of the section from the Vienna Substation to the Indian River Substation is expected to begin in 2011 with completion by June 2013. The final section from the Indian River Substation to the Salem Substation in New Jersey, while an approved project, is currently being re-examined from an in-service date perspective by PJM. This section will be constructed and placed in-service after June 2013.

SPONSOR: William M. Gausman

**POTOMAC ELECTRIC POWER COMPANY
 AND DELMARVA POWER & LIGHT COMPANY
 MARYLAND CASE NO. 9179
 Response to DNR Data Request Set No. 1
 Date of Response: 04/23/2009**

Question No. 1-23

Q. The Application (Volume 1, p. 4) states that the MAPP Project would “lower the cost of delivered power to Maryland consumers.”

a. What is the projected estimated reduction in the monthly retail electric bill for a residential customer that consumes 1,000 kWh per month resulting from the construction of the MAPP Project?

b. Please provide all workpapers and analysis relied upon to develop this estimate.

RESPONSE:

A. The savings in cost of delivered energy to a Maryland consumer consuming 1,000 KWH per month will vary depending on a number of future factors. These factors include how generation is dispatched across PJM, which transmission facilities are constrained based on that dispatch and where a particular consumer in Maryland is located relative to that transmission constraint. There are a number of assumptions that go into this type of analysis. The type of assumptions used are outlined in the testimony of Kenneth K. Collison, Exhibit KKC-2 Chapter 3. A very high level analysis of the 2013 system shows that Maryland customers using 1,000 KWH of energy monthly could save between 40 cents and 70 cents depending on where they are located relative to transmission constraints

B. Reference the table below. Also, reference the attached spreadsheet.

Case	Annual Average Cost of Service in 2013 (cents/kWh)					
	Scenario A (ICF)			Scenario B (PJM)		
	Delmarva	Pepco	PHI-Maryland	Delmarva	Pepco	PHI-Maryland
Reference Case	8.13	8.15	8.149	7.07	7.11	7.103
Impact of MAPP Project <i>(Change from Reference Case)</i>	-0.07	-0.04	-0.046	-0.04	-0.03	-0.032

SPONSOR: Kenneth K. Collison

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Question No. 1-24

Q. Within the Chalk Point to Calvert Cliffs Modification Application, the testimony of Mr. Jubic (p. 12) states that structures over 200 feet will comply with FAA regulations. However, the associated Environmental Review Document (ERD) states that the maximum height of structures for the project will be 195 feet. Please confirm that no structure will exceed 200 feet and that FAA warning lights will not be installed on any structure.

RESPONSE:

Plans as proposed in the Pepco/BGE CPCN application for Chalk Point to Calvert Cliffs, subject to Commission approval, do not contemplate any transmission structures that are 200 feet or more in height and, thus, no installation of FAA warning lights is currently planned for transmission structures in this segment.

SPONSOR: Robert J. Jubic, Jr.

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Question No. 1-25

Q. Please provide GIS (.shp) files of the following:

- a. Existing pole placements of the Potomac River crossing and Chalk Point to Calvert Cliffs segments of the project. Please include individual pole heights.
- b. Proposed pole placements of the Potomac River crossing and Chalk Point to Calvert Cliffs segments of the project. Please include individual pole heights.

RESPONSE:

- A. Attached are .shp files of the existing pole placements and pole heights, as requested.
- B. Attached are .shp files of the proposed pole placements and pole heights, as requested, which are subject to final Commission or engineering modification.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-26

Q. For the Potomac and Patuxent River crossings, the PHI applications indicate that there are expected to be no additional visual impacts from adding new, parallel sets of structures. Specifically, the Chalk Point to Calvert Cliffs Modification Application (p. 15) and the Potomac River Modification Application (p. 14), placing the line beneath the river is said to be ruled out "as the existing structures in the river already present any aesthetic impact to the river views." Please indicate, for each river, how PHI determined and quantified the visual impacts that would be associated with:

- a. The current single circuit towers;
- b. The current single circuit towers with a parallel set of identical towers next to them;
- c. Rebuilding the line using a single set of double circuit towers; and
- d. Placing both circuits under the river and removing the current single circuit towers.

RESPONSE:

Nowhere has Pepco stated in its CPCN applications for the Potomac River Crossing and the Chalk Point to Calvert Cliff work that an additional set of single circuit transmission structures across the Potomac River and across the Patuxent River results in no additional visual impacts.

- A and B. The cultural resource consulting firm, R Christopher Goodwin & Associates, Inc., conducted a preliminary viewshed analyses for both the Potomac and Patuxent River crossings. Those analyses illustrate the viewshed for both the current single circuit towers (1-26.a) and the proposed parallel line of towers (1-26.b). The viewsheds for the two river crossings were generated using a computer modeling program that incorporated topographical data and available vegetation data that was field verified through a windshield survey. This report is entitled, "Preliminary Viewshed Analysis for the Proposed Mid Atlantic Power Pathway in Charles, Prince George's and Calvert Counties, Maryland" and was included as an Appendix to the Environmental Resource Documents.
- C. Section 3.0 of the relevant Environmental Resource Documents (and supporting reports) examine using one double-circuit crossing instead of an additional single circuit crossing for both the Potomac River and the Patuxent River. Based on engineering, reliability, environmental, and cost considerations, a double-circuit

crossing was not a feasible alternative. A formal viewshed analysis on rebuilding the line using a single set of much taller double circuit towers was not conducted.

- D. Section 3.0 of the relevant Environmental Resource Documents (and supporting reports) examine placing a new circuit under water for both the Potomac River and the Patuxent River crossings. Based on engineering, reliability, environmental, and cost considerations, underwater placement was not a feasible alternative. A formal viewshed analysis on placing both circuits under the rivers and removing the existing single circuit towers was not conducted.

**SPONSORS: James M. Teitt
Robert J. Jubic, Jr.**

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
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Question No. 1-27

Q. Page 2-1 of the Potomac River Crossing ERD states that the piling depths for the transmission structures will be determined following the completion of geotechnical investigations. Please provide an estimate of when these investigations will be conducted and when results are expected. Also, please describe the material through which drilling will take place in the Potomac River in the area where the towers will be placed and please provide a general estimate of the range of depths expected.

RESPONSE:

The soil borings have been taken in the Potomac River at the proposed structure locations and the test lab has completed the testing. Pepco's engineering consultant has the results of the soil borings in its possession and is beginning the foundation design for the structures in the Potomac River. The foundation design, including pile depth and further information on sub-soil type, should be available by June 30, 2009. These piles will be driven piles, not drilled piers. As a result, the disturbance to the river bottom will be minimized.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179

Response to DNR Data Request Set No. 1

Date of Response: 04/23/2009

Question No. 1-28

Q. Please describe the material through which drilling will take place in the Patuxent River in the area where the towers will be placed. How far into this substrate will the tower pilings be driven?

RESPONSE:

The soil borings have been taken in the Patuxent River at the proposed structure locations and the test lab has completed the testing. Pepco's engineering consultant has the results of the soil borings in its possession and is beginning the foundation design for the structures in the Patuxent River. The foundation design, including pile depth and further information on sub-soil type, should be available by June 30, 2009. These piles will be driven piles, not drilled piers. As a result, the disturbance to the river bottom will be minimized.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Question No. 1-29

Q. Please provide additional details on temporary work spaces described on page 2-2 of the Potomac River Crossing ERD, such as estimated sizes and types of equipment that will be located in the spaces. Does PHI expect to conduct any additional tree clearing for temporary work spaces?

RESPONSE:

No additional tree clearing is contemplated for temporary work spaces for the Potomac River Crossing. Furthermore, there will not be any staging areas created solely for the Potomac River Crossing; rather, a staging area will be created for the Possum Point to Burches Hill project on the western end of that project in close proximity to the Potomac River. This 3-5 acre area will be located in uplands and will not require any tree clearing. This staging area will contain equipment such as conductor reels, hardware, insulators, structures (as necessary), matting, construction vehicles, and other miscellaneous hardware.

There will be two new structures installed in the existing right-of-way on the eastern side of the Potomac River. While there will be permanent clearing required for these structures that is detailed in this ERD, no additional clearing is required for temporary work spaces around these structures. Each new structure will have a temporary work space around it of approximately 100 feet x 100 feet containing normal construction equipment such as hole augers, concrete trucks, bucket trucks and cranes.

In addition, there will be wire stringing sites located in this area (depicted on Map 8 of 8 in the Environmental Features Maps for the Potomac River Crossing submitted with this filing) that will contain wire-pulling equipment such as conductor trailers, tensioners, and pullers.

Each new structure location in the Potomac River will have a temporary work space at its location. Within this work space will be at least two barges, possibly more. The exact number will be determined once the construction bid is awarded and the contractor coordinates its work plan with the U. S. Coast Guard and Army Corps of Engineers as required to allow the safe passage of river traffic. Located on the barges will be pile driving equipment, construction cranes, and construction material (such as concrete forms, concrete pumps, re-bar and the new structures).

**SPONSORS: William M. Gausman
Robert J. Jubic, Jr.**

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
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Question No. 1-30

Q. Section 2.1.1.1 (Transmission Line) of the Potomac River Crossing ERD states that the new structures in the Potomac River will be installed on six pilings; however, Section 4.2.2.2 (Sediments) and 4.3.2.2 (Potential Potomac River Crossing Impacts and Mitigation) state that each structure will consist of four piles. In addition Section 2.2.1 (Transmission Line) and Section 4.2.2.2 state that the six new structures proposed in the River will permanently require approximately 0.002 acres of river bottom; however, Section 3.2.1 (Option 1) and 4.6.2 (Potential Impacts and Mitigation) indicate that permanent impacts would be "less than 0.01 acres" and Section 4.3.2.2 states that the towers would permanently encumber "less than 0.003 acres" of river bottom.

- a. Please clarify the number of pilings that will be supporting each new structure in the Potomac River; and
- b. Please clarify the total number of acres of river bottom that will be permanently impacted by all six new structures in the River.

RESPONSE:

- A. Based on the preliminary engineering design, the Potomac River Crossing involves the installation of six new transmission towers, each supported by six pilings, each approximately two feet in diameter.
- B. Based on the preliminary engineering design for the Potomac River Crossing, the total bottom impact associated with installation of new structures in the Potomac River would be 0.0026 ac (3.14 sf per piling x 6 pilings per structure x 6 structures). None of the descriptions cited in the question above is inconsistent with this stated impact.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Question No. 1-31

Q. Is approval needed from the Virginia State Corporation Commission to construct the segment of the circuit that will connect to the Possum Point substation? Has an application for such approval, if required, been submitted?

RESPONSE:

Applicants object to PPRP data request 1-31 to the extent it calls for a legal conclusion as to what approval is necessary from the Virginia State Corporation Commission. Applicants also object on the grounds that the role of the Virginia State Corporation Commission is not relevant to this proceeding and requires an answer from an entity which is not a party to this proceeding. Without waiving those objections, Applicants state that the segment of the line from the western shore of the Potomac River to the Possum Point substation is in Dominion Virginia Power's service territory and it is the Applicants' understanding that in order to construct that segment of the line, Dominion Virginia Power would be required to receive a certificate of public convenience and necessity from the Virginia State Corporation Commission. It is the Applicants' understanding that an application for the same has not yet been filed.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Date of Response: 04/23/2009

Question No. 1-32

Q. Please detail the difference in impacts between the proposal to construct an additional single circuit line from the Chalk Point substation to the east side of the Patuxent River and constructing this section of the line as a double circuit line. Explain the reasons that led to the choice of twin single circuits for this section instead of continuing the double circuit configuration that is being used for all other sections of the line.

RESPONSE:

From an environmental standpoint the impacts of constructing the additional single circuit are no more, and could actually be less, than removing the existing single circuit and replacing with double circuit construction. From a cost standpoint, constructing the additional single circuit is less than removing the existing single circuit and reconstructing as a double circuit line.

For the subject section of line between Chalk Point Substation and the east side of the Patuxent River, there will be approximately 7.9 acres of clearing required for the additional single circuit construction. This same 7.9 acres would also need to be cleared if the existing single circuit pole line was removed and replaced with double circuit construction. The existing single circuit poles are set approximately 30 feet from the edge of the 200-foot right-of-way with the conductors facing towards the center of the right-of-way in a vertical construction configuration. The new single pole will be placed approximately 90 feet from the existing pole with its conductors facing in the same direction or towards the opposite edge of the right-of-way. The additional clearing is necessary to maintain proper clearances between the trees and new conductors and also between the existing conductors and new conductors. If the line was rebuilt as a double circuit pole line, PHI would maintain the same relative distance between the edges of the right-of-way and the conductors, and the same 200-foot wide right-of-way would need to be cleared. The cost of constructing the additional single pole structures is less than constructing double circuit structures as there will be no need to remove the existing structures and there will only be one new smaller foundation and one new smaller pole at each location.

As far as the Patuxent River, the reasons for constructing a second, adjacent single circuit crossing are detailed in Exhibit WMG-4B attached to the Needs Determination Volume 1 filing. That exhibit is an engineering report authored by Black and Veatch titled "Patuxent River Crossing Study." Related discussion is also included in Section 3.0 the Environmental Resource Document for the Chalk Point to Calvert Cliffs segment. These materials describe

in detail the reasons for selecting a parallel single circuit river crossing over the alternatives investigated.

SPONSORS: William M. Gausman
James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Date of Response: 04/23/2009

Question No. 1-33

Q. The Potomac River and Chalk Point to Calvert Cliffs CPCN Modification Applications discuss an aggressive schedule based on the potential for delays caused by material and labor shortages. According to recent reports, power consumption, construction activity, and labor markets are in the most significant recession in decades. Will these factors allow PHI more flexibility in the construction schedule? Will they reduce the anticipated cost?

RESPONSE:

Pepco has not identified any specific reductions in anticipated costs, and all material and labor will continue to be competitively bid.

As far as allowing more flexibility in the construction schedule goes, there are many factors that affect the construction schedule. Outages for the entire project from Possum Point to Calvert Cliffs have been submitted to PJM, a delay in any phase will impact the next phase of construction. In addition to the outage schedules, timing restrictions (such as those related to FIDS, eagles, or spawning fish) will also be a factor in limiting any additional schedule flexibility.

Availability of material and labor are additional factors that impact construction scheduling. Pepco does not anticipate that any recent material or labor market conditions will have an impact on construction flexibility, based on its current experience on construction projects. Material for the second circuit from Burches Hill to Chalk Point is already out to bid in order to have the conductor and hardware on site by the October 2009 scheduled outage for that work. Likewise, the construction contract will need to go out to bid in June 2009 to meet the construction start date of October, 2009. Because the outage for work on the Possum Point to Burches Hill segment is scheduled to begin on April 1, 2010, Pepco expects to line up labor and materials in advance of that time for that work.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
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Question No. 1-34

- Q. PHI is aware that the Patuxent River is a State of Maryland scenic river.
- c. Has PHI considered replacing the existing and planned lattice structure towers with more aesthetically appealing towers that would be more suitable for a scenic river?
- d. Has PHI communicated with the Patuxent River Commission about its plans? Please document any communications or plans to communicate with the Commission.
- e. Has PHI evaluated its plans in the context of the Patuxent River Policy Plan and current updates thereof? If so, please indicate how the proposed transmission line modification will support the goals and recommendations for the Patuxent River and its watershed, including protecting environmentally sensitive areas, controlling stormwater runoff, protecting forest cover, and restoring and improving the habitat of aquatic and terrestrial living resources.

RESPONSE:

- C. Several alternatives for crossing the river were considered and this analysis is a component of the application (see Responses to Questions 1-26 and 1-32 above). Furthermore, the removal of the existing crossing would result in additional environmental impacts, including a longer construction period potentially exposing resources to prolonged construction related risks, additional disturbance to those using the river (boaters, fisherman, etc.) due to a longer construction period to replace towers, and likely additional disturbance to the river bottom related to new pier or piling construction to support new towers or different tower designs.

Pepco has discussed its Patuxent River crossing with the Patuxent Riverkeeper, one of the members of the Patuxent River Commission. At the Riverkeeper's recommendation, Pepco has sought a meeting with Dan Baldwin of the Patuxent River Commission. See attached email of December 22, 2008. Pepco has not yet received a response, but is following up on its request.

- D. PHI has reviewed the Patuxent River Policy Plan (Plan), including all modifications currently available on the Patuxent River Commission website. The proposed MAPP Project crossing of the Patuxent River is not inconsistent with the goals, objectives, and policies spelled out in the Plan. More specifically, the proposed Project:
- Would not significantly contribute to increased runoff into the Patuxent River or its watershed for the following reasons: (a) approximately 0.34 acres of new impervious

surface would be associated with the new transmission structures, installed over the course of approximately 40 miles of existing right-of-way from Burches Hill to Calvert Cliffs; (b) temporary matting would be used to avoid soil disturbance in and minimize impacts to wetlands and waterbodies; and (c) Construction BMPs will be employed during project construction to prevent surface runoff into wetlands and waterbodies;

- Would result in only 0.002 acres of permanent impact to the river bottom;
- Would be protective of environmental resources; and
- Would affect forested resources and wetlands only where such effects are unavoidable. (Mitigation for unavoidable impacts would be provided in consultation with the Maryland Critical Area Commission and Maryland Department of the Environment.)

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-35

Q. Please provide the geographic coordinates (e.g., latitude, longitude, or Maryland State Plane Coordinates) for all proposed pole locations as shown in the Appendix A maps for the Potomac River and Chalk Point to Calvert Cliffs Environmental Review Documents. If possible, provide these data as an ESRI shape file compatible with the ArcGIS system.

RESPONSE:

The requested .shp files are attached to Pepco's response to Question 1-25.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179

Response to DNR Data Request Set No. 1

Date of Response: 04/23/2009

Question No. 1-36

Q. The testimony of Mr. Jubic concerning both the Potomac and Patuxent River pile-driving operations indicates that PHI will employ "relatively light tapping" on the piles to discourage fish from entering the pile-driving area and protect them from the (more intense) pressure waves caused by the full force pile-driving operation. Please provide scientific documentation for this approach. At what intervals will the "light tapping" be repeated if full pile-driving operations are interrupted, sporadic, or infrequent? Did PHI consider the use of baffles to attenuate the pressure waves? What time of year restrictions will be observed to protect migratory fish which may not be discouraged by "light tapping"?

RESPONSE:

Pepco will work with DNR and other aquatic resource agencies to implement measures to minimize impacts to fish during construction. These measures may include best management practices or construction time of year restrictions.

SPONSOR: Robert J. Jubic, Jr.

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-37

Q. Please provide details of the construction barge operations in the Patuxent River, specifically:

- a. How much sediment disturbance will occur from placing "spuds" in the bottom to anchor the barges?
- b. How long will the barges be in place?
- c. Will benthic habitat be disturbed if barges are accidentally dislodged?
- d. What protective measures are employed to protect the river waters, sediments, and living resources from construction materials, oil, paint, or other contaminants that may be on or in the barges or the equipment used from the barges?

RESPONSE:

Since the construction contractor for the Patuxent River has not yet been selected, the following answers are based on general knowledge and best construction practices. Also, safety and permitting requirements will be imposed on the successful bidder through the contract award process.

- A. Assuming at least two barges at each structure location during construction and at least two spuds per barge (provided water depth is suitable), the sediment disturbance to the river bottom will be minimal. The spuds are essentially small diameter "piles" driven through the soft bottom into the harder sediment a sufficient depth to secure the barge location. Since the spuds are driven into the bottom, the actual area of disturbance is very small and a minimal amount of bottom will be dispersed.
- B. The decision as to how long the barges will be in place and the amount of barges actually in the river at a structure location will be determined by the contractor and any permit requirements. Since the contractor has not yet been selected, this information is not available. It is expected that the total construction time for the Patuxent River Crossing will be four to six months.
- C. Providing the water depth is suitable, PHI can require the successful contractor to utilize spuds as opposed to anchoring. The use of spuds will eliminate any risk of "dragging" an anchor and damaging benthic habitat. Since the spud is driven into the bottom, there is very little risk of the spud dislodging from the bottom.

- D. The contractor selected to perform this work will be required to meet all permitting requirements along with all OSHA and other safety rules and regulations that apply. Normal construction and operational materials will be present on the barge, including concrete, steel and normal oil-based products (such as diesel fuel, hydraulic fluid, gasoline and other similar products). There may also be small amounts of paint on the barges. The best way to minimize environmental harm from the project is to plan and carry out the work in a safe and careful manner according to all safety rules and regulations. Next, in the event that something does happen, an Emergency Response Plan will be in place, and will be known by all construction personnel (including subcontractors) on board. This must include what to do immediately to minimize the damage and also what authorities to notify. There also will be sufficient emergency equipment on the barge to contain any spill (for example, silt curtains and floating booms) in the event of a spill or other incident. Finally, Pepco will have environmental monitors on board from time to time to ensure that operations are compliant with environmental and safety requirements.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-38

Q. It appears that if PHI routed the new Potomac River crossing to the south (downstream) of the existing line, removal of the 4.6 acres of forest in the Critical Area could be avoided, and the towers could be placed in existing cleared area. Was this option considered? If so, why was it rejected?

RESPONSE:

During the design phase, the option of constructing the new Potomac River crossing to the south (downstream) of the existing crossing was considered. This option was rejected for several reasons:

- a. The existing Possum Point to Burches Hill circuit is on the south side of the existing structures, so the new circuit needs to be installed on the north side of the existing structures.
- b. The vacant substation bay in Possum Point Substation is on the north side of the existing circuit's bay, so the new circuit needs to enter the substation to the north side.
- c. Because of the substation bay positions and the existing circuit location, building the crossing to the south would necessitate crossing the circuits one over the other. This would require additional structure height and would decrease reliability (as a conductor failure on one circuit could also take out the other circuit).
- d. On the Maryland side of the Potomac River, the existing dead-end structure is located against the southern edge of the right-of-way. Locating the new crossing (and the two new land structures) south of the existing crossing would require the negotiation and purchase of additional right-of-way.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-39

Q. Have the existing towers raised any concerns with respect to navigation in the Potomac River? Have there been any accidents during the time they have been in place, either with commercial or recreational boats? What is the clearance requirement for the conductors with respect to the maximum size of ships that are permitted to use the River?

RESPONSE:

A. Pepco is not aware of any navigational concerns being expressed by anyone concerning the existing towers in the Potomac River, and Pepco has no navigational concerns of its own. In fact, at a meeting with the U.S. Coast Guard on 12/16/08, the Coast Guard expressed no navigational concerns about the existing or proposed crossing. Pepco has no record of any accidents being reported.

B. The actual clearance required by the National Electrical Safety Code for a body of water of this size is 48.7 feet, and PJM requires an additional 3 feet for a total of 51.7 feet. All spans over the water will exceed this clearance. Since the river does contain commercial ship traffic, the U.S Army Corps of Engineers and U.S. Coast Guard will consider the adequacy of the clearance. The existing crossing has a minimum clearance above the water in the channel of 170 feet, and the new crossing will be permitted and constructed to the same requirements.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-40

Q. PHI considered the effects of EMF on radio and TV reception. Ships navigating the Potomac River will be directly beneath the conductors, with decks possibly as much as 50 or 100 feet above water level. Will electrical or magnetic fields from the line interfere with navigational equipment used by ship traffic?

RESPONSE:

The types of vessels most likely to be using the Potomac River in the vicinity of the crossing would be smaller recreational vessels and low-lying barges carrying petroleum products and sand, gravel or crushed rock.

The proposed 500kV line will cross the Potomac River adjacent to the existing 500kV line (circuit 5070). The calculations summarized in Appendix B of Exponent's report "EMF, Audible and Radio Noise Assessment: Possum Point to Calvert Cliffs 500kV Lines" indicate the levels of EMF associated with the operation of the existing and proposed lines will be just marginally higher than that of the existing line alone. Pepco is not aware of any complaints about interference to ship borne navigational equipment from the existing line.

The alternating current (AC) magnetic or electric fields of the lines will not interfere with direct current (DC) magnetic compasses. Interference to modern navigation systems that use GPS would not be likely because GPS receivers are quite immune to interference from overhead transmission lines.

Without knowing what other navigational systems may be in use, their operational frequencies and characteristics, the antennae heights, and the height of the line over the river, it is not possible to provide a detailed response regarding potential radio frequency (RF) noise. In general terms, however, the lines pass perpendicularly across the river such that only a relatively narrow width, if any, of the river would actually have higher levels of RF fields as a result of the new line since any RF fields from the line would decrease rapidly with distance. Potential interference to RF signals also decreases with increasing frequency of the receiving device so that potential interference levels due to the line would likely be small in comparison to the strength of river navigation signals. An additional factor to consider is that while RF from the line may affect amplitude-modulated signals (such as AM radio or the amplitude-modulated video signals on present day television), line RF has essentially no impact on frequency-modulated signals (such as FM radio, the audio signal for television), or digital signals. Navigational signals that are frequency modulated or digitally encoded should not be affected by the line.

SPONSORS: William H. Bailey, PhD and James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to BPU Staff Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-41

Q. Will the foundations for the new towers, in either the Potomac or Patuxent River, cause current changes that will lead to scouring a larger area of the River bed than the less than 0.01 acres actually occupied by the foundations? Has PHI measured the influence that the existing tower foundations have on bottom currents and habitat?

RESPONSE:

While Pepco has not specifically studied scouring that has resulted from its existing structures or estimated scouring that may result from its new structures, some minimal scouring may occur. Keep in mind, however, that the area in the immediate vicinity of the structures does not contain sub-aquatic vegetation (SAV) or other critical habitat.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-42

Q. Is PHI planning any voluntary offsite mitigation to compensate for the 4.6 acres of trees that will be removed from the Critical Area near the Potomac River and the 7.0 acres of trees that will be removed from the Critical Area near the Patuxent River?

RESPONSE:

Pepco has met with the Critical Area Commission Staff and discussed the attached mitigation, which is consistent with the Critical Area Commission's Forest Mitigation Guidance.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-43

Q. What specific management practices or mitigation measures will be employed in the Patuxent River to protect waterfowl, fish, and sediment-dwelling species during construction activities?

RESPONSE:

Construction of pile-supported towers in the Patuxent River would be of limited duration and would require only 0.002 acres of permanent impact to the Patuxent River. Further, direct pile driving is expected to minimize and greatly localize any sediment disturbance during construction. Construction best management practices and specific time-of-year restrictions to minimize construction impacts on waterfowl and fish species, as well as mitigation for unavoidable river bottom impacts, are being developed in coordination with the USACE and State of Maryland Joint Permit application process.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-44

Q. Several species of migratory fish that are not mentioned in the ERDs, such as striped bass, use the Potomac and Patuxent Rivers as spawning habitat. Has PHI identified these species and the time of year restrictions that will be observed to protect them? If not, when does PHI plan to carry out the required studies?

RESPONSE:

The Environmental Resource Documents (ERDs) concerning the Potomac River and Patuxent River crossings identify examples of fish species that may be impacted by Pepco's work, but do not attempt to list every species. The following life stage information discusses additional species of migratory fish that may utilize the Potomac River and Patuxent River as spawning habitat. Pepco will determine the final details associated with construction materials, equipment, and methodologies, and evaluate in coordination with DNR and other applicable agencies what preventative mitigation measures are appropriate permit conditions designed to avoid or minimize potential impacts to these species (such as time of year restrictions and/or use of BMPs during construction).

Both the Patuxent River and Potomac River crossings would be located within a migratory fish spawning and nursery designated use area (CBP 2008). This designation was determined through a composite of all ecologically, recreationally, and commercially important anadromous, semi-anadromous, and tidal-fresh resident fish species. The time period between February 1 and May 31 coincides with the typical use of these areas by these species. Associated with this designation, certain water quality criteria (such as dissolved oxygen levels) were established to limit impacts to these species (EPA 2003). Below is a summary of the spawning requirements and migratory use of the Patuxent and Potomac Rivers. Species presence and timing within the Project area will vary from year to year depending upon various environmental factors (such as salinity and water temperature). As described in the ERDs, depending upon season, the salinity in the tidal portion of the Potomac and Patuxent Rivers can range from 0.5 to 25 ppt (NOAA 1985). The proposed Project crossing would occur in the middle portion of the tidal zone of the Patuxent River that typically contains salinities between 2.5 and 7.5 ppt in the winter and spring and 5.1 to 10.0 ppt in the summer and fall when there is less precipitation and less subsequent freshwater input (CBP 2008). Within the Potomac River, the proposed Project crossing would occur in the upper portion of the tidal zone that typically contains salinities between 0 and 0.5 ppt in the winter and spring and 0 to 2.5 ppt in the summer and fall when there is less precipitation and less subsequent freshwater input. Because of the dynamic nature of environmental parameters, the species and the life stages would change seasonally within the Project area.

Striped bass- Striped bass spawning typically occurs in turbid waters that are relatively shallow reaches of rivers, streams, and creeks (ASMFC 2009). In the Chesapeake Bay watershed, spawning is typically triggered by an increase in water temperature and generally occurs in April, May, and early June (MDNR 2009a). According to the Estuarine Living Marine Resources Database (ELMRD), adult and juvenile striped bass life stages are present within the Potomac and Patuxent Rivers with salinities ranging from 0.5 and 25 ppt year round (NOAA 2005).

White perch- White perch are abundant year-round residents in all tributaries of the Chesapeake Bay (MDNR 2009b). White perch spawn in fresh to low-salinity waters of large rivers over fine gravel or sand. Juveniles and adults are present in the Patuxent and Potomac River mixing zones year round (NOAA 2005). Eggs, larvae, and spawning generally occur in these rivers between March and June.

Yellow perch- Yellow perch migrate upstream from estuarine waters into freshwater to spawn (MDNR 2009c). The extent of the migration depends largely on the presence of appropriate salinity levels. Adults migrate to areas typically with a salinity of 0 to 2.5 ppt to spawn (MDNR 2002). Juveniles and adults are present in the Patuxent and Potomac River mixing zones year round (NOAA 2005). Eggs, larvae, and spawning generally occur in these rivers February and March. According to MDNR, yellow perch spawning areas are located near the Project area and upstream of the Project area in both the Patuxent and Potomac Rivers, and several upstream tributaries such as Mattawoman Creek (MDNR 2002).

Blueback herring and Alewife- Blueback herring typically spawn in swift flowing freshwater, while alewife typically spawn in slower moving streams or impoundments (FWS 2009). Water temperature and the length of day typically trigger spawning migration timing. Adult blueback herring are typically present between March and May in the Patuxent River mixing zone and March to June in the Potomac River mixing zone (NOAA 2005; MDNR 2007a). Alewife adults are present in both rivers from February to May (NOAA 2005). Spawning occurs and eggs are present between March and May for both species in both rivers. Blueback herring larvae reside in the rivers from March to June, while the alewife larvae are typically present from March to May. Juvenile blueback herring inhabit the rivers between May through October, while alewife juveniles are present from May through September.

American and Hickory shad- Hickory shad spawn in diverse habitat ranging from backwaters to mainstem rivers to smaller tributaries (MDNR 2007b). Hickory shad peak spawning time is from mid-April through late May, with migrations beginning in March. American shad spawning typically occurs over gently sloping areas with fine gravel or sandy bottoms (MDNR 2007c). Within the Potomac and Patuxent River mixing zones, American shad spawning occurs between April and May (NOAA 2005). Associated with spawning activities, American shad eggs and larvae are also present between April and May. Juveniles are present in the Patuxent system between May and November in the Patuxent River and May and November in the Potomac River. Adults are present between February and June in the Patuxent River and February and May in the Potomac River.

References:

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Maryland Department of Natural Resources (MDNR). 2009a. Tidal and Coastal Fisheries Management in Maryland: Striped Bass. Available at: <http://www.dnr.state.md.us/fisheries/management/FMP/FMPStripedBass04.pdf>.

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U.S. Environmental Protection Agency (EPA). 2003. Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for Chesapeake Bay and its Tidal Tributaries. Available at: <http://www.epa.gov/region03/chesapeake/baycriteria.htm>.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-45

Q. Has PHI conducted any additional benthic sampling studies, other than those reported in the ERDs? If so, please provide the data collected. If not, please indicate when such studies are planned to complete the characterization of the bottom habitat of the Potomac and Patuxent Rivers.

RESPONSE:

No additional benthic sampling studies other than those reported in the Environmental Resources Documents have been conducted for the Potomac River or Patuxent River. Based on the substrate type (soft bottom), the lack of SAV in the Project area, and the extremely limited and localized nature of impacts to the Potomac and Patuxent riverbeds, no additional benthic surveys are proposed for these rivers.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-46

Q. Section 5.1.2 of the Potomac River Crossing and the Chalk Point to Calvert Cliffs ERDs notes that bottom habitat determinations were made using sidescan sonar. Please provide maps showing the results of these determinations, preferably in a digital format compatible with ArcGIS.

RESPONSE:

Attached are PDF copies of the requested maps. In addition, the DNR may contact Pepco to make arrangements to obtain digital format of the maps.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
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Question No. 1-47

Q. Throughout Section 4.4 (Wetlands) of the ERD for the Chalk Point to Calvert Cliffs portion of the proposed MAPP project, references are made to the planned use of matting in wetlands to lessen impacts during construction. The separate set of large Environmental Features Maps (Appendix A) for the proposed project further depicts the locations of wetlands matting areas along the project right-of-way (ROW). As depicted on these maps, however, many of the panels depict large or entire areas of these wetlands as requiring matting during construction (e.g., Maps 3, 4, 15, 16, etc.), while other panels show narrower areas of proposed matting in wetlands (Maps 28, 42, 49). Temporary wetlands impacts owing to the "Access Matting" and "Matting in Stringing Areas" categories presented in MAPP ERD Table 4.4-1 could be greatly reduced if these proposed matting areas were limited to only what would actually be needed on the ground. Please provide justification for the need to entirely mat many of these wetlands when it appears that relatively narrow access corridors would suffice in most cases to construct the project.

RESPONSE:

There are two different types of matting that will be utilized for the construction of the MAPP project. The "Access Matting" is utilized to establish and access corridor through the right-of-way as a means for equipment to travel from structure to structure. These are the narrower areas of matting that is shown along the project right-of-way. The "Matting in Stringing Sites" is necessary to establish work areas at structures where the pulling of conductor will occur. These stringing sites are shown on the Environmental Feature Maps as large areas because there will be a variety of construction equipment at these locations. Large areas of matting may be shown in some of these stringing sites in order to accommodate this equipment during construction and allow for minimal, temporary impacts to wetlands during construction. The size of the stringing sites presented on the maps may be larger than what will be necessary during construction activities. There is the potential that matting in wetland stringing areas may be reduced at the time of construction if there is enough room in upland areas for equipment. Areas with matting will be limited to what is actually needed on the ground.

SPONSOR: Robert J. Jubic, Jr.

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-48

Q. Please provide additional specific details regarding PHI's plans for avoiding three listed Threatened and Rare plants (*Centrosema virginianum*; *Solidago speciosa*; and *Sagittaria longirostra*) known to occur in the existing ROW during construction of the proposed Chalk Point to Calvert Cliffs portion of MAPP, specifically:

a. When will precise mapping be available for these species on and adjacent to the ROW? This is of particular concern for *Solidago speciosa*, as only general mapping has apparently been performed to date (refer to Environmental Features Maps [Appendix A], Maps 38 to 59).

b. Further, what are the specific plans (i.e., maintenance practices) for long-term protection of these three plants species?

c. What specific mitigation measures will be employed for unavoidable impacts to these three plant species?

RESPONSE:

A. *Centrosema virginianum* occurs outside of the project right-of-way. As appropriate (e.g., if near an area under construction) it will be marked and avoided during construction. *Sagittaria australis* [longirostra] is limited to a small portion of right-of-way just west of structure 2249 on Chalk Point to Calvert Cliffs Environmental Feature Map 27 of 63. The specific site will be field-verified, marked, and avoided prior to construction. *Solidago speciosa* is present throughout much of the right-of-way as shown in Chalk Point to Calvert Cliffs Environmental Feature Map 38 to 59. Prior to construction, additional field surveys will be conducted to verify, mark, and map the locations of these plants.

B. During construction, the location of all these plant species will be incorporated into the environmental feature maps utilized to support construction activities. Field surveys will occur prior to construction activities to identify the specific locations of plant species and mitigation measures, such as, the installation of fencing will be implemented to prevent disturbance to these populations during construction. For the long term protection of these plant species, the location of these species can be incorporated to the planning of right-of-way management. The current right-of-way practices encourage the growth of these species.

The present vegetation community on the right-of-way in the last 10 miles leading up to Calvert Cliffs (from Chalk Point) is a direct result of BGE's vegetation management practices. These practices use combinations of integrated vegetation management (IVM) techniques to foster an old field – meadow ecology. This combination of mowing, herbicides, handcutting and cultural controls eliminates the woody vegetation overstory and reduces the density of competing lower-growing woody plants. The result of this reduction of dominant or competing vegetation allows for long-dormant seeds to germinate or for plants long suppressed to thrive, including those that may be rare, threatened or endangered.

- C. No unavoidable impacts are anticipated for *Centrosema virginianum* or *Sagittaria australis* [longirostra]. Based on pre-construction field verifications, if it is determined that additional temporary matting will limit impacts to *Solidago speciosa*, then these preventative mitigation steps will be taken. While all attempts will be made to avoid impacts to *Solidago speciosa*, there may be some unavoidable impacts in areas where new structures will be installed and/or where stringing sites will be set up. A final determination on impacts to plant populations will occur once the pre-construction field survey is complete. Project impacts would not affect the long-term viability of these RTE plant species in the vicinity.

Other than avoiding these specific sites during the actual construction of the MAPP facilities, the continued integrated vegetation management techniques currently being employed by BGE will only further enhance the existing plants and other atypical vegetation in the right-of-way.

**SPONSOR: James M. Teitt
Robert J. Jubic, Jr.**

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-49

Q. A population of *Sagittaria australis* [longirostra] is depicted on Map 27 of the Environmental Features Maps (Appendix A) for the proposed Chalk Point to Calvert Cliffs portion of the MAPP project. All species within the genus *Sagittaria* in this region are obligate wetlands plants (i.e., they almost never occur outside of wetlands). On Map 27, however, a population of this species is depicted as if it exists in uplands. Is there a parcel of wetlands not depicted on Map 27 where the population of *Sagittaria australis* [longirostra] is located? Please provide an updated Map 27 and an updated Chalk Point to Calvert Cliffs ERD Table 4.4-1 with revised calculations of proposed project wetlands impacts, as appropriate.

RESPONSE:

ENTRIX has reviewed the information concerning the location where the *Sagittaria australis* [longirostra] population was mapped and confirmed that this is not an upland location. The location of this species is mapped incorrectly, as it should appear within wetland CC-015, just west of structure 2249. The location of this species will be field-verified, marked, and mapped prior to construction, and impacts to these populations will be avoided during construction.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-50

Q. On Map 42 of the Environmental Features Maps (Appendix A) for the proposed Chalk Point to Calvert Cliffs portion of the MAPP project, Wetland CC-029 is depicted as if it will be matted during construction. This wetland is quite small, and as mapped, only takes up a small part of the eastern half of the existing ROW. It appears that there is sufficient room in adjacent uplands for construction and line-stringing equipment to avoid this wetland and its buffer. Please provide an explanation on how this wetland can be avoided during construction of the proposed project.

RESPONSE:

Matting has been proposed in this area in case construction activities associated with the removal of existing structures or the installation of the new structure requires access or construction equipment in this wetland. A final decision on the need for any temporary matting at Wetland CC-029 will occur prior to construction. As stated, Pepco will try to avoid wetlands if feasible.

SPONSOR: Robert J. Jubic, Jr.

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to BPU Staff Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-51

Q. On Map 49 of the Environmental Features Maps (Appendix A) for the proposed Chalk Point to Calvert Cliffs portion of the MAPP project, it appears that Wetland CC-033 will be the location of two new foundations as a result of the proposed project. Please provide a technical explanation discussing the possibility of shifting the new foundations currently depicted on Map 48 at 2219K slightly to the south/southeast, and correspondingly shift the proposed new foundations on Map 49 to the southeast, outside of the wetlands (or at least so that the eastern-most foundation is outside of the wetlands). If this is not feasible, please explain why this shift cannot occur.

RESPONSE:

Several factors were considered as the existing single circuit design was revised to accommodate the new double circuit structures within the 200-foot wide right-of-way, which for ten miles is bordered by adjacent properties and for ten miles is bordered by adjacent owners on one side and an adjacent 500kV line on the other. Among the many factors considered were the following:

- a. Locate structures outside of wetlands where possible (only two structures in the 20 mile line are planned to be within a wetland).
- b. Since the double circuit structure design requires the conductors to be located closer to the right-of-way edges and closer to the adjacent 500kV lines, span lengths must be reduced in some cases to control conductor blow-out.
- c. Corner locations must be maintained on all angles except for very minor ones.
- d. Conductor blow-out and adjacent tree line must be considered in an effort to maintain circuit reliability.

In the case of the referenced structures, the existing span length from structure 2218K to 2219K is approximately 1600 feet, too long to simply replace the existing structures with new double circuit structures in the same locations and maintain conductor clearances as required to both the right-of-way edge and adjacent 500kV line. Structure 2219K is a medium angle, so its location must be maintained. Structure 2218K is a small angle, so there is some ability to slide this structure along the centerline and create a new small angle location, but this ability is limited due to the fact that the angle point of the right-of-way is still fixed by property ownership rights. The additional complication in this

instance is the fact that the wetlands area CC-033 stretches for over 1000 feet in this span.

Taking into account the need to shorten the span between structures 2218K and 2219K to approximately 1100 feet in order to maintain conductor clearances (including blow-out) to the edge of right-of-way and the adjacent conductors, the need to maintain the existing angle structures as noted, the need to maintain approximately 1100-foot spans on the adjacent spans and the length of wetlands CC-033, it is not feasible to relocate the structures slightly south/southeast as requested. The blowout at high wind loadings with the designed span length and the present location of the structures actually would place the conductor one foot inside the right-of-way edge. Moving the structures enough to get even one leg of the new 2218K out of the wetlands would cause the conductors to blow out past the edge of right-of-way at high wind loading. One more option was looked at in an effort to move at least one leg of structure 2218K out of the wetlands. That method involved moving 2218K along the centerline to the south, in effect lengthening the span by approximately 70 feet. This resulted in the same calculation of the conductor at high wind loading blowing out over the right-of-way edge.

SPONSOR: William M. Gausman

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-52

Q. Please provide details on the “State-Listed Plant Species” that are labeled (light purple) on Map 1 and Map 2 of the Environmental Features Maps (Appendix A) for the proposed Chalk Point to Calvert Cliffs portion of the MAPP project. At a minimum, these details must identify listed species present and approximate population size. What effects, if any, would construction of the proposed project have on these plants?

RESPONSE:

The “State-Listed Plant Species” that are labeled (light purple) on Map 1 and Map 2 of the Environmental Features Maps (Appendix A) for the Chalk Point to Calvert Cliffs portion of the MAPP project depict areas containing *Centrosema virginianum* (total of approximately 20 flowering stems). These species occur outside of the project right-of-way, and, as appropriate, will be marked and avoided during construction. There are no access or construction activities that will occur within the vicinity of these plants.

**SPONSOR: James M. Teitt
Robert J Jubic, Jr.**

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-53

Q. In a letter dated May 8, 2008, DNR identified colonies of Great Blue Herons within ¼ mile of the proposed project route. PHI indicated they determined these to be colonies of double-crested cormorants instead, and confirmed this with DNR via e-mail. Please provide a copy of this email confirmation from DNR as well as any other communications regarding colonial waterbirds.

RESPONSE:

A copy of the email from Lori Byrne of the Maryland DNR is below:

"Byrne, Lori"
<LBYRNE@dnr.state.md.us>

To <ASaunders@entrix.com>, <jodi@jcmenv.com>
07/02/2008 04:56 PM cc "McCarthy, Katharine" <KMCCARTHY@dnr.state.md.us>, "Larney, Tim" <TLARNEY@dnr.state.md.us>, "Patty, Sandi" <SPATTY@dnr.state.md.us>, "McCann, James" <JMCCANN@dnr.state.md.us>, "Brinker, Dave" <DBRINKER@dnr.state.md.us>
Su RE: MAPP Project - DNR T&E Mtng
bjc
ct

"Colonial Waterbirds site - We had talked about the location of a waterbird colony located in the Patuxent River along the towers associated with the project route. I had a detailed discussion with David Brinker of the WHS who heads up colonial waterbirds for MD. The species are Double-crested Cormorants as you had thought, and they are indeed nesting on the towers that cross the river near Chalk Point. However, this species is not covered by the Critical Area Commission's regulations protecting waterbird nest sites, and is actually becoming a nuisance on man-made structures in many areas of the State. The Double-crested Cormorant is protected by the Migratory Bird Treaty Act at the Federal level, so the birds, their eggs and young are protected. We would therefore recommend that the proposed work be conducted outside of the nesting season for this species, which is April 1 through August 15 of any given year. We would also suggest that the applicant use structures that would not encourage the cormorants to nest on them, and possibly retrofit the existing structures to discourage nesting on them. This might prevent future problems with these birds nesting in close proximity to powerlines. For further technical assistance on waterbird information, feel free to contact David Brinker at (410) 744-8939 or by email."

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-54

Q. PHI indicates that the National Marine Fisheries Service (NMFS) and Department of Interior (DOI) were consulted regarding potential impacts to protected species. Please provide copies of consultation letters as well as any other communications received from NMFS and DOI concerning rare, threatened, and endangered species potentially affected by the proposed project. Additionally, the Chalk Point to Calvert Cliffs ERD states: "As appropriate, Pepco would request concurrence of the FWS with the finding that the Project would have no effect on any federally-listed endangered or threatened species." Please provide documentation of PHI's consultation with the USFWS if this differs from that with DOI.

RESPONSE:

Copies of the consultation letters sent to National Marine Fisheries and the Department of Interior, and related correspondence, are attached in PDF format.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-55

Q. Published reports and scientific bird counts identify the region of the Patuxent River near the Chalk Point Power Plant, where the proposed transmission line would be placed, as a region of high waterfowl concentrations. The May 8, 2008 letter to Mr. W. S. Twupack from Ms. Lori Byrne of the DNR Wildlife and Heritage Service states that "the open waters there are known historic waterfowl concentration areas". Please provide documentation that supports PHI's claim in Section 4.6.1.1.3 of the ERD that DNR was consulted about waterfowl concentration and staging areas, and that specifically shows that DNR concurs that no such areas are within 0.25 miles of the Project.

RESPONSE:

PHI acknowledges that, as stated in the May 8, 2008, letter from Ms. Lori Byrne, the Patuxent River in the vicinity of the proposed crossing may serve as a potential waterfowl concentration area. No waterfowl concentrations were observed in the Patuxent River during the initial or secondary wildlife surveys and the results of these surveys were presented in the ERD. There has not yet been further consultation with DNR to request concurrence that there are no waterfowl concentrations within 0.25 mile of the Project, and Pepco anticipates that related determinations will be made through the Joint Permit Application process.

SPONSOR: James M. Teitt

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-56

Q. PHI was provided digital maps of DNR's Green Infrastructure areas on May 16, 2008 (via DVD-ROM mailed to Art Sauders of Entrix). The Chalk Point-Calvert Cliffs ROW crosses a number of Green Infrastructure corridors and fragments several hub areas. These areas typically operate as a network to sustain viable populations of stream, forest, and avian species, including forest interior dwelling species that are sensitive to the disruptive effects of transmission lines. Did PHI analyze the impacts of ROW construction or vegetation management on these ecologically valuable areas? Does PHI plan to adopt vegetation management protocols that will protect and enhance the wildlife in these areas and reduce access along the ROW by invasive species?

RESPONSE:

The construction that will occur within the Chalk Point to Calvert Cliffs ROW will not create any new forest fragmentation. The existing 19 miles of right-of-way in Calvert County (east of the Patuxent River) is cleared and maintained. In addition, the one mile of right-of-way between the Chalk Point substation and western bank of Patuxent River requires only selective clearing of non-compatible species above 10-feet in height along the edge of existing forest. Specifically, the clearing will occur in Prince George's County, adjacent to the Chalk Point power plant in non-FIDS habitat. As indicated in the ERD, PHI would utilize its Integrated Vegetation Management Protocols (IVMP) to maintain vegetation within the right-of-way after construction. These measures would be similar to those that have been used to maintain the right-of-way to date. PHI's right-of-way management practices are certified by the Wildlife Habitat Council.

BGE's IVM program as employed pursuant to the ANSI A-300, part 7 IVM standard and in accordance with IVM best practices, establishes an old field – meadow ecology that fosters habitat for a variety of flora and fauna. As noted in the previous responses, rare, threatened and endangered plants have developed in this environment. Additionally, plants that promote pollinating species also become abundant. Included in the IVM arsenal is the wire zone / border zone concept of plant communities within a utility ROW. This regime promotes low-growing vegetation (herbaceous material and woody plants less than 5 feet tall in the wire zone and may allow taller plants to be located in the adjacent border zone). This concept was developed and promoted in the long-studied Gamelands 33 research plot developed by Drs. Bramble and Burns in central Pennsylvania and has been shown to provide a diverse plant habitat that supports a wide range of plant and animal communities. Within this practice, taller vegetation may be allowable, depending upon wire heights, in wetlands and stream buffers.

Regarding invasive plants, IVM practices, by causing minimal disruption to the site, promote a stable plant community which helps to resist the establishment of invasive plant species.

**SPONSOR: James M. Teitt
Robert J. Jubie, Jr.**

POTOMAC ELECTRIC POWER COMPANY
AND DELMARVA POWER & LIGHT COMPANY
MARYLAND CASE NO. 9179
Response to DNR Data Request Set No. 1
Date of Response: 04/23/2009

Question No. 1-57

Q. Please provide PPRP with copies of your responses to any Data Requests propounded on you by any other persons in this proceeding.

RESPONSE:

Applicants will provide PPRP with copies of responses to any data requests propounded by other parties or intervenors in Case No. 9179.

SPONSOR: William M. Gausman

PHI Southern Maryland
Critical Area Mitigation Requirements

		Potomac River Crossing (acres)	Moss Point to Burches Hill (acres)	Burches Hill to Chalk Point (acres)	Chalk Point to Calvert Cliffs (acres)	Totals (acres)	Critical Area Mitigation (acres)	Mitigation Ratio
Critical Area (RCA) Impacts Outside the 100-foot Buffer	Forest (Upland) Clearing Outside of Potential FIDS Habitat	2.06	0	9.32	5.58	16.96	16.96	1:1
	Forest (Upland) Clearing in Potential FIDS Habitat	0	0	0.17	0	0.17	0.17	1:1
	Forest (Wetland) Clearing	0	0	0.72	1.47	2.19	MDE	MDE
	<i>Total Forest Clearing Outside the 100-foot Buffer</i>	<i>2.06</i>	<i>0</i>	<i>10.21</i>	<i>7.05</i>	<i>19.32</i>		
	Permanent Structure Footprint (Upland)	0.014	0.000	0	0.025	0.040	NA	NA
	Permanent Structure Footprint (Wetland)	0.000	0.000	0	0.002	0.002	MDE	MDE
	<i>Permanent Structure Footprint (Total)</i>	<i>0.014</i>	<i>0.000</i>	<i>0.000</i>	<i>0.027</i>	<i>0.041</i>		
Critical Area (RCA) Impacts Inside the 100-foot Buffer	Forest (Upland) Clearing Outside of Potential FIDS Habitat	2.52	0	0	0.45	2.97	8.91	3:1
	Forest (Upland) Clearing in Potential FIDS Habitat	0	0	0.17	0	0.17	0.51	3:1
	Forest (Wetland) Clearing	0.01	0	0	0	0.01	MDE	NA
	<i>Total Forest Clearing in 100-foot Buffer Area</i>	<i>2.53</i>	<i>0</i>	<i>0.17</i>	<i>0.45</i>	<i>3.15</i>		
	Permanent Structure Footprint (Upland)	0.0018	0.0000	0	0.0036	0.005	NA*	NA
	Permanent Structure Footprint (Wetland)	0.000	0.000	0	0.000	0.000	MDE	NA
	<i>Permanent Structure Footprint (Total)</i>	<i>0.0018</i>	<i>0.0000</i>	<i>0.000</i>	<i>0.0036</i>	<i>0.005</i>		
Critical Area Impacts to Lands Under Water	River Bottom Impacts	< 0.003	0	0	< 0.003	< 0.006	MDE	NA

* Mitigation acreage already counted – structures fall within upland forest clearing areas within 100-foot Critical Area Buffer.

DPL PROJECTS

DPL GENERATION PROJECTS

Attachment PFRP 1-20

QueueNumber	ProjectName	StatusCode	MWC	MWE
A02	Oak Hall 138 kV (Oil CT)	IS	315	315
A23	New Castle 138 kV	W	257	257
A28	Dover	IS	98	100
A29	Colora Tap	IS	2	2
A30	Colora Tap	IS	2	2
B47	Red Lion 500kV	IS	351	351
D02	Edgemoor	IS	10	10
D11	Clayton 138kV	IS	100	100
D14	Red Lion 500kV	W	190	190
D15	Red Lion 500kV	W	550	550
D25	Hay Road 69kV & 138kV	W	39	39
E09	Kiamensi 34kV	W	8.4	8.4
E26	Beach Haven 26kV	W	6	6
E28	Motiva	IS	60	60
G03	Todd 69kV	W	5	5
G16	Bayview 26kV (Wind)	W		8
G28	Vienna 230kV	W	390	390
G29	Indian River 138kV	W	750	750
G44	Dupont Seaford 69kV	IS-NC	10	10
H12	Edgemoor 230kV	ISP	10	10
H16	Edgemoor	W	565	565
J03	Edgemoor	W	565	565
K06	Easton 69kV	IS	5	5
K07	Easton 69kV	IS	5	5
N03	Edgemoor 69kV	IS	7	7
N04	Edgemoor 230kV	W	8	8
N05	Edgemoor 138kV	IS	9	9
N16	Kent-Harrington 69kV	IS		4
N17	Laurel-Sussex 69kV	IS		3
N34	Motiva	ISP	142	250
O10	Edgemoor 138kV	IS	5	242
O25	N. Salisbury 25kV	IS	6	6
P33	Laurel - Sussex 69kV	IS		1
Q42	Indian River	W	630	630
R36	Bethany 138kV	ACTIVE	90	450
R37	Rehoboth 138kV	W	90	450
R38	Millford 230kV	W	110	547
R72	Indian River 230kV	UC	18	18
R73	Indian River 138kV	UC	5	5
S03	Edgemoor 230kV	IS	5	5
T11	Laurel-Sussex 69kV	IS	5	5
T12	Kent-Harrington 69kV	IS	4	4
T122	Ocean Bay 138kV	ACTIVE	120	600
T144	Pocomoke	ACTIVE	10	19.8
T187	Reybold	ACTIVE	20	20
T40	South Harrington	ACTIVE	225	225
T51	Hay Road	ACTIVE	13	13
T52	Red Lion 500kV	ACTIVE	20	20
T53	Delaware City	IS	7.3	7.3
T56	Christiana	ACTIVE	8.4	8.4
T66	Tasley	ACTIVE	6.7	6.7
T67	West	ACTIVE	5.3	5.3
T68	Edgemoor	ACTIVE	5.2	5.2
U1-096	Reybold	W	20	20
U3-003	Mt. Olive 69kV	ACTIVE	0	2
U3-004	Cecil	ACTIVE	0	1

CODES

IS	In-service
W	Withdrawn
IS-NC	In-service - No Capacity
ISP	In-service partial
Active	in the study process

Withdrawn projects can be viewed at:

<http://www.pjm.com/planning/generation-interconnection/generation-queue-withdraw.aspx>

All other projects can be viewed at:

<http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx>

1- 34 Patuxent%20River%20Commission%20email%20122208.txt

RGunther@entrix.com

12/22/2008 01:04 PM To

dbaldwin@mdp.state.md.us

cc

mark.okonowicz@pepcoholdings.com, ASaunders@entrix.com

bcc

Subject

Pepco Mid-Atlantic Power Pathway (MAPP) - meeting with the Patuxent River Commission

Dear Dan:

I was directed to you as the main contact person for the Patuxent River Commission. As you may be aware, Pepco's proposed MAPP projects would include a new 500 kV electric transmission line crossing of the Patuxent River, parallel to and approximately 150 feet north of their existing electric transmission line crossing. We have discussed this crossing at length with federal, state, and local government representatives through the Joint Evaluation process and through the DNR's Power Plant Research Commission (PPRP). However, we have not yet met with your organization. We would like to do so at your earliest convenience. Please let me know when you may be available for a meeting after the first of the year. In the meanwhile, please do not hesitate to contact me with any questions.
Happy holidays!

Regards,

Roger W. Gunther
Mid-Atlantic Manager
ENTRIX, Inc.

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