

**Supplemental Information for Application for Transportation and Utility Systems
and Facilities on Federal Lands**

Introductory Note: This application is filed by PATH Allegheny Transmission Company, LLC (“PATH-Allegheny”), PATH Allegheny Virginia Transmission Corporation (“PATH-VA”), and The Potomac Edison Company (“Potomac Edison”), collectively, the “Allegheny Companies.” The Allegheny Companies request right-of-way authorization from the National Park Service (“NPS”) for the crossing of the Harpers Ferry National Historical Park (“Harpers Ferry NHP”) and Appalachian National Scenic Trail (“Appalachian Trail”) as part of the construction and operation of the portion of the Potomac-Appalachian Transmission Highline (“PATH”) Project between the proposed Welton Spring Substation to be located approximately two miles north of Old Fields in Hardy County, West Virginia and continuing to the proposed Kemptown Substation to be located approximately three miles southeast of New Market in Frederick County, Maryland (“Welton Spring-Kemptown Segment”).

The submission of this application by the Allegheny Companies is necessary in light of the fact that the crossing of the Harpers Ferry NHP and Appalachian Trail will involve modification and expansion of an existing right-of-way for the Millville-Doubs 138 kV line which is owned and operated by Potomac Edison and the ownership configuration (based on state boundary lines) of the PATH Project facilities crossing the Harpers Ferry NHP and Appalachian Trail by PATH-Allegheny and PATH-VA.

The Welton Spring-Kemptown Segment also will require a crossing of the Chesapeake and Ohio National Historic Park (“C&O Canal”). A separate application is being filed concurrently with this application for crossing of the C&O Canal by PATH-Allegheny.

Overall, PATH extends from the Amos Substation in Putnam County, West Virginia to the proposed Kemptown Substation in Frederick County, Maryland. Portions of PATH will be constructed, owned, operated and maintained by PATH-Allegheny, PATH-VA and PATH West Virginia Transmission Company, LLC (“PATH-WV”). PATH-Allegheny will construct, own, operate and maintain the portion of the project in Jefferson County, West Virginia and all of the project in Maryland. PATH-VA will construct, own, operate and maintain all of the project in Virginia. PATH-WV will construct, own, operate and maintain all of the project in West Virginia, except: (i) the Welton Spring Substation which will be constructed, owned, operated and maintained by PATH-WV and PATH-Allegheny jointly and (ii) the Jefferson County, West Virginia portion of PATH which, as noted above, will be constructed, owned, operated and maintained by PATH-Allegheny.

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Supplemental Response to #1: Applicant

The name and address for the co-applicants are:

- (1) PATH Allegheny Transmission Company, LLC
800 Cabin Hill Drive
Greensburg, PA 15601-1989
- (2) PATH Allegheny Virginia Transmission Corporation
800 Cabin Hill Drive
Greensburg, PA 15601-1989
- (3) The Potomac Edison Company
800 Cabin Hill Drive
Greensburg, PA 15601-1989

Supplemental Response to #7: Project description

The Allegheny Companies seek NPS authorization for the construction, operation and maintenance of a 765 kV electric transmission facility across Harpers Ferry NHP and the Appalachian Trail. The crossing of these NPS properties is necessary for the construction of a portion of the PATH Project which will run from the Amos Substation in Putnam County, West Virginia to a proposed Welton Spring Substation, which is to be located two miles north of Old Fields, in Hardy County, West Virginia, and then, to a proposed Kemptown Substation, which is to be located three miles southeast of New Market, in Frederick County, Maryland. The following maps for the proposed route of the PATH Project and crossings of the Appalachian Trail and Harpers Ferry NHP are provided as part of this application:

- Attachment 1 – Proposed Route of PATH Project
- Attachment 2 – Proposed PATH Route - Welton Spring to Kemptown Segment
- Attachment 3 – Proposed PATH Appalachian Trail and Harpers Ferry NHP Crossing ROW Diagram
- Attachment 4 – Topographic map of Welton Spring to Kemptown Segment
- Attachment 5 – Viewshed maps for crossing of Harpers Ferry NHP and the Appalachian Trail

PATH-Allegheny will finance, construct, own, operate and maintain the segments of PATH located in Jefferson County, West Virginia and all of Maryland. Accordingly, PATH-Allegheny will finance, construct, own, operate and maintain the PATH facilities crossing the Harpers Ferry NHP and those portions of the Appalachian Trail located in West Virginia. PATH-VA will construct, own, operate and maintain all of the project facilities in Virginia. Potomac Edison will continue to own and operate the portion of the Millville-Doubs 138 kV line to be underbuilt on PATH structures on crossings of the Harpers Ferry NHP and the Appalachian Trail.

As part of the crossing of the Harpers Ferry NHP and Appalachian Trail, the Allegheny Companies propose the removal of existing transmission structures for the 138 kV Millville-Doubs transmission line owned and operated by Potomac Edison and placement of the 138 kV Millville-Doubs transmission line, as an underbuild, on the PATH transmission structures. This will require a modification of the existing right-of-way agreements to recognize the new placement of the 138 kV Millville-Doubs transmission line and accommodate the necessary right-of-way width for placement of a 765 kV transmission facility.

Potomac Edison holds two right-of-way agreements for the crossing of the 138 kV Millville-Doubs transmission line across NPS properties:

- (1) the O'Connor Right-of-Way Agreement, granted January 17, 1959, runs from the western property line of the O'Connor parcel (neighboring the "Becker" property) to the West Virginia/Virginia state line. The Appalachian Trail runs

coincident with the state boundary in this area. The O'Connor Right-of-Way Agreement provides for "sufficient width for erecting, constructing, reconstructing, maintaining, repairing, and operating an electric transmission and distribution line" as well as the right to cut and trim trees necessary for the safe operation and maintenance of the line. A map appended to the O'Connor Right-of-Way Agreement shows the right-of-way extending 75 feet on each side of the center line. A copy of this agreement is included as Attachment 6.

- (2) the Campbell Right-of-Way Agreement, granted on February 5, 1959, starts at the West Virginia/Virginia State line and runs in an easterly, then northeasterly direction to the Campbell property line (neighboring the "Hardy" property). The right-of-way allows for the right to erect one 3-pole structure and ten 2-pole structures. The Campbell Right-of-Way Agreement provides for "sufficient width for erecting, constructing, reconstructing, maintaining, repairing, and operating and electric transmission and distribution line" as well as the right to cut and trim trees necessary for the safe operation and maintenance of the line. However, the right to cut and trim trees is explicitly limited to 75 feet on each side of the center line. A copy of this agreement is included as Attachment 7.

Accordingly, the Allegheny Companies seek: (i) the modification and expansion of the existing right-of-way agreements held by Potomac Edison over the Harpers Ferry NHP and Appalachian Trail to allow for placement of the 138 kV Millville-Doubs transmission line as an underbuild on the PATH transmission structures; and (ii) the grant of a 200 foot wide, new right-of-way for the PATH transmission line. While PATH will require a 200 foot right-of-way, it only will require an expansion of the existing right-of-way corridor across the Harpers Ferry NHP and Appalachian Trail by approximately 105 feet.

(a) Type of system or facility, (e.g., canal, pipeline, road): A 765 kV electric transmission line.

(b) Related structures and facilities: Support structures, conductors, shield wires, guy wires, insulators, clamps and construction/maintenance roads.

(c) Physical specifications (length, width, grading, etc.): The Allegheny Companies propose the modification of an existing transmission corridor which crosses approximately 1,000 feet of the Harpers Ferry NHP and approximately 850 feet of the Appalachian Trail properties. This existing transmission corridor already includes the 138 kV Millville-Doubs transmission line (owned and operated by Potomac Edison) and the 500 kV Mt. Storm-Doubs transmission line (owned and operated by Dominion Virginia Power).

PATH will require a widening of the existing transmission line corridor across the Harpers Ferry NHP and Appalachian Trail, by approximately 105 feet to the north of the

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existing right-of-way boundary for Potomac Edison's 138 kV Millville-Doubs transmission line. The total right-of-way for the combined PATH, Millville-Doubs and Mt. Storm-Doubs transmission line crossings will have a width of approximately 380 feet. This proposed right-of-way width reflects the need to have PATH located a minimum of 200 feet north of the 500 kV Mt. Storm-Doubs transmission line. A map of this proposed crossing is included as Attachment 3 and further description of the proposed route across the Harpers Ferry NHP and Appalachian Trail is provided in response to item #13a.

The Allegheny Companies propose the use of a double-circuit "H frame" transmission structure for the entire crossing of the Harpers Ferry NHP and Appalachian Trail. This tubular, double-circuit "H frame" structure uses two cylindrical concrete foundations supporting three phases and is depicted in Attachment 8.¹ Each phase will consist of six conductors arranged in a circular-shaped bundle about 30 inches in diameter. Each individual conductor will be approximately 1 inch in diameter composed of aluminum wire strands wrapped around inner strands of steel. The phases will be suspended by two strings of porcelain insulators arranged in a "V" pattern. Above the conductors will be two lightning shield optical ground wires. These fiber optic wires also will provide for communications involved in the control of PATH.

(d) Term of years needed: Life of the facility.

(e) Time of year of use or operation: Year-round operations.

(f) Volume or amount of product to be transported: PATH will be a 765 kV electric transmission line.

(g) Duration and timing of construction: The projected in-service date for the PATH Project is June 1, 2014. Right-of-way acquisition, permitting and construction of the PATH Project will require an estimated four years to complete. Construction will likely be staged throughout the project and the timing of construction near and over the NPS properties will be determined after further review of the project.

(h) Temporary work areas needed for construction: The need for any temporary work areas on any NPS property has yet to be determined. To the extent required, further information on the nature and scope of such temporary work areas will be developed in the context of an analysis pursuant to applicable requirements under the National Environmental Policy Act ("NEPA").

¹ For the overall PATH Project, different line configurations may be used depending on the presence of existing transmission infrastructure and site-specific conditions.

Response to # 12: Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

- (1) PATH-Allegheny is a limited liability company, the ownership of which is controlled by Allegheny Energy, Inc. (“Allegheny”).
- (2) PATH-VA is a wholly-owned subsidiary of PATH-Allegheny.
- (3) Potomac Edison is a wholly-owned subsidiary of Allegheny which serves customers in western Maryland and parts of West Virginia and Virginia. Potomac Edison currently operates and maintains transmission facilities crossing the Harpers Ferry NHP and Appalachian Trail.

Allegheny is the ultimate parent company of PATH-Allegheny, PATH-VA and Potomac Edison. Allegheny has extensive experience in the construction, operation and maintenance of transmission facilities. Allegheny is an investor-owned, public utility holding company and its operating subsidiaries own and operate transmission and generating facilities and provide reliable electric service to over 1.5 million customers in West Virginia, Pennsylvania, Maryland and Virginia. Allegheny’s operating revenues are approximately \$ 3 billion annually, and its adjusted net income in 2007 was approximately \$385 million.

The Federal Energy Regulatory Commission (“FERC”) has approved a formula rate for the recovery of the costs associated with the construction, operation and maintenance of the PATH Project.

Response to # 13a: Describe other reasonable alternative routes and modes considered:

(1) Description of Criteria Used in Route Selection Process:

The primary goal in selecting a proposed route for the PATH Project was to minimize the effect of the PATH Project on humans, animals and plants, and the environment, as well as cultural, historical, and recreational resources. The above-stated primary goal and the following criteria and technical guidelines² were used in arriving at recommendations for siting the PATH Project in the three states where it will be constructed.

Criteria

In identifying, evaluating, and selecting routes, the route selection team attempted to minimize:

1. Route length, circuitry, cost, and special design requirements;
2. The removal or substantial interference with the use of existing residences;
3. The removal of existing barns, garages, commercial buildings, and other nonresidential structures;
4. Substantial interference with the use and operation of existing schools, existing and recognized places of worship, existing cemeteries, and existing facilities used for cultural and historical, and recreational purposes;
5. Substantial interference with economic activities;
6. Crossing of designated public resource lands such as national and state forests and parks, large camps and other recreation lands, designated battlefields or other designated historic resources and sites, and wildlife management areas;
7. Crossing large lakes and large wetland complexes, critical habitat, and other scarce, distinct natural resources; and
8. Substantial visual impact on residential areas and public resources.

The route selection also was guided by the use of: (1) the technical expertise of engineers and other industry professionals responsible for the reliable and economic construction, operation, and maintenance of the PATH Project and other electric system facilities; (2) North American Electric Reliability Corporation (“NERC”) Reliability Standards as implemented by the PJM Interconnection, L.L.C. (“PJM”); (3) industry “best practices;” and (4) the electrical need determination for the PATH Project. In implementing the foregoing route selection criteria, internal and external electric industry professionals were consulted as necessary in the consideration of any proposed routes that may be inconsistent with the application of the specific technical guidelines.

² No order of importance or weight was assigned to these criteria and guidelines.

Guidelines Applicable to 765 kV Line:

1. Avoid double-circuiting or crossing existing 500 kV or 765 kV lines.
2. Do not parallel existing 765 kV lines for more than 1 mile in any particular location.
3. Minimize the crossing of 345 kV and 500 kV transmission lines.
4. Minimize paralleling corridors with more than one existing 345 kV or 500 kV circuit.
5. Maintain 200 feet of centerline-to-centerline separation when paralleling existing 345 kV, 500 kV, and 765 kV transmission lines.
6. Maintain 150 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines.
7. Minimize angles greater than 65 degrees and sloping soils more than 30 degrees (20 degrees at angle points).
8. Do not triple-circuit lines of 345 kV or greater voltage.

Early on in the development of the proposed route, representatives of the Allegheny Companies met with representatives of the NPS and other federal and state agencies to review the routing process. The input from these meetings and the *Appalachian Trail Conference, Policy on Roads and Utility Developments*, 2000, indicated that any crossing of these resources should be at an already disturbed location, such as at an existing transmission line crossing or a highway crossing. This preference for crossings at or near existing transmission lines was taken into consideration during route selection.

(2) Description of Proposed Route:

Based on the information and the analysis conducted as part of a line route evaluation, a proposed route was selected with the intent of meeting the primary goal of minimizing impacts on the natural, human, and historic resources along the route, while maintaining consistency with the previously described selection criteria and avoiding circuitous routes, extreme costs, and non-standard design requirements.

A map showing the proposed route of the Welton Spring-Kemptown Segment of PATH is included as Attachment 2 and a more specific map of the proposed crossing of the Harpers Ferry NHP and Appalachian Trail is appended as Attachment 3.

The Welton Spring Substation is proposed to be located approximately two miles north of Old Fields, in Hardy County, West Virginia. For a majority of the proposed route's length, the transmission line will follow existing right-of-way corridors for electric transmission facilities. Starting from the Welton Spring Substation, the line will run in a northeasterly direction through Hardy and Hampshire Counties, West Virginia, cross the state boundary into Frederick and Clarke Counties, Virginia and then return into Jefferson County, West Virginia. From a position south of Charles Town, West Virginia, the transmission line will then run in an easterly direction. Over the remainder of the

proposed route, the facility will be situated in Loudoun County, Virginia and Frederick County, Maryland.

Harpers Ferry NHP and Appalachian Trail Crossing Description

Jefferson County, West Virginia Segment

The PATH proposed route enters Jefferson County at a crossing over Opequon Creek and will run in an easterly direction, passing to the south of Charles Town, West Virginia and the existing Millville Substation. The line will initially follow an existing transmission corridor which includes a 138 kV and a 500 kV line. The proposed route deviates from the existing transmission corridor for approximately 3 miles to avoid a high-density residential area south of Charles Town, then follows this corridor again until the two lines separate just east of State Route 9. From that separation point, the route parallels the existing 500 kV line for approximately 2.5 miles to the Shenandoah River. On the east side of the river, the proposed route continues along the existing 500 kV corridor to an existing transmission corridor crossing of the Harpers Ferry NHP and Appalachian Trail. The existing transmission corridor crosses approximately 1,000 feet of the Harpers Ferry NHP and approximately 850 feet of the Appalachian Trail (part of which is in Loudoun County, Virginia). As noted previously, the Appalachian Trail Conference guidelines and guidance from NPS representatives recommend that any new utility crossings of the trail should be at already disturbed crossings.

The proposed design for crossing of the Harpers Ferry NHP and Appalachian Trail will involve the widening of the existing corridor to permit the installation of steel 765 kV H-frame structures with a 138 kV underbuild. This configuration is shown in Attachment 8. To accomplish this, the existing 275 foot wide corridor will need to be expanded by 105 feet to the north of the existing 138 kV right-of-way boundary for the existing Potomac Edison 138 kV Millville-Doubs transmission line, making for a total right-of-way width of 380 feet. The existing structures and transmission wires for Dominion Virginia Power's 500 kV Mt. Storm-Doubs line will remain in their present location.

Loudoun County, Virginia Segment

The Loudoun County segment of PATH begins at the Virginia/West Virginia boundary line within the Appalachian Trail Corridor. The proposed route runs due east, along an existing transmission corridor, through the NPS properties and then on to property which is home to the Blue Ridge Center for Environmental Stewardship. Continuing east, the line crosses Short Hill Mountain approximately a mile from State Route 671. On the east side of the ridge, the line will cross State Route 287 using the corridor for the existing 138 kV Potomac Edison line (the crossing of State Route 287 will use an underbuild structure similar to the structure proposed for the Appalachian Trail crossing).

After crossing State Route 287, the line will continue east to the Potomac River, staying on the north side of the existing transmission corridor all the way until the crossing of the Potomac River and C&O Canal. This point is considered a desirable place to cross the

Potomac River and the C&O Canal because of the minimal amount of clearing that would be required.

(3) Discussion of Other Reasonable Alternative Routes and Modes Considered:

The PATH Project was first identified by PJM as necessary to address long-term reliability issues in the PJM Region in the 2007 Regional Transmission Expansion Plan (“RTEP”). The Project continued to be recognized as needed for reliability purposes in the 2008 RTEP. Recent analyses by PJM project violations of NERC Reliability Standards as early as June 1, 2014, if the PATH Project is constructed.

The following alternative routes and modes were considered by PJM:

(a) Non-Transmission Solutions

PJM considered the possibility of market-driven additions of new generation capacity as well as demand-side management/energy efficiency programs located in the eastern PJM Region as potential non-transmission solutions for resolving the identified reliability needs.

(b) Upgrading or Expanding Existing Transmission Lines

Electrical alternatives such as reconductoring (i.e., installing new conductors) of existing transmission facilities to enable the overloaded facilities to transport more energy were also considered.

(c) Transmission Line Alternatives

In addition to PATH, several transmission line alternatives were evaluated prior to selecting PATH. These alternatives included:

- A new Amos to Bedington 765 kV line and twin 500 kV lines from Bedington to Kempton (*i.e.*, the PATH Original Configuration directed in the 2007 RTEP);
- A new 500 kV line from Kammer to 502 Junction to Hunterstown to Three Mile Island;
- A new 500 kV line from Kammer to Prexy to Conemaugh to Three Mile Island;
- A new 765 kV line from a tap on the Kammer to South Canton line extended to Keystone and Sunbury;
- A new 765 kV line from Kammer to Three Mile Island;
- A new 500 kV line from Keystone to Sunbury; and
- A new 500 kV line from Keystone to Three Mile Island.

(d) Alternatives to the Proposed Crossing of the Harpers Ferry NHP and Appalachian Trail

During initial route evaluations, the PATH Project was premised upon an original configuration consisting of a 765 kV transmission line from the Amos Substation in Putnam County, West Virginia to the existing Bedington Substation in Berkeley County, West Virginia, and continuing from the Bedington Substation with two 500 kV transmission lines from the Bedington Substation, eastward to the site of the proposed Kemptown Substation in Frederick County, Maryland. This original configuration called for consideration of a series of crossings over the Appalachian Trail at points north of the proposed route, as well as an alternative that would use a route across the Appalachian Trail and Harpers Ferry NHP that is similar to what is now proposed. These proposed northern routes for the PATH Original Configuration would not have required any crossing of the Harpers Ferry NHP.

During the siting study, an alternative crossing was examined for the Welton Spring-Kempton Segment. This alternative crossing would be located adjacent to where State Route 9 crosses the Appalachian Trail. This route would not require a crossing of the Harpers Ferry NHP.

Response to # 13b: Why were these alternatives not selected.

(1) Non-Transmission Alternatives

PJM determined that it is unlikely that sufficient amounts of new generation capacity or demand-side management/energy efficiency resources can be implemented in the densely developed metropolitan areas of eastern PJM to offset entirely the need for additional backbone transmission capability. The recent slow pace of net additions of generation capacity in this area, particularly when considered together with increasingly stringent environmental restrictions and increasingly contentious local opposition to siting of such facilities, makes it highly unlikely that the need for the addition of new, high-voltage transmission capability could be avoided through additional generation capacity in the vicinity of the load centers of northern New Jersey, Philadelphia, Baltimore, Washington, D.C., and Northern Virginia.

Similarly, demand-side management and energy efficiency resources cannot be realistically expected to substitute for new bulk transmission capability to serve customers in eastern PJM. When dealing with complex interregional electric systems, demand-side management/energy efficiency estimates must be realistic to ensure that system reliability is maintained. Unlike a generator, demand-side management or energy efficiency resources are not expected to provide steady firm capacity output over an extended period of time. Accordingly, for purposes of long-term planning for total system adequacy, substituting demand-side management and/or energy efficiency resources for incremental transmission capability could require several times the equivalent amount of new generation that would be needed to offset the new transmission capacity. Demand-side management/energy efficiency does not produce a steady stream of megawatts (MWs) equivalent output because it is normally cycled over a given time period (*i.e.*, load would be switched off and on to ensure minimal impact to the provider, rather than switched off for the entire duration of the system need). Also, demand-side management/energy efficiency is produced in a variety of diverse programs, which also result in varied measurements.

Additional information relating to this matter is included in materials submitted as part of PATH's applications for certificates of public convenience and necessity before West Virginia, Virginia and Maryland. Due to the size of these materials, the Allegheny Companies will be providing this information to the NPS in a supplemental filing.

(2) Upgrading or Expanding Existing Transmission Facilities

The electrical need for PATH is caused by voltage violations and thermal overloads projected by PJM to occur as early as June 1, 2014. Additional thermal overloads are projected to occur in 2015, 2016, 2017, 2019, 2020, 2022, 2023 and 2024. Upgrading or expanding existing transmission facilities will not resolve the voltage violations projected for June 1, 2014 and the thermal overloads projected in subsequent years.

Additional information relating to this matter is included in materials submitted as part of PATH's applications for certificates of public convenience and necessity before West Virginia, Virginia and Maryland. Due to the size of these materials, the Allegheny Companies will be providing this information to the NPS in a supplemental filing.

(3) Transmission Line Alternatives

As noted earlier, in addition to the PATH Project, several transmission line alternatives were evaluated prior to selecting the PATH Project. These alternatives included:

- A new Amos to Bedington 765 kV line and twin 500 kV lines from Bedington to Kemptown (*i.e.*, the PATH Original Configuration directed in the 2007 RTEP);
- A new 500 kV line from Kammer to 502 Junction to Hunterstown to Three Mile Island;
- A new 500 kV line from Kammer to Prexy to Conemaugh to Three Mile Island;
- A new 765 kV line from a tap on the Kammer to South Canton line extended to Keystone and Sunbury;
- A new 765 kV line from Kammer to Three Mile Island;
- A new 500 kV line from Keystone to Sunbury; and
- A new 500 kV line from Keystone to Three Mile Island.

Each of the transmission line alternatives was evaluated to determine the impact of the alternative on the loading of thirteen key 500 kV facilities throughout the 15-year planning horizon. The Amos Substation to Bedington Substation to Kemptown Substation alternative (the "PATH Original Configuration") that was chosen and approved in the 2007 RTEP had the most significant impact on relieving the loadings of the key 500 kV facilities throughout the 15-year planning horizon.

The PATH Original Configuration was later refined due to siting considerations around the Bedington substation to the current PATH Project. During the routing study this electrical configuration was reconsidered as a result of interactions with government agencies, public input, and a desire to identify a solution that minimizes the impact on communities and the environment. Each of these elements played a role in spurring additional review and revision of the electrical configuration, ultimately resulting in the current configuration of the PATH Project.

Based on a review of all of the alternatives considered, PJM recommended the construction of the PATH Project as the best solution because the PATH solution was the most effective at resolving the multiple reliability criteria violations.

With respect to the specific, proposed route for the PATH Project, the routing criteria and technical guidelines that informed the selection of the proposed route are described above in response to question 13a. The proposed route, including its

crossing over the Harpers Ferry NHP and Appalachian Trail, is consistent with generally accepted routing philosophies of minimizing impacts to the environmental, cultural and social features of the study areas. Well-established siting best practices, such as utilizing existing corridors where appropriate, were incorporated early in the routing analysis. Moreover, public feedback from the open houses suggested that following existing transmission lines was highly favored, and so additional focus was placed on utilizing existing corridors wherever possible.

(4) Alternative Crossings of the NPS Property

The northern crossing considered for the Appalachian Trail under the PATH Original Configuration is not a feasible crossing with the new configuration of the PATH Project. As an initial matter, the PATH Original Configuration was determined to have many routing constraints in and around the Bedington Substation and Jefferson County, West Virginia, as well as in areas further to the east in Washington and Frederick Counties, Maryland. Information gathered through agency consultations, public open houses, and time spent in the field reviewing a wide range of potential routes provided insight into the high level of residential development and mosaic of state and federal lands that PATH potentially would affect if it crossed these areas. For example, routes through Washington County and northern Frederick County would almost inescapably cross some sensitive state lands such as the Maryland Department of Natural Resources (“DNR”) park lands, open space, and conservation easements.

The single direct 765 kV line configuration, now proposed, improves the reliability of the regional transmission grid; reduces the overall length of the new line needed by 70 to 90 miles and thereby greatly reduces impacts to the human and natural environment. Even using a single 765 kV line over the more northerly crossing routes would require 15 to 20 miles or more of additional construction of transmission lines and encounter the same concerns that were raised by the use of such routes under the PATH Original Configuration.

The alternative crossing of the Appalachian Trail by the Welton Spring-Kemptown Segment at State Route 9 was not recommended due to the fact that it would be a new transmission line crossing of the Appalachian Trail, would be longer than the proposed route, would cross more agricultural and forest lands, and would have resulted in as many as five additional stream crossings. Further, NPS and public input stressing a preference to use an existing transmission corridor over the Harpers Ferry NHP and Appalachian Trail was a significant factor in the routing decision.

Response to # 13c: Give explanation as to why it is necessary to cross Federal Lands.

The Appalachian Trail is a linear system which must be crossed in order to accomplish the project purpose of constructing a transmission facility between the Amos Substation in West Virginia and the Kemptown Substation in Maryland. Further, crossing of the Harpers Ferry NHP is necessary to facilitate the use of an existing transmission corridor crossing of the Appalachian Trail. The selected routes and crossings were identified after completion of an extensive line routing evaluation. Based on specified technical and siting criteria, the proposed route was determined to minimize the overall effect of the line on humans, animals and plants, and the environment, as well as cultural, historical and recreational resources.

Response to # 15: Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (*construction, operation, and maintenance*); (b) estimated cost of next best alternative; and (c) expected public benefits.

The PATH Project has been identified by PJM as necessary to address long-term reliability issues in the PJM Region. The electrical need for PATH is caused by voltage violations and thermal overloads projected to occur as early as June 1, 2014. Additional thermal overloads are projected to occur in 2015, 2016, 2017, 2019, 2020, 2022, 2023 and 2024. Upgrading or expanding existing transmission facilities will not resolve the voltage violations projected for June 1, 2014 and the thermal overloads projected in subsequent years.

15a. Estimated Cost of Proposed PATH Transmission Facilities

The estimated total cost of the PATH Project is approximately \$1.8 billion. This includes the Welton Spring-Kempton Segment which will cross the Harpers Ferry NHP and Appalachian Trail (as well as the C&O Canal, which is the subject of a separate application for right-of-way authorization), the Amos-Welton Spring Segment, modifications at the Amos Substation and construction of the Welton Spring and Kempton Substations.

15b. Estimated Cost of Next Best Alternative

The estimated cost of the next best alternative is not available. Analysis of reasonable alternatives will be analyzed in a comprehensive analysis pursuant to NEPA.

15c. Expected Public Benefits

As described above, the PATH Project was identified to resolve a number of anticipated violations of NERC Reliability Standards. A number of public benefits will be realized through the completion of the PATH Project, including:

- Significant improvement to the reliability of the existing PJM transmission system;
- Reduction in loading on several highly congested transmission facilities;
- Relief to voltage and thermal limitations; and
- Increased transmission transfer capability.