

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Re: Application Of PPL Electric Utilities :
Corporation Filed Pursuant To 52 Pa. Code :
Chapter 57, Subchapter G, For Approval Of : Docket No. A-2012-_____**
**The Siting And Construction Of The :
Blooming Grove – Jackson and Peckville – :
Jackson 138/69 kV Transmission Line In :
Monroe County, Pennsylvania :**

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. 1

DIRECT TESTIMONY OF JUSTIN B. WEHR

May 15, 2012

1 Q. Please state your name and business address.

2 A. My name is Justin B. Wehr. My business address is Two North Ninth Street, Allentown,
3 PA 18101.

4
5 Q. By whom are you employed and in what capacity?

6 A. I am employed by PPL Electric Utilities Corporation (“PPL Electric”). My position with
7 PPL Electric is as Siting Coordinator in the Transmission Operations Department. In that
8 position, I am responsible for identifying and selecting high voltage transmission line
9 routes and substation locations. I am also responsible for preparing Applications and
10 Exhibits for approval by the Pennsylvania Public Utility Commission.

11

12 Q. What is your educational background?

13 A. I received a Bachelor of Science Degree in Environmental Science/Geology with a minor
14 in Geography from Kutztown University of Pennsylvania in 2002. My additional
15 continuing education relevant to my current position includes the following courses and
16 programs:

- 17 • Richard Chinn Environmental Training Inc., ACOE Wetland Delineation
18 /Regional Supplemental Training (2003)
- 19 • Halfmoon LLC, Pennsylvania Land Use and Environmental Issues (2009)
- 20 • Burns & McDonnell, Routing and Permitting on the NEEWS Project
21 (2010)
- 22 • Burns & McDonnell, Transmission Line Routing Workshop 2011

23

1 Q. Describe your experience and employment history with PPL Electric.

2 A. I have been employed by PPL Electric for 3 years. I have been in my current position, as
3 Siting Coordinator, since November of 2008. My previous professional experience
4 includes employment at Lehigh Engineering Associates, Inc., from June 2002 until
5 August of 2008. I served in the capacities of Environmental Technician, Environmental
6 Project Manager, and Project Manager. In those roles, I was responsible for
7 environmental permitting, grading and drainage calculations, and overall Project
8 management.

9

10 Q. Have you participated in other transmission line siting projects for PPL Electric?

11 A. Yes. I have worked on more than 10 projects involving transmission lines.

12

13 Q. What are your responsibilities in connection with the Blooming Grove – Jackson and
14 Peckville – Jackson 138/69 kV Transmission Line?

15 A. I am responsible for leading the Siting Team and establishing the General Area of Study,
16 compilation of environmental inventories, Alternative Route evaluation and the selection
17 of a preferred route for the Blooming Grove – Jackson and Peckville – Jackson 138/69
18 kV Transmission Line (“the Project”). In addition, I am responsible for coordinating the
19 preparation and submission of the Siting Application and Attachments to the Siting
20 Application.

21

22 Q. What is the purpose of your direct testimony in this proceeding?

1 A. My testimony addresses several issues. I will provide a digest to the testimony and
2 exhibits filed by PPL Electric in support of this Application. I will provide a brief
3 overview of the Project. I will describe the process employed by PPL Electric in
4 developing, preparing and filing this Application. I will provide an overview of the siting
5 process used for the Project, and the decision making process within PPL Electric for
6 selecting transmission line routes. I will explain PPL Electric's corporate policy on
7 measures to mitigate the impact of a transmission line. I will describe the public outreach
8 program employed by PPL Electric for this Project. Finally, I will summarize the
9 benefits of this Project for PPL Electric and its customers.

10

11 Q. Please describe the testimony and attachments presented by the Company in this
12 proceeding.

13 A. The Application ("Siting Application") initiating this proceeding was filed with the
14 Pennsylvania Public Utility Commission ("Commission") in May, 2012. The Siting
15 Application included the pleading which provided an overview of the Project, a
16 description of the proposed transmission line, an explanation of the need for the
17 transmission line, a summary of the process of selecting the route for the transmission
18 line, a description of the necessary rights-of-way and a summary of the estimated cost of
19 the transmission line and the scheduled in-service date.

20

21 Accompanying the Siting Application was a notebook containing Attachments to the
22 Siting Application.

23

1 The notebook contains:

- 2 • Attachment 1 - Cross Reference Matrix
- 3 • Attachment 2 - Necessity Statement
- 4 • Attachment 3 - Environmental Setting
- 5 • Attachment 4 - Alternatives and Siting Analysis
- 6 • Attachment 5 - Engineering Description
- 7 • Attachment 6 - Vegetation Management
- 8 • Attachment 7 - List of Governmental Agencies, Municipalities, and Other
- 9 Public Entities Contacted
- 10 • Attachment 8 - List of Property Owners Within and Adjacent to the Right-
- 11 of-Way
- 12 • Attachment 9 - List of Governmental Agencies, Municipalities, and Other
- 13 Public Entities Receiving a Copy of this Application
- 14 • Attachment 10 - PPL Design Criteria and Safety Practices
- 15 • Attachment 11 - Magnetic Field Management
- 16 • Attachment 12 - Agency Coordination
- 17 • Attachment 13 - Public Notice Requirements
- 18 • Attachment 14 - Agency Permit Requirements

19

20 PPL Electric is also submitting a total of five Statements, including this one, in support of
21 the Siting Application. These Statements provide additional explanation of the matters
22 addressed in the Siting Application and identify the witness who is sponsoring each
23 portion of the Siting Application.

24 PPL Electric St. No. 1: Justin B. Wehr – providing an overview of the Project;
25 describing the process employed by PPL Electric in
26 developing, preparing, and filing the Siting Application;
27 providing an overview of the siting process; explaining
28 PPL Electric’s use of outside consultants; explaining

1 the decision making process for selecting transmission
2 line routes; explaining PPL Electric's policies to
3 mitigate the impact of a transmission line, and
4 summarizing the benefits of the Project.

5 PPL Electric St. No. 2: Barry Baker – explaining the siting methodology for the
6 Project.

7 PPL Electric St. No. 3: Alexander Lousos – addressing the need for the Project;
8 describing PPL Electric's system planning process;
9 explaining that the proposed system will solve
10 identified problems; and explaining the benefits of the
11 Project.

12 PPL Electric St. No. 4: Danny S. Jarrah – explaining the design features of the
13 Project; describing the safety features that will be
14 incorporated into the design of the Project; and
15 explaining PPL Electric's Magnetic Field Management
16 Program and how it has been incorporated into the
17 design of the Project.

18 PPL Electric St. No. 5: Diane Williams – explaining the process that PPL
19 Electric used to attempt to acquire the rights-of-way
20 and easements necessary for the Project.

21
22 Q. Please provide a brief summary of the Project.

23 A. PPL Electric proposes to reduce the electrical load on the existing Blooming Grove –
24 Jackson 138/69 kV circuit and provide operating flexibility and improved reliability for
25 customers in Jackson, Pocono, and Tobyhanna Townships in Monroe County. In its
26 current configuration, the transmission and distribution systems in the area violate the
27 reliability guidelines established in PPL Electric's Reliability Principles and Practices
28 ("RP&P"). The RP&P violations and reliability guidelines will be discussed in greater
29 detail by Mr. Lousos in his testimony.
30

1 To resolve the identified RP&P violations, PPL Electric, with approval from the
2 Commission, plans to construct a new double-circuit 138/69 kV line from the 138-69 kV
3 Jackson Substation (“Jackson Substation”), north to the Lake Naomi Tap pole, a distance
4 of approximately 3.8 miles. PPL Electric will design the new line to current 138 kV
5 standards but will operate the line at 69 kV initially. In addition, in the Jackson
6 Substation 69 kV Yard, PPL Electric will install a new line terminal, breaker bay, and
7 circuit breaker.

8
9 Q. Please describe the major tasks PPL Electric must undertake to construct the Project.

10 A. There are many tasks that must be organized and completed before construction can
11 begin. Chief among these are resource acquisition, contract management, cost and
12 schedule management, line route evaluation, public outreach, design, right-of-way
13 acquisition, material procurement, permitting, and regulatory approvals.

14
15 Line route evaluation was performed in accordance with the process summarized later in
16 my testimony and the methodology discussed in the direct testimony of Barry Baker, a
17 URS employee. URS was hired due to their extensive expertise in siting projects in
18 Pennsylvania. Line route evaluation involves selecting an appropriate route that
19 minimizes the impact of the transmission line on all factors of the natural and human
20 environment, while avoiding unreasonable routes, high or unnecessary costs, and non-
21 standard design requirements to the extent practical. To accomplish this task, a General
22 Area of Study of approximately 30 square miles (19,200 acres) in Monroe County was
23 analyzed.

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With regard to Public Outreach, from the very beginning of this Project, we have recognized that incorporating public input in our work would be an important task. We have attempted to listen, to understand and, where practical, to make changes in our approach in response to input received from the public. I will provide more detail about our public outreach process later in my testimony.

With regard to right-of-way acquisition, new or expanded right-of-way from six property owners will be necessary. A full discussion of the right-of-way acquisition process is provided in the testimony of Ms. Williams.

- Q. Please describe the process employed by PPL Electric in preparing this Application.
- A. The Application, in its broadest sense, is designed to show that this Project is needed to provide reliable service to customers and that PPL Electric has chosen a reasonable route upon which to build the line.

PPL Electric has maintained close involvement in all aspects of this Project throughout the period prior to the filing of this Application and will continue to do so through final engineering, construction and Project completion. In each case where outside assistance is used, a PPL Electric employee or employees is assigned for oversight and decision making purposes.

- Q. Who is URS?

1 A. URS is a multidisciplinary company which PPL Electric retained to assist with the
2 preparation of environmental inventories, alternative route identification, and preferred
3 route selection. In close consultation with PPL Electric, primarily myself as Siting
4 Coordinator, URS performed much of the detailed analysis of the area that was presented
5 to the Siting Team for evaluation and decision-making.

6
7 Q. Why did PPL Electric retain the services of URS to assist in the selection of the route for
8 the Project?

9 A. Due to the large number of transmission line projects currently being sited by PPL
10 Electric, it does not have the manpower to handle all the work.

11
12 Q. How does PPL Electric select a route for a transmission line project?

13 A. A multidisciplinary team (“Siting Team”) is assembled consisting of experts from the
14 functional groups that have a stake in the design and construction of the project. The
15 functional groups frequently involved in transmission line siting projects are: siting,
16 various engineering disciplines, real estate, system planning, environmental experts,
17 public relations, legal, system operations and construction. Information about the
18 characteristics of the area are gathered and mapped. This information includes, but may
19 not be limited to: Land Use, Zoning, Natural Features, Geology, Water Resources,
20 Cultural and Archaeological Resources, and Threatened and Endangered Species Habitat.
21 Simultaneously, a communications plan is developed to ensure that external stakeholders
22 such as local, county and state governments, special interest groups and the public are
23 kept informed about the project.

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Next, routing constraints and opportunities are identified. From this information, alternative line routes are developed that minimize impacts on constraints and maximize routing opportunities giving consideration for the design, construction and maintenance challenges and issues identified by siting team members. After consideration of all input and a qualitative and quantitative analysis of all information, the siting team selects a preferred line route that strives to balance environmental, social, and technical considerations as well as project cost.

Q. How are decisions made by the siting team?

A. The team strives for consensus on important decisions. In my experience, upon completion of the siting analysis, one of the routes under consideration usually emerges as the clearly superior choice and the siting team is able to achieve a consensus on the selection of the route.

Q. What is the goal of the siting process?

A. The goal is to achieve the optimal balance of many competing factors in selecting a transmission line route. Factors include minimizing impacts on the environment, avoiding population centers, minimizing cost, avoiding historic and cultural sites, using existing linear features, promoting public and employee safety, minimizing impacts on land use, minimizing impacts on scenic areas, and avoiding scenic rivers. Although PPL Electric strives to achieve all of these goals, doing so is often impossible. Indeed, some of the goals are mutually exclusive. For example, PPL Electric cannot build transmission

1 lines in residential areas without obtaining homeowners' permission due to constraints on
2 the power of eminent domain. That forces PPL Electric to construct transmission lines
3 primarily in less populated areas where impacts on the environment may be greater. All
4 routes have impacts; no route is perfect. Our goal is to fairly consider and balance all of
5 these competing interests and to select a reasonable route for each transmission line.

6
7 Q. Please summarize the major steps in the siting process and the Company's ultimate
8 selection of the line route.

9 A. PPL Electric and URS undertook a program to identify potential routes for the Project.
10 This program involved extensive analysis through reviewing maps, Geographic
11 Information Systems ("GIS") data sets, and aerial photography; conducting field analysis
12 and subsequently identifying six Alternative Routes for further evaluation. The steps
13 leading up to identifying the six Alternative Routes included delineation of the General
14 Area of Study, environmental and land use data collection, identifying a more focused
15 Project Study Area, and analysis of potential routes.

16
17 The six routes selected represented the routing team's best efforts at identifying viable
18 route alternatives that met the stated Project purpose, goals, and objectives in the most
19 environmentally, socially, and economically responsible manner. Where practical, the
20 routes followed the path of existing power lines. However, all six routes require the
21 Company to acquire some amount of new right-of-way.

22

1 The Company ultimately selected Route D-1 due to its many advantages over the other
2 routes. Its primary advantage is that it makes the best use of existing rights-of-way,
3 which will minimize environmental impacts, social impacts and cost.

4
5 Q. Please provide an overview of the siting process.

6 A. First PPL Electric determined the General Area of Study. The General Area of Study for
7 the Project encompasses an area of approximately 30 square miles in Monroe County.
8 The General Area of Study is that territory for which the environmental inventories were
9 compiled. The boundaries of the General Area of Study were determined by the potential
10 supply and destination service points with consideration for man-made and natural
11 boundaries, as well as other limitations, which made other line routing alternatives
12 unfeasible.

13
14 A wide variety of data were compiled and mapped to assist the siting team in identifying
15 the most reasonable alternative route for construction of the Project. Examples of the
16 information collected are: Geology and Soils; Surface Waters and Aquatic
17 Species/Habitats; Wetlands; Vegetation; Wildlife; Land Use; Recreation Lands and
18 Cultural Resources; and other linear features such as utility rights-of-way and
19 transmission lines. This information was further interpreted to identify major obstacles
20 to, and opportunities for, transmission line construction.

21
22 PPL Electric determined that a subset of the General Area of Study was appropriate for
23 line route alternatives, where the alternatives could be sited to feasibly meet the Project's

1 functional requirements and, at the same time, minimize environmental and social
2 impacts and project costs. This area is called the Project Study Area. PPL Electric
3 determined six alternative routes for this line in the Project Study Area, identified as
4 Routes A, B, C, D, D-1 and E.

5
6 The selection of Route D-1 as the preferred alternative was made after a quantitative and
7 qualitative review of the alternatives taking into consideration impacts on the Built
8 Environment, Natural Environment and Engineering Requirements of all six alternative
9 routes. This process is discussed in detail in Attachments 3 and 4 to the Application for
10 approval of the siting and construction of the Project that were filed with the Commission
11 in May, 2012. This process enabled PPL Electric to select a route for the proposed
12 transmission line that appropriately balances functional requirements, environmental
13 factors, social factors, and cost.

14
15 Q. Please explain how the General Area of Study was determined.

16 A. PPL Electric conducted a detailed siting analysis to determine a location for the Project
17 that best balances social, environmental, engineering and economic considerations. This
18 analysis included the designation of a General Area of Study for the compilation of an
19 environmental inventory, followed by the designation of a Project Study Area within the
20 General Area of Study. Within the Project Study Area, PPL Electric identified
21 alternative routes, analyzed the alternative routes, and selected the proposed line route.
22 PPL Electric identified a General Area of Study for the Project that encompasses
23 approximately 30-square miles (19,200 acres) within Monroe County, Pennsylvania. The

1 General Area of Study is defined to the south by the Jackson Substation, beyond which a
2 new route extending north to the desired tap location would not be reasonable.
3 Landscape features define the remaining boundaries and include dense residential areas
4 to the west and north, and densely populated residential and commercial districts along
5 Interstate (“I”)-80 and State Route 611 to the east. Using this established General Area
6 of Study, the routing team began its efforts to determine potential routes for the line.
7

8 Q. Please describe the difference between the General Area of Study and the Project Study
9 Area.

10 A. The General Area of Study is the area for which the environmental inventories are
11 gathered while the Project Study Area, which is a subset of the General Area of Study, is
12 the territory in which line route alternatives can be sited to feasibly meet the Project’s
13 functional requirements and, at the same time, minimize environmental impacts and
14 project costs. The Project Study Area encompasses approximately 14-square miles
15 within the General Area of Study.
16

17 Q. Did the siting process described above consider the environment?

18 A. Yes. The General Area of Study contains native plant and wildlife habitats in natural
19 areas. These natural areas are preserved for their ecological benefit, as well as for their
20 social recreational value. Typical wildlife species found within the General Area of
21 Study include those found in wetlands, forested habitats, and scrub-shrub habitats.
22 Wetlands in the area provide habitat for frogs, snakes, birds, and raccoons. Forests and
23 scrub-shrub habitats are home to species such as white-tailed deer, gray squirrel, wild

1 turkey, box turtle, striped skunk, opossum, and a variety of small mammals and
2 songbirds.

3
4 As a result of a search of the Pennsylvania Natural Diversity Inventory (“PNDI”)
5 database, administered by the Pennsylvania Natural Heritage Program (“PNHP”), and
6 follow-up consultations with state and federal agencies, PPL Electric has identified the
7 following federal and/or state rare, threatened, or endangered species as potentially
8 occurring within the General Area of Study: bog turtles, Indiana bats, timber rattlesnakes,
9 variable sedge, and pitch pine-heath woodland. Habitat assessments for these species
10 may be required by the jurisdictional agencies as part of the environmental permitting
11 and approval process for the Selected Route.

12
13 Q. Have any areas in the General Area of Study been given special designations by the state
14 or federal government?

15 A. Yes. Special use areas are places recognized by regulatory agencies or local governments
16 as providing unique habitat characteristics or wildlife management opportunities that
17 indicate a need for preservation. Examples include scenic areas, wilderness areas, wild
18 and scenic rivers, state game lands, and priority natural areas. The only designated scenic
19 area in the General Area of Study is the Big Pocono Overlook, located within Big Pocono
20 State Park. No designated wilderness areas, wild and scenic rivers, or Heritage Geology
21 Sites designated by the PNHP are located in the General Area of Study. A large portion
22 of the 4,000 acre State Game Land #38 is located within the General Area of Study, as
23 well as a portion of State Game Land #318. There are three Priority Natural Areas

1 located in the General Area of Study: Long Pond Macrosite, Camelback Mountain, and
2 Sand Spring Run/Wolf Swamp Run.

3
4 PPL Electric conducted a desktop survey of the historic architectural resources within the
5 General Area of Study. The desktop survey consisted of accessing the Pennsylvania
6 Historical and Museum Commission's ("PHMC") Bureau of Historic Preservation's
7 Cultural Resources Geographic Information System ("CRGIS") to review available
8 information on previously recorded historic architectural sites in the General Area of
9 Study. A windshield survey, conducted in October 2010, provided information about the
10 built environment and the types of historic architectural resources. Areas of potential
11 concern were identified during the windshield survey and used in defining constraints
12 used to determine the Selected Route for the Project.

13
14 No National Register of Historic Places ("NRHP")-listed or -eligible historic structures or
15 districts were identified in the General Area of Study. One undetermined above ground
16 resource, identified as the Transue School (PHMC Key No. 039537), is an 1870's
17 building located within the General Area of Study. This building is located on Sullivan
18 Trail Road, north of I-80, in Pocono Township. An undetermined status means that,
19 although this resource has been brought to the attention of PHMC, no determination of
20 eligibility has been made. No archeological sites have been documented in the General
21 Area of Study. Information regarding the Project was provided to PHMC in June 2011.
22 On July 12, 2011, PHMC issued a response letter stating that based on their review there

1 are no NRHP- eligible or -listed historic or archaeological properties in the area of the
2 proposed Project.

3

4 Q. What development patterns are present in the General Area of Study?

5 A. There are many development types and patterns in Monroe County. The main land use in
6 the General Area of Study is Residential and is composed primarily of single-family
7 residences and vacation rental homes or condominium complexes. Much of the
8 residential development has occurred within the past 30 years. These residential areas
9 range from widespread 200-home development complexes to modest 20-30 home
10 developments. Relatively few sections of the General Area of Study are used for
11 agricultural purposes. All of the land dedicated to agriculture is privately owned. The
12 primary agricultural use involves row crops such as hay, corn, and soybeans. Other
13 agricultural uses include horse pastures and dairy farms, but these are limited compared
14 to row crops. There are no industrial land uses within the General Area of Study.
15 However, several large tracts of land located north of Sullivan Trail Road are owned by
16 mining companies.

17

18 Q. Are other utility facilities present in the General Area of Study?

19 A. There are no active railroads or airports within the General Area of Study. The closest
20 airport is Pocono Mountain Municipal Airport, which is located approximately 2.15 miles
21 north of the General Area of Study. A portion of the southwestern corner of the General
22 Area of Study is identified by Monroe County as having a utility land use, but it is
23 actually part of a large forest tract owned by the Bethlehem Water Authority for the

1 protection of its water sources in the area. Similarly, a 20-acre parcel near the
2 intersection of I-80 and I-380 is identified as having a services land use but is actually a
3 series of four communication towers. PPL Electric does not anticipate that any of these
4 utility features will be impacted by the proposed Project, due to the distance between the
5 features and the Project.

6
7 Q. Please describe how you determined the Project Study Area and the six Alternative
8 Routes that were considered in this Project.

9 A. PPL Electric and URS worked together utilizing Geographic Information System (“GIS”)
10 technology in developing the Project Study Area. The development of the Project Study
11 Area, as well as the development of the six Alternative Routes, is discussed in greater
12 detail by Mr. Baker in his testimony.

13
14 Q. Please explain the analysis of the Alternative Routes.

15 A. The six routes selected (identified as Routes A, B, C, D, D-1, and E) represent the routing
16 team’s best efforts at identifying viable route alternatives that meet the stated Project
17 purpose, goals, and objectives in the most environmental, socially, and economically
18 responsible manner. The six routes are as follows:

- 19 • Route A begins at the Jackson Substation and travels northwest for 2.26 miles
20 through State Game Land #38 and crosses to the north side of I-80. Route A then
21 turns to the northeast for 0.21 miles. Turning to the north, Route A proceeds for
22 0.51 miles along the eastern edge of the Crescent Lake residential development.
23 The route turns to the west for 0.19 miles crossing over Crescent Lake Road and
24 through a proposed residential development area. Turning to the northwest, Route
25 A travels another 0.19 miles then turns north for 0.45 miles. After crossing
26 Sullivan Trail Road, Route A intersects with the existing Lake Naomi 138/69 kV
27 Tap Line at the western edge of the Project Study Area and closest to the Lake
28 Naomi Substation. The total distance of Route A is 3.81 miles.

- 1 • Route B starts at the Jackson Substation and travels northwest for 2.26 miles,
2 mirroring Route A to the north side of I-80. After crossing I-80, Route B turns
3 sharply to the northeast and proceeds for 0.23 miles. Route B then turns north and
4 travels 0.51 miles along open forest land bordering a wetland complex. Turning
5 to the northeast, Route B proceeds 0.19 miles, then turns north and travels 0.49
6 miles and crosses Crescent Lake Road, Sullivan Trail Road, and sections of open
7 forest, before intersecting the existing Lake Naomi 138/69 kV Tap Line east of
8 Route A. Route B is 3.68 miles long.
- 9 • Route C starts at the Jackson Substation and travels north for 2.14 miles. After
10 crossing to the north side of I-80, Route C turns to the northeast and travels 0.32
11 miles. Route C then turns north for 0.72 miles, passing along the back edges of
12 existing and proposed residential lots and then crossing over Dry Sawmill Run.
13 Turning to the northeast, Route C travels 0.47 miles, crossing over Sullivan Trail
14 Road and over open forest land before intersecting with the existing Lake Naomi
15 138/69 kV Tap Line in the center of the Project Study Area. Route C is 3.65
16 miles long.
- 17 • Route D starts at the Jackson Substation and travels northeast for 0.53 miles,
18 paralleling the eastern edge of the existing transmission line right-of-way. After
19 cresting the top of Camelback Mountain, Route D turns to the north for 1.37 miles
20 to a point just south of I-80, where it shifts to the west of the existing transmission
21 line right-of-way to avoid a cluster of residential properties. To accomplish this
22 shift, the existing line would be transferred to new poles constructed in a new
23 right-of-way on the western side of the existing right-of-way. The new line would
24 then be transferred to the existing poles in the existing right-of-way. From the
25 base of the south side of I-80, Route D turns to the east for 0.27 miles, then turns
26 sharply north for 0.15 miles and crosses to the north side of I-80. Turning to the
27 northwest, Route D then proceeds 0.19 miles over open forest to a point just
28 within the borders of State Game Land #38. Route D turns to the north for 0.61
29 miles through open forest and parallel with a private dirt road that provides access
30 to several homes located along the existing transmission line right-of-way. Prior
31 to reaching the homes, Route D shifts back to the east side of the existing
32 transmission line right-of-way. This shift would be accomplished by moving the
33 proposed transmission line to the new poles in the new right-of-way created on
34 the east side of the existing right-of-way. The existing transmission lines would
35 then be transferred back to the existing poles in the existing right-of-way.
36 Paralleling the eastern edge of the existing transmission line right-of-way, Route
37 D then turns to the northeast for 0.64 miles and crosses over Sullivan Trail Road,
38 Transue Run, and traverses through open forest before intersecting with the
39 existing Lake Naomi 138/69 kV Tap Line right-of-way in the eastern end of the
40 Project Study Area. Route D is 3.76 miles long.
- 41 • Route D-1 starts at Jackson Substation and mirrors Route D for 2.51 miles. After
42 switching to the east side of the existing transmission line right-of-way on the
43 north of I-80, Route D-1 departs from the existing right-of-way and proceeds
44 northeast for 0.17 miles and then turns north for 0.33 miles. In this section, Route

1 D-1 traverses an area of open forest that bypasses several residential properties,
2 but through an area identified as a proposed residential development. Upon
3 intersecting with the existing transmission line right-of-way, Route D-1 then turns
4 to the northeast and travels 0.57 miles before intersecting with the existing Lake
5 Naomi 138/69 kV Tap Line right-of-way in the eastern end of the Project Study
6 Area.

- 7 • Route E starts at Jackson Substation and travels northeast for 1.12 miles. Route E
8 parallels the eastern edge of the existing transmission line right-of-way to the crest
9 of Camelback Mountain, at which point it crosses the access road for Big Pocono
10 State Park and parallels the eastern edge of the road down to the northern base of
11 the mountain. Route E then turns to the east for 0.34 miles paralleling the south
12 side of the access road. Near PPL Electric's existing Camelback Substation,
13 Route E turns to the northeast for 0.44 miles and immediately crosses the access
14 road and the existing Camelback Tap 69 kV transmission line. Route E then
15 traverses an open parking lot and a wooded area bordering the northwestern edge
16 of the Camelback Ski Resort. Route E turns north for 0.56 miles, then northwest
17 for 0.85 miles. Route E crosses I-80, an unnamed tributary to Transue Run and
18 traverses areas of open forest that are a proposed residential development site. At
19 this point, Route E turns north for 0.51 miles. Route E then intersects with the
20 existing transmission line right-of-way and turns to the northeast for 0.28 miles
21 paralleling the eastern edge of the right-of-way, before intersecting with the
22 existing Lake Naomi 138/69 kV Tap Line right-of-way in the eastern portion of
23 the Project Study Area.

24
25 Once the Alternative Routes were identified, PPL Electric conducted a quantitative
26 assessment of all six routes. The quantitative assessment required calculating the
27 evaluation metrics of the routes and summarizing them in tabular form organized within
28 the three perspectives – Built, Natural and Engineering. The metrics used are defined in
29 Table 4-2 to Attachment 4. The raw metric results of the quantitative analysis are shown
30 in Table 4-3 to Attachment 4. The quantitative analysis was then further refined by
31 applying appropriate weights to each of the metrics. The weighting ensures that the
32 features requiring the most “protection” are assigned a higher relative influence in the
33 final ranking. The weighted metrics and weighted totals are shown in Table 4-4 to
34 Attachment 4.

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Q. What did the siting team do with the results of the quantitative analysis?

A. The siting team used the results of the quantitative analysis to identify the three worst scoring alternatives. In the quantitative analysis, a lower score indicated a better performance. The three worst scoring routes were then excluded from further consideration. PPL Electric identified that Routes A, C, and E were not suitable for the Project. Route A scored the worst due to its impacts on the natural environment. Route E had the highest impacts on the built environment and engineering impacts. Route C had the second highest impact on the natural environment and engineering impacts.

In the quantitative analysis, Routes B, D, and D-1 scored the best. Route D-1 had the lowest cumulative value of the six Alternative Routes considered. Route B had a low cumulative value due to limited built environment and engineering impacts. Route D also had a low cumulative value, despite having the highest built environment impact.

Q. What areas of impact did PPL Electric consider in its qualitative review of Routes B, D, and D-1?

A. PPL Electric considered the following areas of impact in its qualitative review of Routes B, D, and D-1: visual concerns; community concerns; special permit issues; construction, maintenance, and accessibility; and schedule delay risk.

Q. Please describe the conclusion of the qualitative assessment for visual concerns.

1 A. In analyzing the visual impact of the three alternatives the siting team noted that Routes
2 D and D-1 would basically parallel the existing transmission line right-of-way. Although
3 widening of the right-of-way and adding new poles and conductors would generate a
4 visual impact for the surrounding communities, that impact would be primarily limited to
5 a few landowners whose properties are located adjacent to the existing right-of-way and
6 along the residential access road on the south side of Sullivan Trail Road. Paralleling the
7 existing right-of-way would have less visual impact than Route B, which would require a
8 new corridor through an area without existing transmission lines. While Route B's
9 visibility would be low where it crossed State Game Land #38, it would be higher in the
10 new right-of-way over Camelback Mountain and across I-80. The siting team concluded
11 that a new overhead alignment through an area without an existing transmission line
12 right-of-way would result in a more negative visual impact on the landscape than a
13 transmission line located parallel to an existing right-of-way. This conclusion gave
14 Route B the greatest visual impact of the three alternatives. Route D had the second
15 greatest impact, because it bisected several properties within close proximity to four
16 residential structures. Route D-1 had the lowest visual impact, because it would run
17 parallel to the back edge of the same four properties.

18
19 Q. Please describe the conclusion of the qualitative assessment for community concerns.

20 A. All three alternatives cross through generally rural or isolated areas where construction
21 and maintenance activities would not seriously impact the daily functioning of the local
22 residents. Route B includes a new transmission line right-of-way corridor over
23 Camelback Mountain and crosses sections of forest associated with State Game Land #38

1 that are not fragmented, and passes adjacent to a cluster of residential properties near
2 Crescent Lake and Sullivan Trail Road. It is anticipated that this alternative would
3 generate negative reactions from community leaders and groups due to its visual and
4 social impacts, as well as from state and regional conservation groups due to its
5 environmental impacts. Route B would have long-term social ramifications on the local
6 community, and acquisition of the necessary state-owned and private property might be
7 strongly contested. It, therefore, received the highest value, i.e., worst score for
8 community concerns.

9
10 Routes D and D-1 both create some community concerns. Due to the increased activity
11 and noise during construction, some community concern could be realized by persons
12 living adjacent to the rights-of-way. Community concerns related to Route D would be
13 elevated since it parallels the existing residential access road and is in close proximity to
14 existing residential homes. Although Route D-1 crosses through portions of a proposed
15 development, the community concerns with this route would be relatively minor since the
16 corridor bypasses the existing residential section. Route D-1, therefore, received the
17 lowest, i.e., most favorable value for community concerns.

18
19 Q. Please describe the conclusion of the qualitative assessment for special permit issues.

20 A. Various types of permits may be required for developing a new transmission line or when
21 rebuilding transmission lines within existing rights-of-way. Each of the three alternatives
22 would cross I-80 and a similar number of local roads, thus coordination with the
23 Pennsylvania Department of Transportation for roadway occupancy permits is required

1 for all Routes and would be basically identical. The three Routes all cross
2 environmentally sensitive lands within State Game Land #38. Development of any of the
3 Routes would involve some wetland impacts, stream crossings, and potential species
4 habitat encroachment. The extent of the permits required, however, will vary based on
5 the condition of the natural resources and degree of anticipated impact.

6
7 By paralleling and overlapping onto the existing transmission line right-of-way, Routes D
8 and D-1 would impact less forest area, cross fewer streams and wetlands, and have a
9 relatively limited effect on potential habitats. Route D would impact relatively more
10 wetland areas than Route D-1, whereas Route D-1 would impact more forest areas than
11 Route D. In terms of special permit requirements, these impacts are comparable and
12 would not result in potential permit process delays for either route. Routes D and D-1
13 were assigned the same moderately low special permit value.

14
15 Route B would cross significantly more forest area, streams, and wetland habitats than
16 Route D and Route D-1. Route B bisects several presently undisturbed portions of open
17 forest and fragments interior forest areas. The evaluation of the impacts to the forest
18 community, associated streams and wetland areas, and potential habitats could be
19 extensive. The permit expectations for Route B would involve a larger area and require
20 more engineering to incorporate the expectations into the plans. Route B, therefore, had
21 the highest special permit value.

22

1 Q. Please describe the conclusion of the qualitative assessment for construction,
2 maintenance, and accessibility.

3 A. The siting team considered the variables involved in constructing transmission lines,
4 conducting mandatory routine maintenance of the facilities, and providing appropriate
5 access to all the required areas. Construction related issues for Route B would involve
6 clearing vegetation and other obstructions within a new 100-foot wide right-of-way,
7 developing new access roads, building new pole foundations, installing the poles, and
8 installing the new 138/69 kV conductoring network. The rocky terrain, steep slopes, and
9 dense forest growth would hinder access and development of Route B. Once completed,
10 however, access for routine maintenance would not be problematic.

11
12 Although Routes D and D-1 would involve similar footer and pole construction
13 processes, other aspects would be less difficult for these routes compared to Route B.
14 Vegetation clearing work would be limited to widening the existing right-of-way by 50
15 feet in most areas. Similarly, construction of these two routes would further benefit from
16 the existing access road network along the existing right-of-way. On the other hand,
17 since these routes involve switching sides of the rights-of-way shared with other
18 transmission lines, both Route D and D-1 would involve a higher level of complexity and
19 coordination that may require special pole placements, structure modifications, and
20 temporary planned power outages. Because creating new transmission line rights-of-way
21 would result in more construction, maintenance, and access issues compared with
22 paralleling existing rights-of-way, Route B was given a moderately high construction,

1 maintenance, and accessibility issue value. Routes D and D-1 were assigned the same
2 moderate construction, maintenance, and accessibility issue value, below that of Route B.

3
4 Q. Please describe the conclusion of the qualitative assessment for schedule delay risk.

5 A. Schedule delay risks are directly related to the other qualitative criteria evaluated by the
6 Siting Team. For example, negative community reaction, complicated right-of-way
7 acquisition, required additional field studies for environmental permit clearance, and
8 construction complexity can result in schedule delays. Route B would raise considerably
9 more community concern relative to Routes D and D-1. Schedule delays for Route B
10 would be expected as a result of community opposition to the acquisition of new rights-
11 of-way adjacent to the residential cluster near Crescent Lake and Sullivan Trail Road.
12 Other factors that could further delay the schedule for Route B include: potential state
13 opposition to the acquisition of un-fragmented sections of State Game Land #38;
14 opposition from local environmental groups over the potential impact to a Priority
15 Natural Area; permit requirements and the need for additional environmental studies to
16 address environmental permit requirements; mitigation expectations associated with
17 anticipated impacts to wetland, forest, streams, and habitat; and construction complexity
18 due to the rugged terrain. Cumulatively, these factors could significantly delay the
19 schedule of Route B.

20
21 Route D and Route D-1 would not require the same level of coordination with the
22 community or various agencies. Being located adjacent to the existing transmission line
23 right-of-way, these proposed alignments would generate less community issues regarding

1 visibility, and right-of-way acquisition processes would be limited to landowners
2 currently living along the existing right-of-way. Similarly, permit requirements are
3 anticipated to be a time consuming procedure, however, the process should be less
4 cumbersome than for Route B due to the relatively limited area of potential impact. Route
5 D would be subject to more community-oriented schedule delays than Route D-1 since it
6 is closer to several existing residential structures and would involve more landowners.
7 Route D-1 would avoid these potential delays by passing around residential areas and
8 involving fewer landowners. As a result, Route D-1 was assigned the lowest schedule
9 delay risk value, followed by Route D and then Route B.

10
11 Q. Please summarize the conclusion reached by PPL Electric and URS regarding the route
12 for the Project.

13 A. After evaluating all the factors considered during the routing process as documented in
14 the Siting Application and summarized elsewhere in my testimony, PPL Electric and
15 URS concluded that Route D-1 is the Preferred Route for the Project. The goal of the
16 siting study was to select the most suitable route for the double-circuit 138/69 kV line.
17 The most suitable route is considered the route that minimizes the effect of the
18 transmission line on all factors of the natural and human environment, while minimizing
19 overall project costs and avoiding unreasonable routes and non-standard design
20 requirements to the extent practical.

21
22 The results of the qualitative assessment of the three Alternative Routes indicated that
23 Route D-1 had the lowest weighted scores for visual concerns, community concerns, and

1 schedule delay risk. This route also scored favorably with regard to special permit issues
2 and construction issues. Route D-1 had the lowest cumulative total in the qualitative
3 assessment, and was therefore determined to be the Preferred Route for this Project.
4 Route D-1 will have substantially less impact on the natural and built environment, land
5 use, and citizens of Monroe County than the other Alternative Routes considered.

6
7 Q Does PPL Electric attempt to mitigate adverse impacts from the proposed line?

8 A. Yes. The siting process, is specifically designed to select a route that will mitigate
9 adverse impacts. PPL Electric has used this process successfully many times in filings
10 before the Commission. We have a long history of building power lines in a way that
11 strikes a balance among maintaining reliable electric service, minimizing impact on
12 property owners, protecting the environment and keeping costs down.

13
14 Q. Please explain PPL Electric's corporate policy on measures to mitigate the impacts of
15 transmission lines.

16 A. PPL Electric strives to minimize the impacts of transmission lines upon property owners
17 and the environment. Mitigation efforts actually begin in the siting stage where sensitive
18 areas are avoided to the extent practical. When avoidance is not practical, PPL Electric
19 will implement mitigation strategies.

20
21 PPL Electric's vegetation management program is outlined in the "Specification for
22 Initial Clearing and Control Maintenance of Vegetation on Or Adjacent to Electric Line
23 Right-of-Way through Use of Herbicides, Mechanical and Hand-clearing Techniques."

1 A copy of this specification is provided as Attachment 6 to the Siting Application. In
2 summary, this policy is designed to mitigate the impact of tree clearing on property
3 crossed by PPL Electric rights-of-way. More specifically, selective clearing is utilized on
4 certain PPL Electric easements. Selective clearing allows compatible species vegetation
5 (vegetation that would not grow tall enough to threaten the reliable operation of the
6 transmission line) to remain or grow back within the right-of-way. Restricted clearing is
7 practiced in environmentally sensitive areas and, along with compatible species
8 vegetation, allows some non-compatible species vegetation to remain until the understory
9 vegetation redevelops.

10
11 Additionally, PPL Electric does not use any aerial herbicide application techniques.
12 Herbicides are applied manually by trained professionals, each of whom applies the
13 herbicide manually with a hand-held sprayer. Only those species that require control are
14 treated. PPL Electric will not apply herbicides in the following areas or situations:
15 pastures within 50 feet of any body of water; except that PPL Electric will use herbicides
16 approved for watershed/aquatic use for stump treatments; within any actively maintained
17 orchard or cultivated planting; near susceptible crops or other non-target vegetation
18 where drift, runoff, or vapors can cause injury; where weather conditions create excessive
19 drift; on rights-of-way under jurisdiction of the Pennsylvania Department of
20 Conservation and Natural Resources, Pennsylvania Game Commission, Pennsylvania
21 Fish and Boat Commission, and the U. S. Park Service unless prior approval is granted by
22 the Department or Commission; on watershed properties, or in the vicinity of springs,
23 irrigation ditches, or other potable water sources, unless prior approval is granted by the

1 property owner for use of a watershed/aquatic approved herbicide; in gullies or ravines
2 where tree clearing is minimal. Finally, all herbicides used by PPL Electric have been
3 approved by the United States Environmental Protection Agency.

4
5 Impacts from soil erosion and sedimentation and crossings of jurisdictional waters and
6 wetlands are mitigated through the acquisition of and compliance with all required
7 permits and plans. Initially, all wetlands and waters are identified, delineated, surveyed
8 and added to construction plans. Structure and access road locations are located outside
9 of these sensitive areas as much as practical. In locations where this is not practical, all
10 required permits are obtained and the Company adheres to their terms and conditions
11 during construction. I note that the placement of conditions on a permit by the Army
12 Corps of Engineers, the Department of Environmental Protection or similar agencies is a
13 principal tool for protecting the environment. The placement of conditions on a permit
14 indicates that the agency has thoroughly reviewed the permit application and that, so long
15 as conditions are followed, there will be no unlawful harm to the environment.

16
17 PPL Electric has instituted a Magnetic Field Management Program for new and rebuilt
18 transmission lines. The implementation of this policy with respect to the proposed
19 Project is discussed in the testimony of Mr. Jarrah.

20
21 In addition, the right-of-way for the proposed transmission line will preclude certain uses
22 such as locating buildings or swimming pools within the easement. However, property
23 owners will be compensated for this right-of-way when it is acquired.

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Q. Please summarize the principal permits and approvals required for this project.

A. Attachment 14 lists the anticipated local, state and federal agency requirements for permits, approvals or documentation. These permits and approvals include but are not limited to County Conservation District approval, Pennsylvania Department of Environmental Protection (PADEP) Chapter 105 permits, PADEP National Pollution Discharge Elimination System permit, and Pennsylvania Department of Transportation Highway Occupancy permits. PPL Electric must also receive approval from the Commission for the line siting and construction and for the condemnation applications. PPL Electric will obtain all necessary permits and approvals prior to construction and will comply with all conditions of the permits and approval.

Q. Please describe the right-of-way requirements for this project.

A. Right-of-way requirements are discussed more fully in Ms. Williams' testimony. To summarize, most of Route D-1 will be constructed adjacent to existing transmission facilities, and will therefore utilize existing rights-of-way. However, additional right-of-way is required from six property owners, including the Pennsylvania Game Commission ("PGC"). PPL Electric is attempting to obtain these additional rights-of-way voluntarily where possible. At this time, we have acquired easements from two of the property owners. Negotiations are ongoing with the other three property owners and the PGC.

1 Q. You previously mentioned public outreach in connection with the siting of the line.
2 Please describe in more detail the public outreach program employed by PPL Electric in
3 this process.

4 A. As I stated previously, we consider public outreach to be an important element
5 throughout the Project. PPL Electric announced its intent to build the new,
6 approximately 4-mile, Blooming Grove-Jackson and Peckville-Jackson 138/69 kV Line
7 in early May 2011. Since then, PPL Electric has undertaken activities to provide
8 information on the project to the public and government officials and to collect input
9 from those audiences. Activities that were undertaken to communicate the Project to the
10 public included calls and e-mails to Government Officials, letters and project fact sheets
11 mailed to property owners, news advertisements placed in a local newspaper, and a
12 public open house meeting held on May 16, 2011. More detailed information on the
13 outreach efforts is included in Attachment 4 to the Siting Application.

14
15 Q. Please summarize the benefits of the Project.

16 A. The benefits of the Project are discussed in the testimony of Mr. Lousos. In summary,
17 the Project is needed to reinforce the transmission system in Monroe County in order to
18 avoid overloading certain transmission facilities and to resolve transmission reliability
19 criteria violations on PPL Electric's 138/69 kV circuits in the area beginning as early as
20 2013.

21
22 Q. Does this complete your direct testimony?

23 A. Yes, it does