

**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. 3

DIRECT TESTIMONY OF ALEXANDROS LOUSOS

DATE: May 15, 2012

1 Q. Please state your full name and business address.

2 A. My name is Alexandros Lousos. My business address is Two North Ninth Street,
3 Allentown, Pennsylvania 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”) as a Support
7 Engineer in the Transmission Planning group.

8
9 Q. What is your educational background?

10 A. I received a Bachelor of Science degree in Electrical Engineering from Drexel
11 University in 2008.

12
13 Q. Please describe your professional background and employment history with PPL
14 Electric?

15 A. I have been employed by PPL Electric for more than three years. I have been in my
16 current position since 2008. In this position, I am responsible for planning PPL
17 Electric’s transmission system for lines 69 kilo-Volts (kV) and greater in the
18 Northeast Region.

19
20 Q. What is the purpose of your testimony?

21 A. My testimony will address the following issues: (1) the need for the Blooming
22 Grove – Jackson and Peckville – Jackson 138/69 kV Transmission Line (“the
23 Project”); (2) a description of PPL Electric’s system planning process; (3) an

1 explanation of the proposed project, which will solve the problems identified by the
2 planning process and allow PPL Electric to provide reliable service to its customers.

3

4 Q. Please provide a brief overview of PPL Electric's Attachment 2 of the Siting
5 Application and identify the portions for which you are responsible.

6 A. Attachment 2 of the Siting Application is the Necessity Statement that sets forth the
7 reasons why the system requires reinforcement, explains the functional alternatives
8 considered and describes the factors that led PPL Electric to determine that the
9 Project is the best alternative to ensure reliable long-term electric service to
10 customers. I am responsible for the Necessity Statement.

11

12 Q. Please briefly summarize the findings and conclusions set forth in the Necessity
13 Statement.

14 A. This Project is required to resolve violations of PPL Electric's reliability criteria in
15 Monroe County. The existing Lake Naomi 138/69 kV Tap is currently served by the
16 Blooming Grove – Jackson 138/69 kV Transmission Line. As a result of the
17 proposed new transmission project, a new Peckville – Jackson and Blooming Grove
18 – Jackson double-circuit 138/69 kV line from the Jackson Substation, to the Lake
19 Naomi Tap pole will be built. The existing Peckville – Jackson and Blooming Grove
20 – Jackson 138/69 kV Line, heading north from the Jackson Substation, will become
21 the new Jackson-Wagners #1 & #2 138/69 kV circuits, respectively. The Lake
22 Naomi 138/69 kV Tap will become part of the circuit designated as the Jackson –
23 Wagners #1 Line. The new transmission line will create an independent power

1 source for the Lake Naomi and Wagners substations. The Project will improve
2 reliability for PPL Electric customers in Monroe County.

3

4 Q. Does PPL Electric have its own reliability criteria?

5 A. Yes. The PPL Electric planning guidelines are outlined in its Reliability Principles
6 and Practices (“RP&P”). The RP&P was developed to ensure adequate and
7 appropriate levels of electric service consistent with good utility practice.

8

9 Q. What are the criteria under the RP&P?

10 A. In accordance with the RP&P, the PPL Electric system is planned so that:

- 11 • Normal operation of the system will not load any electric facility beyond its
12 normal continuous rating.
- 13 • The loss of any single transmission line, generating unit connected to the
14 transmission system, power transformer, substation bus, circuit breaker, or
15 double-circuit line due to the outage of a single tower or pole, does not result
16 in any system electric facility being operated beyond its applicable
17 emergency rating.
- 18 • No customer load should remain interrupted for routine maintenance of
19 transmission facilities.

20

21 Q. How does PPL Electric conduct its planning process?

22 A. The PPL Electric planning process begins by developing a computer model of the
23 future transmission system. A specific study year is chosen to define expected
24 facility loadings. The future transmission system model is prepared using the
25 existing transmission system plus any planned modifications to the transmission
26 system that are scheduled to be in service prior to the study year. Load levels used in

1 the transmission system model are based on the latest forecast prepared by the PPL
2 Electric Load Analysis Group.

3
4 Once PPL Electric's system model is complete, comprehensive power flow
5 simulations are performed to determine the ability of the system to comply with the
6 RP&P document. This is accomplished by simulating an outage of each single
7 circuit line, double circuit line, transformer, bus, generator, or circuit breaker. All
8 conditions where the future system does not meet the RP&P are identified.

9
10 Alternatives that can mitigate the reliability criteria violation are then developed and
11 analyzed to ensure that the PPL Electric transmission system meets the reliability
12 criteria in the RP&P. Estimated costs and lead-times to implement the
13 reinforcements are prepared. Computer simulations of the system, considering the
14 identified reinforcement alternatives, are completed to identify the best overall
15 reinforcement plan that will meet the future needs of the region in a reliable and
16 economic manner.

17
18 Q. Please describe the existing system.

19 A. From Jackson Substation to the Lake Naomi Tap pole, the Blooming Grove-Jackson
20 and Peckville-Jackson 138/69 kV circuits are built on double-circuit 138/69 kV
21 structures –that is, both circuits are installed on common structures. The circuits are
22 constructed for future 138 kV operation, but are currently operated at 69 kV.
23 Currently, the existing Lake Naomi 138/69 kV Tap is sourced by the Blooming

1 Grove-Jackson 138/69 kV circuit. The Lake Naomi Tap is built for future double-
2 circuit 138/69 kV operation, but is currently operated as a single-circuit 69 kV line.

3
4 Q. What did the system planning process identify?

5 A. Due to increasing load growth in the area, transmission planning studies project, for
6 2013 and beyond, that the existing Blooming Grove-Jackson 138/69 kV circuit will
7 be loaded to 115 Mega Volt Amperes (“MVA”) during peak winter conditions. The
8 Blooming Grove-Jackson 138/69 kV circuit has a normal winter rating of 111 MVA,
9 and loading the circuit to 115 MVA would be a violation of PPL Electric’s RP&P
10 guidelines. Operating the circuit in an overloaded condition, above its normal rating,
11 could initially damage the conductor and ultimately cause a failure resulting in
12 customer outages. An outage would result in an interruption of service to
13 approximately 16,300 customers. The RP&P guidelines also recommend that loading
14 on a single-circuit should not exceed 60 Mega Watts (“MW”), so that for the loss of
15 one circuit, the load from the out of service circuit can be transferred to the remaining
16 in-service circuit, which can still operate within its emergency ampacity rating.

17
18 By 2012-2013 winter, the outage of the Blooming Grove – Jackson 138/69 kV line,
19 with the outage occurring near Jackson substation would initially interrupt 115 MVA
20 of load. Transferring load from the Jackson to the Blooming Grove Substations
21 would be limited due to the resulting low voltage at the end of the Blooming Grove –
22 Jackson circuit. In such an outage, the Power Dispatcher would be required to
23 interrupt customer load served by distribution substations at Wagners and Lake
24 Naomi, and the customer-owned Sanofi substation, to restore 69 kV voltages along

1 the line to an acceptable level. The RP&P guideline for maximum allowable load
2 loss is 30 MW for a single-circuit line outage. If an outage were to occur on the
3 Blooming Grove – Jackson circuit in its current configuration, approximately 68
4 MW would remain interrupted for an extended period of time until the outage could
5 be located and switching moves could be made to re-sectionalize the line. This
6 outage would exceed the RP&P guideline for maximum allowable load loss for a
7 single-circuit line outage.

8

9 Q. How does PPL Electric intend to address the issues identified in the planning
10 process?

11 A. To resolve the issues described above, PPL Electric, with approval from the Public
12 Utility Commission (“Commission”), plans to construct the following:

- 13 • A new double-circuit 138/69 kV line from the Jackson Substation, north to
14 the Lake Naomi Tap pole, a distance of approximately 3.8 miles. PPL
15 Electric will design the new line to current 138 kV standards, but will operate
16 the line at 69 kV initially.
- 17
- 18 • In the 69 kV Yard at the Jackson Substation, PPL Electric will install a new
19 line terminal, breaker bay, and circuit breaker.
- 20

21 The existing Peckville – Jackson and Blooming Grove – Jackson 138/69 kV Line,
22 heading north from the Jackson Substation, will become the new Jackson – Wagners
23 #1 & #2 138/69 kV circuits, respectively. The Lake Naomi 138/69 kV Tap will
24 become part of the circuit to be designated as the Jackson – Wagners #1 circuit. The
25 Jackson – Wagners #2 circuit will have no load applied to it until the second 138/69
26 kV circuit is added to the Lake Naomi Tap in 2014. That project will be submitted
27 to the Commission for review and approval at an appropriate time in the future. The

1 line proposed in this project will be named the Blooming Grove – Jackson and
2 Peckville – Jackson 138/69 kV line.

3

4 Q. What functional alternatives were identified?

5 A. No other reasonably economical functional alternatives were identified that would
6 resolve the problem as outlined above.

7

8 Q. Does this conclude your direct testimony at this time?

9 A. Yes, it does.

10