BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of PPL Electric Utilities Corporation for a Finding that a Building to Shelter Control Equipment at the North Pocono 230-69 kV Substation in Covington Township, Lackawanna County, Pennsylvania is Reasonably Necessary for the Convenience or Welfare of the Public	:	Docket No. P-2012-_____

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. NP-1

DIRECT TESTIMONY OF

LISA R. KRIZENOSKAS

Q. Please state your full name and business address.

A. My name is Lisa R. Krizenoskas. My business address is Two North Ninth Street, Allentown, Pennsylvania 18101.

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

A. I am employed by PPL Electric Utilities Corporation ("PPL Electric") as a Supervising Engineer in the Transmission Planning Department.

Q. What is your educational background?

A. I have a Bachelor of Science in Electrical Engineering from Villanova University.

Q. Do you hold any professional licenses?

A. Yes, I am a Licensed Professional Engineer in the Commonwealth of Pennsylvania since 2003. My License No. is PE-062297.

Q. Please describe your background and employment history with PPL Electric.

A. I have worked for PPL Electric for more than 20 years. Presently, I am the Supervising Engineer in the Transmission Planning Department. I have six years of Regional Transmission Planning experience. Prior to my current position, I had experience as the Manager of Transmission Regulatory Affairs, Senior Engineer, Customer Support Engineer, Substation Design Engineer, Project Manager, Account Manager and a Distribution Planning Engineer at PPL Electric Utilities.

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

A. Yes. I have completed Necessity Statements for approximately ten Pennsylvania Public Utility Commission ("PUC" or "Commission") filings for lines varying in voltage levels from 69 kV to 230 kV. I was also the witness on need issues in the Coopersburg #1 & #2 138/69 kV Tap Reconstruction hearings in 2008 and the Richfield-Dalmatia 69 kV line in 2012.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the necessity for the North Pocono 230-69 kV Substation, which is being planned in conjunction with the proposed Northeast-Pocono Reliability Project. My testimony supports the petition filed by PPL Electric requesting a finding that the building to shelter control equipment at the proposed North Pocono 230-69 kV Substation in Covington Township, Lackawanna County is reasonably necessary for the convenience or welfare of the public.

In summary, the Northeast-Pocono Reliability Project and the North Pocono Substation are required as integral parts of a regional transmission project to resolve reliability and planning violations and to ensure reliable long-term service to customers in the Northeast Pocono area. Currently, the only sources of supply to the Northeast Pocono area are provided by 138/69 kV transmission lines. The current configuration of PPL Electric's transmission system in the Northeast Pocono Area consists of long transmission line lengths between regional substations. When service is interrupted on a long, heavily-loaded transmission line, the ability to

restore the interrupted load from an alternate source is limited. This limitation is due to unacceptable low voltages that result at particular distribution substations when customer load on the interrupted circuit is transferred to an adjacent circuit through abnormal sectionalizing. PPL Electric's system studies of the area that revealed that, starting in 2014, outages of certain facilities would result in violations of PPL Electric's RP&P guidelines.

Q. What transmission conditions, if not resolved, would jeopardize the reliability of service to customers in the future?

A. As set forth in detail in Statements Nos. 2 and 3 in support of the Northeast-Pocono Siting Application, PPL Electric's transmission planning studies projects that the following contingencies would result in violations of the maximum allowable load that can be interrupted for the loss of a transmission facility as set forth in the PPL Electric's "Reliability Principles & Practices" ("RP&P") if the system serving the Northeast Pocono area is not reinforced: (1) an outage of the double-circuit Blooming Grove-Jackson and Peckville-Jackson 138/69 kV Transmission Line; (2) a single-circuit outage of the Peckville-Jackson 138/69 kV circuit on the double-circuit Blooming Grove-Jackson and Peckville-Jackson 138/69 kV Transmission Line; (3) a single-circuit outage of the Blooming Grove-Jackson 138/69 kV circuit on the double-circuit Blooming Grove-Jackson and Peckville-Jackson 138/69 kV Transmission Line; (4) an outage of the double-circuit East Palmerton-Wagners #1 & #2 138/69 kV Transmission Line; and (5) a single-circuit outage of the East

Palmerton-Wagners #2 138/69 kV circuit on the East Palmerton-Wagners #1 & #2 138/69 kV Transmission Line.

PPL Electric's transmission studies further project that, by the winter of 2015-2016, the normal line loading on the Blooming Grove-Jackson and Peckville-Jackson 138/69 kV circuits will violate PPL Electric's RP&P guidelines for normal line loading. This is a concern because it limits the ability for PPL Electric to restore load from the interruption of a neighboring circuit.

PPL Electric projects that each of these violations, and the amount of load interrupted as a result therefrom, will increase in magnitude due to the forecasted load growth in the Northeast Pocono area. These violations are evidence that the 138/69 kV systems serving the Northeast Pocono area need to be reinforced.

Q. Please describe how the new North Pocono 230-69 kV Substation will help to address these concerns?

A. The installation of the North Pocono 230-69 kV Substation is an integral part of the preferred regional transmission project to resolve the violations of the RP&P guidelines and to reinforce the existing 138/69 kV systems serving the Northeast Pocono area by bringing a new 230 kV supply source closer to the growing load centers. To accomplish this, PPL Electric proposes to locate the new West Pocono and North Pocono 230-69 kV Substations central to the load they will serve. The North Pocono 230-69 kV Substation is the subject of this Zoning Petition. PPL

Electric's selection of the substation site for the North Pocono 230-69 kV Substation is summarized by Mr. Haupt in PPL Electric Statement No. NP-2.

The new North Pocono 230-69 kV Substation will be constructed and located centrally with respect to the Jackson 138-69 kV, Blooming Grove 230-69 kV, and Lackawanna 230-69 kV Substations. The North Pocono 230-69 kV Substation will tie into the Blooming Grove-Jackson and Peckville-Jackson 138/69 kV circuits, which will (1) allow for the reduction in 138/69 kV circuit length through re-sectionalizing the existing transmission facilities (changing the normally open point), and (2) allow for a reduction in the number of customers normally served from each 138/69 kV transmission circuit. The North Pocono 230-69 kV Substation also will provide a backup source to the Blooming Grove 230-69 kV, Lackawanna 230-69 kV and Jackson 138-69 kV Substations using interconnected 69 kV lines.

The Northeast-Pocono Project, including the new North Pocono Substation and associated new transmission lines, will enable PPL Electric to shorten the length of the existing 69 kV circuits, which will reduce the distance between the supply of power and the homes and businesses that use the electricity. This proposed arrangement also will provide an alternate supply of power to the Northeast Pocono area in the event that the normal sources are interrupted, which will improve power restoration times and provide operating flexibility and improved reliability for customers in the area. The Northeast-Pocono Reliability Project will reduce the

number of customers affected by a single facility outage, as well as the duration of the outage.

Q. Would PPL Electric be able to meet the goals and purposes of the PPL Electric's regional system planning process without the North Pocono 230-69 kV Substation?

A. No, without the proposed North Pocono 230-69 kV Substation, the 69 kV systems serving the Northeast Pocono area will not comply with PPL Electric's RP&P for allowable load loss and normal line loading limits. The regional transmission system is planned so that it can be operated at all projected load levels and during normal scheduled outages. The system is also planned to withstand specific unscheduled contingencies (unexpected facility outages) without exceeding the equipment capability, causing system instability or cascade tripping, exceeding voltage tolerances, or causing large-scale, long term or frequent interruptions to customers. The transmission system is required to have adequate capability so that it can meet the planning objectives. Without the Northeast-Pocono Reliability Project, including the North Pocono 230-69 kV Substation, the 69 kV system serving the Northeast Pocono area will not meet these goals.

Q. Please describe the goals and purposes of the regional system planning process.

A. The planning process assures that the regional power transmission system can supply electricity to all customer loads in a reliable and economic manner. The process is designed to ensure that the regional power transmission system can sustain probable contingencies and disturbances with minimal customer interruptions and adequately

serve each customer's needs with regard to capacity, voltage and reliability. PPL Electric's RP&P and regional planning process have been developed and refined over the years using industry wide experience and historical performance benchmarks to ensure acceptable and appropriate levels of service that remain consistent with good utility practice.

To meet the goals of the system planning process, the capacity of the regional power transmission system must be expanded or reinforced from time to time to meet increasing demand. In developing and implementing capacity expansions, a proper balance must be maintained between service reliability and the cost of providing service. In addition, the societal cost of large scale, long-term or frequent interruptions of electric service – and in particular, the potential for such interruptions to create hazards to the public – must also be recognized and considered.

Q. Please explain how the regional planning process is performed.

A. The planning process begins with extensive computer modeling of the system as it is actually constituted including any planned modifications that are expected to be in service during the prospective study horizon. When the model is complete, power flow simulations are performed to determine the ability of the system to comply with NERC, PJM, and PPL Electric's RP&P criteria. Such modeling will identify any and all conditions where the electrical system is not in compliance with the NERC, PJM, and RP&P criteria.

Functional reinforcement alternatives required to bring the transmission system into compliance are analyzed, with estimated costs and implementation schedules being carefully considered. Computer simulations of the system, applying the identified functional reinforcement alternatives, are then completed to produce the best overall reinforcement plan that will meet the future needs of the area in a reliable and economically acceptable manner.

A further description of PPL Electric's system planning process and RP&P is provided in Attachment 2 and PPL Electric Statement Nos. 2 and 3 to the Siting Application.

Q. Where will the North Pocono 230-69 kV Substation be located?

A. The proposed North Pocono 230-69 kV Substation will be located in Covington Township, Lackawanna County, Pennsylvania. The fenced area for the North Pocono 230-69 kV Substation will occupy approximately 7.55 acres. The location of the proposed Substation is advantageous because it would be in close proximity to the existing 138/69 kV network, which will minimize the length of transmission lines needed to connect the Substation to the electric grid, as well as minimize the costs and environmental impacts of the connecting the associated lines to the Substation. Provided as Appendix A to the North Pocono Substation Zoning Petition is an exhibit showing the location of the tract of land on which the proposed North Pocono

230-69 kV Substation, together with the Control Equipment Building, will be constructed.

Q. Will the North Pocono 230-69 kV Substation also include a Control Equipment Building?

A. Yes. Substations must include critical control equipment - - primarily switches, relay and control equipment, communication devices, batteries, and SCADA (Supervisory Control and Data Acquisition) to control the flow of electricity into, within and out of the substation. In order to function properly, most of this equipment must be protected from the elements. The purpose of the proposed Control Equipment Building at the North Pocono Substation is to protect critical control equipment from the elements so that the line equipment, and the entire substation, can function properly.

Q. Please describe the Control Equipment Building in more detail.

A. The Control Equipment Building will be approximately 40 feet by 70 feet. It will be constructed on a concrete slab. The exterior walls will be constructed of corrugated aluminum. There will be minimal space heating and cooling equipment for the building. Such equipment will be installed solely for the purpose of keeping the temperature inside the building within limits tolerated by the control equipment. The building will not be intended for human occupancy; there will be no supply of water and no sanitary facilities. The substation will be surrounded by a high fence to prevent entry by unauthorized persons. The fenced area for the North Pocono

Substation will be approximately 900 feet by 450 feet. Access to the substation, including the Control Equipment Building, must be limited because the high voltage at which the substation will operate presents dangers to untrained persons. The Control Equipment Building will be contained within the fenced perimeter of the substation.

Q. Is the Control Equipment Building an essential component of the substation?

A. Yes. The Control Equipment Building is required for proper protection and operation of the electrical equipment at the North Pocono Substation. Public safety is compromised if the control equipment is not functional. System damage can occur due to un-cleared system disturbances. If a fault occurs on a line and the protection equipment fails to clear the fault, the line could potentially burn down causing a public hazard. Nonfunctional protective control equipment can also result in excessive and longer term interruptions to customers. PPL Electric cannot place a line in service without the proper relay protection applied.

Q. Please summarize your conclusions regarding the Control Equipment Building.

A. The Control Equipment Building is reasonably necessary for the convenience or welfare of the public because it is a necessary component of the North Pocono 230-69 kV Substation. Further, the North Pocono Substation is an integral part of the Northeast-Pocono Reliability Project, which is necessary to resolve violations of PPL Electric's RP&P guidelines and reinforce the existing 138/69 kV transmission systems in Monroe, Carbon, Wayne, Lackawanna, Luzerne, and Pike Counties by

bringing a new 230 kV supply into the area through a new 230 kV transmission line and 230-69 kV substations.

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

A. Yes, it does.