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Aida Camacho-Welch  
**Secretary of the Board**  
Tel. # (609) 292-1599

October 31, 2018

To the attached Service List:

Re: **In the Matter of the Petition of Jersey Central Power & Light Company Pursuant to N.J.S.A. 40:55d-19 for a Determination that the Monmouth County Reliability Project is Reasonably Necessary for the Service Convenience or Welfare of the Public – BPU Docket No. EO16080750**

**Agenda Date: June 22, 2018 – Agenda Item: 2M**

Enclosed please find a copy of the Board of Public Utilities' ("Board") Corrected Decision and Order dated June 22, 2018 in the above captioned matter, correcting an error relating to a party name on page 51 of the Order.

This Order was originally issued with an inadvertent typographical error. The party who criticized the New Jersey Division of Rate Counsel ("Rate Counsel") and the Joint Municipal Group ("JMG") for failing to provide more information on the fact that there is a certain load level where the P7 contingency is no longer an issue, was Jersey Central Power and Light Company ("JCP&L"). The error has been corrected and the Order now accurately states that JCP&L was the party who criticized Rate Counsel and the JMG on the aforementioned issue.

This is the only correction and all other parts of the above mentioned matter and corresponding order that was before the Board at June 22, 2018 agenda meeting remain the same.

Sincerely,

A handwritten signature in blue ink that reads "Aida Camacho-Welch".

Aida Camacho-Welch  
Secretary of the Board

/ac  
enclosure



**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
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**[www.nj.gov/bpu/](http://www.nj.gov/bpu/)**

ENERGY

IN THE MATTER OF THE PETITION OF JERSEY )  
CENTRAL POWER & LIGHT COMPANY PURSUANT )  
TO N.J.S.A. 40:55D-19 FOR A DETERMINATION THAT )  
THE MONMOUTH COUNTY RELIABILITY PROJECT IS )  
REASONABLY NECESSARY FOR THE SERVICE )  
CONVENIENCE OR WELFARE OF THE PUBLIC )  
)  
) BPU DOCKET NO. EO16080750  
) OAL DOCKET NO. PUC 12098-16

**Parties of Record:**

**Stefanie A. Brand, Esq., Director**, New Jersey Division of Rate Counsel  
**Gregory Eisenstark, Esq.**, Windels Marx Lane & Mittendorf, L.L.P., for Jersey Central Power & Light Company, Petitioner  
**Murray E. Bevan, Esq.**, Bevan, Mosca & Giuditta, P.C., for the Townships of Middletown, Hazlet, Holmdel and Aberdeen (Joint Municipal Group)  
**Peter D. Dickson, Esq.**, Potter and Dickson, for Residents Against Giant Electric  
**Michael D. Fitzgerald, Esq.**, Monmouth County Counsel, for County of Monmouth  
**Jeffrey R. Merlino, Esq.**, Sciarrillo, Cornell, Merlino, McKeever & Osborne, L.L.P., for Middletown Township Board of Education  
**Douglas J. Kovats, Esq.**, Kenney, Gross, Kovats & Parton, for Holmdel Board of Education and Hazlet Township Board of Education

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<sup>1</sup> A corrected order is being issued to address a typographical error on page 51.”

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BY THE BOARD:

**I. BACKGROUND/PROCEDURAL HISTORY**

**A. Project Description**

On August 9, 2016, Jersey Central Power & Light Company (“JCP&L” or “Company”), a New Jersey public utility, filed a petition with the New Jersey Board of Public Utilities (“Board” or “BPU”), pursuant to N.J.S.A. 40:55D-19, seeking a determination that its proposed Monmouth County Reliability Project (“MCRP” or “Project”) is reasonably necessary for the service, convenience or welfare of the public, and therefore, the Company is entitled to relief from complying with the zoning, site plan review, and other municipal land use ordinances or rules passed by municipalities along the proposed Project route under authority of Title 40, the New Jersey Municipal Land Use Law (“MLUL”).

According to the petition, the Project will consist of a 230 kilovolt (“kV”) transmission line between New Jersey Transit’s Aberdeen substation in Aberdeen, New Jersey, and JCP&L’s Red Bank substation in Red Bank, New Jersey, as well as associated upgrades to JCP&L’s Taylor Lane substation in Middletown, New Jersey. JCP&L claims the construction and energization of the Project will enhance the reliability of JCP&L’s transmission and distribution system in Monmouth County. JCP&L represents that the route is approximately ten (10) miles long, and will primarily be constructed within an existing New Jersey Transit (“NJT”) right-of-way (“ROW”), with the remaining portion being built on an existing JCP&L ROW.

JCP&L states that minimal additional ROW will be necessary where the Project crosses the Navesink River and parallels the existing NJT railway bridge and then follows the existing ROW into the NJT Red Bank station. The Company also states that additional easement rights will be necessary for vegetation management and temporary ROW agreements with private and/or public entities, but the majority of the rights needed are limited to vegetation management. JCP&L describes the Project as being divided into fourteen (14) segments. The Company proposes to either remove existing wood pole structures and replace them with steel monopoles, or install steel monopoles for the new 230 kV circuit in each segment of the Project. Segments One, Two, Three, Four, Five, Seven, Eleven, Twelve and Fourteen will be constructed within the existing NJT ROW.

The Company represents that the Project is necessary to address an identified North American Electric Reliability Corporation (“NERC”) P7 criteria violation that can occur from the outage of the Atlantic-Red Bank 230 kV line and the No. 2, 230-34.5 kV transformer, with the loss of the Atlantic-Red Bank 230 kV line and the No. 8, 230-34.5 kV transformer due to failure of a common structure containing both circuits. If this were to occur, JCP&L claims that it would experience a significant customer load loss. More specifically, the petition indicates that a loss of the two (2) 230 kV lines would create a local area voltage collapse in the Monmouth County area with a potential load loss exceeding 700 megawatts (“MW”). JCP&L indicates that there are approximately 213,938 customers served by the affected substations based on active connected customer meters as of June 2015.

The Company further represents that the Pennsylvania-New Jersey-Maryland Interconnection, LLC ("PJM")<sup>2</sup> established a required in-service date of June 1, 2016 for the Project. After consultation between JCP&L and PJM, the projected achievable in-service date was established as June 1, 2019, which would allow sufficient time for JCP&L to receive all the necessary approvals for the Project and to complete its construction.

### **B. Pre-Evidentiary Hearing Motions**

On August 10, 2016, the Board transmitted this matter as a contested case to the Office of Administrative Law ("OAL"), where it was assigned to Administrative Law Judge ("ALJ") Gail M. Cookson. On September 21, 2016, ALJ Cookson entered a Case Management Order that established, inter alia, the schedule for discovery, the filing of pre-filed testimony, and the hearing dates. Aberdeen Township, Hazlet Township, Holmdel Township and Middletown Township (collectively, the Joint Municipal Group ("JMG")) were granted intervenor status by Order dated September 21, 2016. Residents Against Giant Electric, Inc. ("RAGE") was granted intervenor status by Order dated October 5, 2016. The County of Monmouth was granted intervenor status by Order dated November 4, 2016.

JMG filed a motion to dismiss on October 26, 2016 on the basis that the Company lacks standing because it does not have an easement for use of the NJT ROW. JMG asserted that (1) an easement agreement between JCP&L and NJT regarding this Project expired; and (2) JCP&L does not have a right to exercise its condemnation powers with respect to the NJT ROW. The Company opposed the motion to dismiss via letter brief dated November 4, 2016, asserting that the easement agreement referred to by JMG is unrelated to this Project, and that the Company did not state in the petition that it would seek to condemn NJT property. The Company represented that it is in the process of acquiring the necessary NJT approvals to construct the Project in the NJT ROW, and that the Company does not have to obtain NJT's approval prior to proceeding with the instant petition before the Board pursuant to the MLUL.

Several motions were filed to strike different aspects of pre-filed testimony which were addressed by ALJ Cookson.<sup>3</sup>

On December 14, 2016, RAGE filed a motion via letter requesting a four (4) week extension to file reply testimony until January 4, 2017, and for an amendment to the case management order issued on September 21, 2016 so that all reply testimony would be due on January 11, 2017, rather than December 14, 2016. JCP&L opposed this request.

On December 14, 2016, ALJ Cookson denied RAGE's motion for an extension to file its reply testimony. RAGE filed a motion for reconsideration of its motion for an extension of time to file its reply testimony, as well as an interlocutory appeal to the Board of ALJ Cookson's Order denying the extension. On December 23, 2016, ALJ Cookson issued an Order granting in part

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<sup>2</sup> PJM is the privately-held, limited liability corporation approved by the Federal Energy Regulation Commission ("FERC") as a Regional Transmission Organization ("RTO") that manages the regional, high-voltage electricity grid serving all or parts of thirteen (13) states, Washington, DC including New Jersey. PJM also operates the regional competitive wholesale electric market and manages the regional transmission planning process. N.J.S.A. 48:3-51.

<sup>3</sup> The pre-filed testimony of RAGE witness Tara Corcoran-Clark was stricken and the testimony of JMG witness Moshe Bonder was withdrawn. Initial Decision at 21, fns. 11 to 12.

and denying in part RAGE's motion for reconsideration, granting RAGE an extension of time until January 6, 2017 to file its reply testimony.

The Middletown Township Board of Education ("Middletown BOE") and Hazlet Township Board of Education ("Hazlet BOE") were granted intervenor status by Orders dated December 14, 2016 and January 12, 2017, respectively. On January 30, 2017, the Holmdel Township Board of Education ("Holmdel BOE") filed a motion to intervene, which was granted by ALJ Cookson on February 8, 2017.

On January 13, 2017, ALJ Cookson denied JMG's October 26, 2016 motion to dismiss JCP&L's petition. In addition, on February 8, 2017, ALJ Cookson denied JMG's motion to stay discovery pending the decision on its motion to dismiss. On February 16, 2017, pursuant to N.J.A.C. 1:1-14.10, JMG filed a request for interlocutory review of the denial of its motion to dismiss and to stay the proceedings. On March 21, 2017, RAGE filed a statement, along with the Certification of Rachael Kanapka, in support of JMG's request for interlocutory review and the imposition of a stay. The motion was opposed by JCP&L. The Board denied the request for interlocutory review by Order dated March 24, 2017.

On March 13, 2017, RAGE filed a motion for a request to conduct a site visit, which was opposed by the Company by way of letter brief dated March 15, 2017. ALJ Cookson granted the request for a site visit via correspondence dated May 12, 2017. The site visit was conducted with ALJ Cookson and representatives of each party on June 7, 2017.

On April 17, 2017, RAGE filed a request with ALJ Cookson that JCP&L be ordered to hire an independent auditor to review all the public comments filed with ALJ Cookson regarding the petition. JCP&L offered to provide personnel to assist ALJ Cookson's staff in organizing and evaluating the letters and statements submitted to ALJ Cookson. ALJ Cookson and the parties resolved the issue by agreeing to have representatives from JCP&L and RAGE audit the letters and statements at the OAL.

### **C. Public Hearings**

A public hearing was conducted on January 25, 2017 at 7:00 p.m. at the Middletown Township North High School auditorium. Over 1,000 people attended the public hearing. Counsel for the Company, the New Jersey Division of Rate Counsel ("Rate Counsel"), RAGE, JMG and the County of Monmouth made statements at the hearing. ALJ Cookson also permitted local, state and federal public officials and representatives from local community and environmental organizations to make statements. Members of the public were then afforded the opportunity to make statements until about 11:15 p.m.

Due to the large turnout at the first public hearing and the large number of members of the public that were unable to speak, multiple requests were made that ALJ Cookson hold a second public hearing. ALJ Cookson granted the request on February 8, 2017, and a second hearing was held on March 25, 2017 at Brookdale Community College in Lincroft, New Jersey at 7:00 p.m. ALJ Cookson limited the speakers to members of the public. Approximately 2,000 members of the public attended the second public hearing. Public officials were informed that they would be able to speak at the end of the hearing, time permitting.

The majority of speakers were opposed to the Project for reasons related to electromagnetic fields, property values, aesthetics and environmental concerns. The majority of written comments received also opposed the Project. Those who spoke in favor of the Project

expressed their support primarily based upon system reliability improvement and economic considerations.

On May 27, 2016, JCP&L mailed public notices to all property owners located within approximately 200 feet of the proposed route ROW to notify them about scheduled open house meetings. Three (3) public open house meetings were held by JCP&L on June 7, and 8, 2016 to announce the preferred route and answer additional questions from the public. According to JCP&L, a total of 364 people attended the open house meetings.

## **II. DEVELOPMENT OF THE RECORD**

### **A. Discovery**

Discovery was issued and responded to pursuant to the Case Management Order issued by ALJ Cookson. Discovery was propounded by JCP&L, Rate Counsel, Board Staff, RAGE and JMG. In all, there were over 600 data requests and responses with the large majority of the requests directed to JCP&L.

Pre-filed direct and rebuttal testimony was filed with the OAL pursuant to ALJ Cookson's Case Management Order.

### **B. Pre-Filed Testimony**

#### **1. JCP&L Direct Testimony**

JCP&L filed the direct testimony of Scott M. Humphrys, Theodore R. Krauss, Kyle Whisner, Mark A. Korn, Kirsty M. Cronin, Peter W. Sparhawk, Lawrence A. Hozempa, Mark L. Sims, Tracey J. Janis, Jerome J. McHale, Kyle G. King, William H. Bailey, Ph.D., and Will Irving.

##### **a. Project Overview**

#### **Scott M. Humphrys**

Scott M. Humphrys, a Transmission Services Specialist III for FirstEnergy Services Company ("FESC") filed direct testimony on behalf of JCP&L in support of the petition stating that, the total Project cost is approximately \$111,000,000, which includes construction at JCP&L's Taylor Lane Substation, and overheads. (Exhibit JC-2 at 7).

##### **b. Need for the Project**

#### **Lawrence A. Hozempa**

Lawrence A. Hozempa, a Manager of Transmission Planning for FESC provided written direct testimony describing the need for the Project. (Exhibit JC-8). Mr. Hozempa described the Project as the construction of a new 230 kV transmission line, which will establish a path from the JCP&L Freneau substation to the presently loop-fed JCP&L Red Bank substation. He explained that both the NJT Aberdeen and the NJT Red Bank substations will be served from the new line, so if there were a fault on that line the breakers at the JCP&L Freneau substation and the JCP&L Red Bank substation, the Project would operate to isolate the line. Thus, as a



result of the project, if there is a fault on the line, only one segment of the line will be interrupted and only one of the NJT substations will lose electric service. (Id. at 7-17 to 8-3).

Mr. Hozempa explained that the Project was in response the PJM Regional Transmission Expansion Plan (“RTEP”), a series of ongoing analyses to identify the need for upgrades to the system within their control in order to preserve reliability. (Id. at 9-11 to 18). Part of the RTEP process requires assessing compliance with NERC standards, which must be met, both during normal conditions (Category P0 Contingencies)<sup>4</sup>, as well as, conditions where one aspect<sup>5</sup> of the Bulk Electric System (“BES”) suffers an outage (Category P1 Contingencies) or where more than one aspect of the BES are suffering an outage (Category P2-P7 Contingencies)<sup>6</sup>. (Id. at 10-6 to 12-7). In each of these categories, PJM analyzes whether the BES can continue to meet safety parameters.

He noted that PJM's 2011 RTEP analysis identified reliability criteria violations of NERC Category P7 (previously NERC Category C) contingencies for the outage of the Atlantic-Red Bank 230 kV line and the No. 2, 230-34.5 kV transformer with the loss of the Atlantic-Red Bank 230 kV line and the No. 8, 230-34.5 kV transformer due to failure of a common structure containing both circuits. JCP&L confirmed that this contingency may result in more than 700 MW of load loss, well above the 300 MW loss of load criterion limit, which violates the JCP&L and PJM planning criteria. (Id. at 12-10 to 18).

Mr. Hozempa described two (2) previous events involving the loss of 230 kV supply to the Red Bank Substation, one occurring on December 9, 2008 and the other occurring on August 30, 2010. Mr. Hozempa testified that had the Project been in-service prior to these events, they would not have occurred or the impact would have been greatly reduced. (Id. at 19-15 to 20-17).

Mr. Hozempa also asserted that construction of other PJM RTEP or generation projects, energy efficiency programs, or demand response programs would not eliminate the need for the MCRP. (Id. at 20-21 to 21-16).

Mr. Hozempa concluded his testimony by stating that based on findings in the PJM 2011 RTEP analysis and the JCP&L analysis, the loss of the Atlantic-Red Bank 230 kV line with the loss of the Atlantic-Red Bank 230 kV line results in a potential local voltage collapse in the Monmouth County area, which could result in a service outage for approximately 213,938 JCP&L customers. The planning studies identified a potential local loss of load that would exceed the planning criteria limit under modeled case conditions. He also stated that failure to construct the line by the June 1, 2019 in-service date could result in extended interruption of electric service to a large block of customers. (Id. at 19-7 to 12). The Project resolves the criteria concerns

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<sup>4</sup> Formerly Category A. (Id. at 10-12 to 21).

<sup>5</sup> The aspects could include a generating unit, transmission line, transformer, circuit breaker, capacitor, or single pole of a bi-polar transmission line (Id. at 10-22 to 11-11)

<sup>6</sup> Formerly Category C, this included events resulting in the loss of any double-circuit BES transmission line, bi-polar double-circuit line, faulted circuit breaker, bus section, or the combination of a single generating unit, transmission line, transformer, circuit breaker, or capacitor followed by the loss of another single generating unit, transmission line, transformer, circuit breaker, or capacitor followed by the loss of another single generating unit, transmission line, transformer, circuit breaker or capacitor (i.e., N-1-1). (Id. at 11-12 to 11-7)

within the area thus addressing the Category P7 violations and is necessary to provide safe and reliable service to customers. (Id. at 21-20 to 22-3).

**Mark. K. Sims**

Mark L. Sims provided written direct testimony on behalf of JCP&L. Mr. Sims is employed by PJM as a Manager, Transmission Planning Department in the System Planning Division assigned to conduct the transmission planning of the PJM electrical area, including JCP&L's territory. (Exhibit JC-9). He provided an explanation of the RTP process and, the need for the Project to meet existing and future demand for electric service and to maintain the stability and reliability of the electric system, from PJM's perspective.

Mr. Sims testified that the RTEP process includes analysis of the electric supply needs in the PJM region and identifies transmission upgrades to address near-term system needs, i.e., needs within the five (5) year planning horizon and assesses long-lead time transmission options requiring a planning horizon of fifteen (15) years. Among other things, the RTEP can direct PJM's transmission owning members to address such needs through specific transmission solutions. (JC-9 at 5-3 to 15). PJM is required to perform annual transmission system performance assessments and develop a corresponding Corrective Action Plan. PJM applies NERC Reliability Standards, and local Transmission Owner planning criteria to evaluate the reliability of the transmission system, and then PJM determines the transmission enhancements/projects that are needed to ensure those standards are met. (Id. at 7-2 to 13).

Historically, compliance with NERC reliability standards was voluntary; however, the Energy Policy Act of 2005, enacted after the 2003 Blackout, established mandatory compliance with NERC standards under the oversight of the FERC. PJM plans and operates the reliability of the transmission system to the FERC-approved NERC Reliability Standards. (Id. at 6-6 to 15). The PJM Consolidated Transmission Owner Agreement ("CTOA") has provisions which obligate the transmission owners to build transmission upgrades to existing transmission facilities that have been approved by the PJM Board for inclusion in the RTEP. The transmission owner is required to acknowledge and accept the designation of construction responsibility and propose a preliminary schedule for completing the PJM-approved enhancement or project specified in the RTEP. (Id. at 7-16 to 22).

Mr. Sims explained that the first step in the RTEP process is to develop a power flow case for the current year plus five years out. During this step, PJM models the expected future system conditions. The development of the power flow case requires PJM to make a number of assumptions about the future state of the system. (Id. at 9-3 to 11). Following the development of the base power flow case, PJM conducts a comprehensive series of studies, consistent with all applicable reliability criteria (including the NERC Reliability Standards, PJM Reliability Standards and local Transmission Owner standards), to identify potential thermal, voltage, and stability violations. These analyses are intended to supplement the base power flow analysis to ensure that planning decisions consider additional possible future conditions or scenarios on the BES. (Id. at 9-12 to 22).

According to Mr. Sims, prior to 2012, the time the relevant RTEP analysis occurred, PJM used a "bright-line" test to determine which transmission projects should be included in the RTEP. Under its bright-line test, PJM used strict reliability metrics and assumptions to test compliance with all NERC Reliability Standards and transmission owner criteria. When a facility was found to reach 100 percent of the applicable limit under specified test conditions, PJM was required to

develop a solution to address the potential violation. If a facility remained at or below 99.9 percent, there was no violation; therefore, no transmission solution was required. (Id. at 10-3 to 11). However, PJM subsequently proposed amendments to the Operating Agreement, which were approved by FERC, to expand beyond the current bright-line criteria by using sensitivity studies, modeling assumption variations, and scenario planning analyses, including considering public policy objectives, to take into account potential changes in expected future system conditions and uncertainties arising from estimated times to construct transmission upgrades. (Id. at 10-13 to 11-12).

Mr. Sims testified that PJM's RTEP process is a continual and ongoing effort. In addition to reliability tests, PJM also conducts periodic "retool" studies that review the time periods covered in previous baseline assessments. For each of the near-term years, PJM issues updates to the previous baseline assessments as needed to account for planned generation or demand response modifications, changes in transmission topology, and updated load forecasts. (Id. at 11-17 to 12-2).

Mr. Sims, in his role as PJM's Manager of the PJM Planning Department, supervised the creation of the base cases used in the RTEP that determined the need for the Project, based on his role, he provided a summary of the NERC category violations at issue, similar to that of Mr. Hozempa. Mr. Sims further explained that failure to comply with the NERC Reliability Standards can result in a compliance violation that carries a maximum penalty of \$1,000,000 per day. (Id. at 13-1 to 14-4).

Specifically, he noted that the violation was first identified in the 2011 RTEP to address potential local voltage collapse on the JCP&L 34.5 kV system for the loss of the Atlantic-Red Bank 230 kV lines. The loss of the Atlantic-Red Bank 230 kV circuits is identified as a Common Mode Outage, which is defined as one of the two (2) or more automatic outages with the same initiating cause and where the outages are not consequences of each other and occur nearly simultaneously. Mr. Sims testified that the potential NERC Reliability Standard violation on the JCP&L 34.5 kV system near Red Bank was forecasted to occur in 2016. (Id. at 17-21 to 18-22). During several "retool" studies, which use updated assumptions and the latest data available, the studies continued to show the NERC P7 violation this Project was created to resolve. (Id. at 18-7 to 9). The studies indicated that the load in New Jersey, including the Monmouth County area, could be exposed to a service interruption if the violation was not addressed. (Id. at 20-12 to 14).

### **c. Engineering and Construction of the Project**

#### **Theodore R. Krauss**

Theodore R. Krauss, JCP&L's General Manager of Transmission Engineering, provided written direct testimony describing JCP&L's plans for designing, engineering, and constructing, operating and maintaining the MCRP. (Exhibit JC-3). At the onset, Mr. Krauss explained that JCP&L's transmission line naming nomenclature typically identifies lines based on the substations with breakers to which the line connects. Once it is installed, the name of the proposed transmission line will refer to the substations with a breaker position at the end of transmission line circuit the Project creates. (JC-3 at 2-22 to 3-5). For the MCRP, these substations are JCP&L's Freneau, JCP&L's Red Bank and JCP&L's Taylor Lane Substations. (Id. at 3-5 to 7).

The Project consists of a 230 kV transmission line between NJT Aberdeen and NJT Red Bank substations. This new line will provide a new 230 kV transmission line circuit (or source) between JCP&L's Freneau and JCP&L's Red Bank substations. The new 230 kV circuit is created by combining existing 230 kV transmission lines at both ends of the circuit and constructing a new 230 kV transmission line in the middle portion of the circuit. JCP&L's Taylor Lane Substation will be expanded and the new 230 kV transmission line construction will be looped into the Taylor Lane Substation. JCP&L will also add breakers within the existing fence line at JCP&L's Freneau and Red Bank substations. However, that work does not require zoning or siting approval and is therefore not included within the scope of the Company's petition before the Board. (Id. at 5-13 to 6-5).

The Project is broken into fourteen (14) segments starting at the NJT Aberdeen Substation located in Aberdeen Township heading southeast and looping into the existing JCP&L Taylor Lane Substation located in Middletown Township, and continuing southeast ending at the NJT Red Bank Substation located in Red Bank Borough. For most of the Project's length, the new 230 kV circuit will follow and be located within NJT's North Jersey Coast Line ROW in Monmouth County through Aberdeen Township, Hazlet Township, Holmdel Township, Middletown Township and the Borough of Red Bank and in existing JCP&L ROW. The remainder of the project necessitated the acquisition of new ROW (Id. at 6-6 to 17).

He testified that segments One through Four begin at the NJT Aberdeen Station and consist of approximately 2.4 miles. These segments will be built within NJT ROW. Within that ROW, the Company will be moving existing wood pole structures and placing new steel monopoles approximately 110 to 160 feet in height, with conductors on the rail side.

Segment Five is located east of Bethany Road crossing from Hazlet Township into Holmdel Township, and is approximately 0.4 of a mile long. Segment Five will be built within NJT's existing ROW, which is approximately 100 feet wide. Segment Six is located east of Bethany Road in Holmdel Township, and is approximately 0.3 of a mile long. Segment Six will be built within NJT's existing ROW, which is approximately 100 feet wide and adjacent to the existing approximately forty (40) foot wide JCP&L ROW. Segment Seven is located east of Bethany Road, and north of Laurel Avenue, and is 0.8 of a mile. Segment Seven will be built within NJT's existing ROW, which is approximately 100 feet wide. Segment Eight is located northwest of Laurel Avenue and is approximately 0.6 of a mile long. Segment Eight will be built partially within NJT's existing ROW, which is approximately 100 feet wide, as well as partially within the immediately adjacent existing approximately forty (40) foot wide JCP&L ROW.

In Segments Five to Eight, the Company will construct new steel monopoles approximately 130 to 170 feet tall. Existing wood pole structures that support double circuit 34.5 kV with distribution underbuild located in this segment will be removed. The existing 34.5 kV and distribution circuits will be relocated and rebuilt and supported on the 230 kV steel monopoles and additional interbuild structures. The 230 kV line would pass above the interbuild structures. (Id. at 8-23 to 12-6).

Segment Nine is located from approximately Laurel Avenue to the Taylor Lane Substation Loop Point, and is approximately 0.3 of a mile long, crossing from Holmdel Township into Middletown Township. Segment Nine will be built partially on NJT's existing ROW, which is approximately 100 feet wide, and partially on JCP&L adjacent property parcels where the existing Taylor Lane Substation is located. 230 kV steel monopoles, approximately 100 to 160 feet tall, will be placed approximately ten (10) feet from the northern edge of NJT's ROW and conductors will be located above NJT's ROW on the rail side (south) of the structures. (Id. at 12-8 to 18).

Segment Nine A (9A) contains sections of both the Freneau-Taylor Lane 230 kV Transmission Line and the Red Bank-Taylor Lane 230 kV Transmission Line and is located in Middletown near the Taylor Substation Loop Point and is approximately 0.3 of a mile long. Segment 9A will be built on JCP&L adjacent property parcels where the existing Taylor Lane Substation is located. For the proposed loop into the Taylor Lane Substation, the Company is proposing to place new steel monopoles, approximately 100 to 160 feet tall, adjacent to the existing B-210, Laurel Avenue – Taylor Lane Number 1 and the V-776 Laurel Avenue – Taylor Lane Number 2, 34.5 kV circuits, within existing JCP&L ROW. (Id. at 12-22 to 13-9).

Segments Ten to Twelve will be located in NJT ROW and are approximately 4.3 miles long. The company will construct steel monopoles approximately 110 to 150 feet in height and conductors in these segments. (Id. at 13-12 to 14-21).

Segment Thirteen is located from approximately south of the Navesink River Road crossing from Middletown Township into the Borough of Red Bank. Segment Thirteen will be built within NJT's existing ROW, which varies in width. Additional ROW will also be needed in this segment, where the existing NJT ROW is not wide enough to accommodate the transmission line. The Company will place new steel monopoles, approximately 190 to 210 feet tall in NJT's ROW. Segment Thirteen includes an approximately 1,700-foot-long Navesink River crossing. (Id. at 14-22 to 15-9).

Segment Fourteen is approximately 0.2 of a mile long and will be built within NJT's existing approximately 100 foot wide ROW. The Company will place new steel monopoles, approximately 150 to 180 feet tall variable distances from the westerly edge of NJT's ROW, with a minimum distance of approximately eight (8) feet. The conductors will be located on the rail side (east) of the structures. Existing steel lattice pole structures that support double circuit 34.5 kV with distribution underbuild are located in this segment and where they are in close proximity to the new line they will be removed. The existing 34.5 kV and distribution circuits will be relocated and rebuilt as underbuild supported on the 230 kV steel monopoles and additional interbuild structures. The interbuild structures would only support the 34.5 kV and distribution circuits. (Id. at 15-11 to 24).

According to Mr. Krauss, there is one alternative alignment that was being considered because of comments received at the public information meetings. The alternative alignment is located in segment Twelve and would install a portion of this segment on the southwesterly side rather than the northeasterly side of the NJT ROW, placing the line at a slightly larger distance from residences located on the east side of the NJT ROW. (Id. at 16-2 to 8). Mr. Krauss asserts that this alternative works because the existing terrain along the northeasterly side of the existing NJT ROW provides significantly better access to both construct and maintain the Project in the future. Alternatively, locating the Project on the southwesterly side of the NJT ROW would likely require additional access routes for construction and maintenance areas that are largely located on properties adjacent to the NJT ROW. (Id. at 16-10 to 14).

The Taylor Lane Substation will need to be expanded in order to loop the new 230 kV transmission line construction. The expansion will include installing two (2) 230 kV line terminals in a ring bus configuration, and one (1) 230 kV breaker. JCP&L expects that the expansion of the substation yard will require the relocation of two (2) 34.5 kV lines on JCP&L's existing property. The expanded yard of the substation will accommodate the installation of additional 230 kV breakers to make a three (3) breaker 230 kV ring bus and one 230-34.5 kV transformer to connect to substations 34.5 kV buses. (Id. at 17-1 to 8).

Additional rights may be needed for construction and maintenance access. The Company would likely hire Burns & McDonnell as a consultant for a detailed engineering design for the Project. (Id. at 19-2 to 19). The Project will be constructed under the Best Management Practices and follow the applicable occupational safety and health administration rules and regulations. (Id. at 20-2 to 5). Since most of the work will be done by contractors, JC&L will use third-party and internal resources to ensure the Project remains on schedule and budget. (Id. at 20-14 to 19).

According to Mr. Krauss, JCP&L assessed the option of placing the 230 kV facilities underground, but ultimately chose not to do so for the following reasons: (1) impacts between the Project and NJT facilities in the ROW; (2) environmental impacts; (3) restoration period; and (4) Cost. (Id. at 24-11 to 26-4).

### **Kyle Whisner**

Kyle Whisner, a Senior Transmission Engineer for Burns & McDonnell Engineering Company provided direct testimony on behalf of JCP&L describing JCP&L's plans for engineering design of the project (Exhibit JC-4)

Mr. Whisner stated that the Project will feature the installation of single steel monopoles with davit arms and suspension type insulators installed in a Vee-String configuration. The monopoles will be constructed in sections using large construction support equipment. The foundations being considered for the Project are helical piles and/or micropiles to minimize excavations and disturbance next to the rail line. (Exhibit JC-4 at 4-15 to 26). The transmission line will be operated at 230 kV and will utilize a single 54/19 Aluminum Conductor Steel Reinforced "Falcon" conductor per phase that is 1.545 inches in diameter, weighs approximately 10,782 pounds per mile, and has a rated breaking strength of 54,500 pounds. The shield wire will also be installed above the top phase conductor attachment points for lightning and relay protection. (Id. at 5-2 to 23).

Mr. Whisner further stated that JCP&L will be installing a single circuit 230 kV monopole that will have one set of three phases arranged vertically on the structure using one conductor per phase. The vertical configuration is typical for these types of projects, is economical, and allows for a compact design, which minimizes: (i) electric and magnetic fields; and (ii) the visual impacts that the monopoles may have on the ROW. The underbuilt 34.5 kV circuits will be mounted on davit arms approximately twenty-five (25) feet below the lowest 230 kV conductor where required. (Id. at 6-6 to 13). The proposed structures are expected to range in height from approximately 100 feet to approximately 210 feet tall. The tallest structures are expected to be required for the Navesink River crossing span in segment Thirteen and are expected to be approximately 190 to 210 feet tall. The factors which will determine structure height include: (i) terrain; (ii) National Electrical Safety Code ("NESC") clearance requirements; (iii) clearance; (iv) phase to ground clearance; (v) phase to other utilities clearance; (vi) conductor sag properties; (vii) structure spacing; and (viii) crossing of roads, other structures and bodies of water. (Id. at 6-16 to 7-3). JCP&L plans to use the most cost-effective structures possible that minimize electric and magnetic fields, while meeting all NESC, Occupational Safety and Health Administration ("OSHA"), NJT, and FirstEnergy clearance and safety requirements. (Id. at 7-6 to 9).

d. **Routing**

**Peter W. Sparhawk**

Peter W. Sparhawk, Associate Vice President of Power and Energy for the Louis Berger Group, Inc., filed written direct testimony on behalf of JCP&L explaining the routing study for the Project (Exhibit JC-7). The routing study documents the route selection methodology, public outreach process, and the preferred route identification process with an overall goal of providing a detailed understanding of the opportunities and constraints in the Project study area, to facilitating the development of alternative routes, evaluating potential impacts associated with the alternative routes, and, ultimately, identifying a preferred route for the Project. (JC-7 at 3-12 to 17). The specific purpose of the routing study was to determine a route that minimizes the overall effect of the transmission line on the natural and human environment, avoid unreasonable and circuitous routes and unreasonable costs, and minimize special design requirements. Mr. Sparhawk testified that the preferred route is the route that best satisfies these criteria. (Id. at 3-17 to 21).

The route selection study was used to refine the most feasible corridors identified during the corridor screening study by developing potential routes. During the routing selection study, the potential routes were further refined and assembled into alternative routes. The potential impacts with the alternative routes were evaluated, and, ultimately a preferred route for the Project was identified. (Id. at 4-17 to 22).

The routing team attempted to minimize the following:

- Route length, circuitousness, cost, and special design requirements;
- Removal or substantial interference with the use of existing residences;
- Removal of existing barns, garages, commercial buildings, and other nonresidential structures;
- Substantial interference with the use and operation of existing schools, recognized places of worship, cemeteries, and facilities used for cultural, historical, and recreational purposes;
- Substantial interference with economics activities, including agricultural activities;
- Creating a new linear ROW;
- Crossing of designated public resource lands such as national and state forests and parks, large camps and other recreation lands, designated battlefields, nature preserves or other designated historic resources and sites, and conservation areas;
- Crossing of large lakes and large wetland complexes, critical habitat, and other unique or distinct natural resources; and
- Substantial visual impact on residential areas and public resources.

(Id. at 5-12 6-7).

The corridor screening study identified seventeen (17) potential corridors which required further analysis to determine feasibility. (Id. at 6-14 to 8-15). Based on a high level evaluation, thirteen (13) of the potential corridors were eliminated. The eliminated corridors generally fell into one (1) of five (5) categories: (1) non-compliance with NERC Contingency Requirements and System Planning Criteria; (2) controlled access highway co-location policy; (3) non-compliance

with existing U.S. Government Operations (Earle Naval Weapons Station); (4) Inconsistencies with BPU guidelines; and (5) development density. (Id. at 9-5 to 9).

Of the four (4) remaining potential corridors, two (2) begin at the NJT Aberdeen Substation, with one (1) generally following Route 35 and the other following the NJT ROW. Both these corridors also provide an opportunity to connect to JCP&L's Taylor Lane Substation, providing additional reliability. The other two (2) potential corridors would start at JCP&L's existing Raritan River-Atlantic 230 kV transmission line and head to the Aberdeen-Red Bank corridors and, while shorter than the other two (2) corridors, would require substantially more new ROW. These four (4) potential corridors were identified as feasible for routing into the JCP&L Red Bank Substation and retained for further analysis in the comprehensive route selection study. (Id. at 9-11 to 20).

The routing team developed specific alignments (referred to as "Potential Routes") between either the Aberdeen Substation or connection or "tap" points off the Raritan River- Atlantic 230 kV transmission line into the JCP&L Red Bank Substation. Potential Routes are an early iteration of the routing process that involves the development of conceptually based routes and general consideration of these routes with respect to large and small area constraints and opportunity features. (Id. at 9-22 to 10-4).

The route selection study employed the same routing guidelines and criteria developed during the corridor screening study. However, additional information on small area constraints and opportunity features was collected during the routing study. Once developed, the routing team reviewed each potential route in the field. Field efforts included reviewing the potential routes from public points of access and verifying and documenting locations of residences and other small area constraints. The field investigations resulted in changes to the potential resources in an effort to avoid residences and other buildings, such as garages, commercial structures, and other small area constraints discovered in the field. The routing team eliminated the two (2) potential routes that tapped the Raritan River-Atlantic 230 kV transmission line because they would have required acquisition of switching yard property adjacent to the existing 230 kV line, would require more ROW, and would not provide an opportunity to route a new line into the Taylor Lane Substation. (Id. at 10-5 to 11-15).

Following field reconnaissance and initial analysis, the routing team developed the two (2) remaining routes (Alternative Routes A and B), as well as two (2) loop options between the proposed NJT Aberdeen- NJT Red Bank 230 kV Transmission Line and the Taylor Lane Substation (Loops 3 and 4 from Alternative Route A and Loops One (1) and Two (2) from Alternative Route B). After the June 2016 open house meetings, the routing team developed an Option to one segment of Route B utilizing public input. (Id. at 11-18 to 12-2).

Alternative Route A begins at the NJT Aberdeen Substation and proceeds in a general southeast direction, following a combination of existing overhead electrical distribution circuits, local roads, and New Jersey State Highway 35 for approximately 10.6 miles to the NJT Red Bank Substation. Loop three (3) is approximately 0.5 of a mile long and would tap the proposed 230 kV line east of Taylor Lane and head in a southwest direction into the Taylor Lane Substation through new ROW. Loop 4 is approximately 0.8 of a mile long and would tap the proposed 230 kV line adjacent to South Laurel Avenue. (Id. at 12-3 to 10).

Alternative Route B begins at the NJT Aberdeen Substation, and also proceeds in a general southeast direction within the existing NJT railroad ROW for approximately 9.7 miles into the NJT Red Bank Substation. The existing railroad ROW is approximately 100 feet in width.



JCP&L does not anticipate acquiring significant additional ROW to construct the line. At the crossing of the Navesink River, Route B parallels the existing NJT railway bridge and then continues to follow the existing railroad ROW into the NJT Red Bank Substation. Approximately twenty-five (25) feet of additional ROW would be needed for 0.4 of mile of Route B between the Navesink River and Chestnut Street to prevent future development from violating NESC clearance restrictions. (Id. at 12-11 to 20). Alternative Route B Option is identical to Alternative Route B with one exception. Based on public comment, JCP&L identified a route “option” that would involve placing the route alignment on the southwestern side of the NJT railway ROW from Normandy road to south of Navesink River Road, allowing the transmission line to be constructed further away from residential properties located north of the tracks. (Id. at 12-21 to 13-3).

The Alternative routes were assessed and compared with respect to ROW or constructability challenges (ROW constraints, design challenges, and construction challenges), potential impacts on any noted natural resources (water resources, vegetation, wildlife and soils), and human uses (land use, recreation and aesthetics, and cultural resources). The routing team recommended Alternative Route B as the preferred route and Loop 1 as the preferred route to the Taylor Lane Substation (“Preferred Route”). (Id. at 13-4 to 10).

Mr. Sparhawk testified that from an engineering ROW and constructability perspective, Route B (with Taylor Lane Loop 1) is preferred to Route A and Route B Option because nearly the entire route can be constructed within the existing JCP&L ROW, with only approximately one (1) acre of additional ROW needed. Route B would also require fewer angled structures compared to Route A would involve rebuilding two (2) miles of existing 34.5 kV line. For these reasons, Route B is also anticipated to cost less to construct and reduces the overall environmental and social impact when compared to Route A. (Id. at 14-9 to 19). While there would not be a significant difference between Taylor Lane Option 1 and 2 in terms of ROW, Loop Two (2) would require additional modifications to the Taylor Lane Substation, making Loop 1 the preferable option from a ROW, cost and constructability perspective. (Id. at 14-20 to 23).

With respect to natural environmental impacts, the routing team determined that Route B is preferred over the other alternatives because Route B would be constructed almost entirely within the existing railroad ROW and, therefore, would result in minimal changes to the existing plant communities and wildlife habitat. Although Route B would traverse more wetlands than Route A, Route B requires less tree clearing than both Route A and Route B Option. In addition, tree clearing will occur adjacent to the railway, which minimizes the creation of new edge habitat. (Id. at 15-14 to 22). While Route A, Route B, and Route B Option would cross the same number of New Jersey Department of Environmental Protection (“NJDEP”) streams, Route B and Route B Option would cross these streams within the existing railroad ROW, while Route A would be constructed adjacent to Highway 35. Therefore, Route B would be the preferred alternative from a natural environment perspective, due to the use of existing NJT ROW and eliminating the need to clear additional forest cover and impact wildlife habitat. (Id. at 15-14 to 19).

With respect to the impact on residential areas, Mr. Sparhawk stated that in addition to using GIS data and aerial maps to document residential areas, individual buildings were digitized based on aerial imagery and the features were confirmed in the field by reviewing the routes from public roads. (Id. at 19-3 to 5). In the areas where Route A parallels Highway 35, structures would be located about five (5) feet outside of the road ROW. Based on this analysis, Route A would traverse within seventy-five (75) feet of twenty-two (22) residences. An additional seven (7) residential structures are located within the proposed ROW, generally near

Route 35 within the vicinity of Minnisink Boulevard. In this area, the Project would traverse the center of town adjacent to the roadway. Route A would traverse adjacent to residential communities within a partial 34.5 kV transmission line ROW and Highway 35 ROW between the Navesink River and Route 35. The existing 34.5 kV line ROW would need to be expanded to accommodate the 230 kV line. In this area, the new 230 kV line would need to be rebuilt outside the existing NJDOT ROW as 230 kV/34.5 kV steel structures parallel Highway 35. Residents in the area would be temporarily impacted during construction but the overall use of the ROW would not significantly change. Because JCP&L generally prohibits buildings within the ROW, these seven (7) residential structures would potentially be displaced for construction of the proposed line. To reduce the impact to six (6), residences within this segment of the route, Route A could be rebuilt as a 230 kV/34.5 kV within the NJDOT Highway 35 ROW. In addition, seventy-three (73) commercial buildings are located within the 100-foot-wide ROW. (Id. at 19-5 to 20-10).

Comparatively, Route B has no residences located within the ROW. The number of residents that would be within 250, 100, and seventy-five (75) feet, at their highest number of residents, would be 458, ninety-six (96), and fifty-three (53) respectively. However, these residences are presently located adjacent to the active NJT corridor. Installing a transmission line within the existing ROW would result in an incremental change to the existing land use compared to installation of a transmission line within new ROW for Route A. There are two (2) commercial buildings that are adjacent to the existing NJT ROW south of the Navesink River. The buildings are constructed directly adjacent to the railway. In addition, JCP&L will seek twenty-five (25) feet of expanded ROW through this area to ensure that NESC clearances are not violated in the future. (Id. at 20-11 to 21-11).

No residences are located within 100 feet of Loops 1 and 2 ROW. Loop 1 would traverse within 250 feet of one residence and has more residences located within 500 feet compared to Loop 2. Both loops cross forested land that has already been cleared for existing transmission ROW, so impacts to adjacent residents will be minimal. No residences are located within 100 feet of Loops 3 and 4. Because Loop 4 parallels Laurel Avenue and is a longer route, Loop 4 would traverse within 250 and 500 feet of more residences compared to Loop 3. (Id. at 21-13 to 19).

e. **Public Outreach**

**Peter W. Sparhawk (cont.)**

Mr. Sparhawk stated that three (3) public open house meetings were held on June 7, and 8, 2016 to announce the Preferred Route and answer additional questions from the public. Prior to these meetings, JCP&L contacted local, county, and State officials to discuss the Project. (Id. at 26-6 to 9).

On May 27, 2016, the Company mailed public notices to all property owners within 200 feet of the Preferred Route ROW to notify them of the Open House meetings. In addition to the mailing, a website was created for the Project providing information and the need for the project, the timeline, and benefits to the surrounding communities, frequently asked questions and answers, and aerial maps showing the route (Id. at 26-10 to 17). The first meeting on June 7, 2016 held at the Brookdale Community College had an attendance of 155 people. The second meeting, held on June 8, 2016 at Veterans of Foreign Wars had thirty-five (35) people in attendance. The third meeting, also held on June 8, 2016 at the North Centerville Volunteer Fire Company had an attendance of 174 people. (Id. at 26-18 to 27-13). Approximately 123

comment cards were completed from these meetings and provided to JCP&L. By July 27, 2016, the Company received approximately 275 comments through email and the Project's website. There were also about ninety-eight (98) calls to the toll-free number that was established for the Project. Most of the comments were about electromagnetic field ("EMF") impacts, followed by real estate values, and finally selection of the Preferred Route. As a result of the public outreach, a new route designated as "Option from Normandy Road to south of Navesink River was created. (Id. at 27-14 to 28-14).

Mr. Sparhawk concluded that the Preferred Route, Alternative Route B and Loop 1 into the Taylor Lane Substation, best minimized the overall effect of the Project on the natural and human environment, while avoiding unreasonable and circuitous routes, unreasonable costs, and special design requirements. According to Mr. Sparhawk, the Preferred Route best complies with the BPU's requirements concerning the use of existing ROW. (Id. at 30-16 to 20).

f. **Vegetation Maintenance of the Project**

**Mark A. Korn**

Mark A. Korn, a consultant for FirstEnergy Service Company, provided direct testimony on behalf of JCP&L. This consultant's responsibilities include the initial clearing of new construction facilities such as transmission lines and substations in the FirstEnergy service territories including JCP&L. Mr. Korn's testimony was marked as Exhibit JC-5, and described the initial clearing of the ROW and the ongoing vegetation maintenance related to the Project. Additionally, Mr. Korn indicated that the Company will maintain the Project in accordance with Best Management Practices, the Company's Transmission Vegetation Management program and BPU regulations. (Id. at 3-3 to 5).

g. **Environmental Impacts and Permitting**

**Kirsty M. Cronin**

Kirsty M. Cronin, a Principal Environmental Scientist for Louis Berger, provided written direct testimony on behalf of JCP&L. (Exhibit JC-6). Her testimony described the environmental impacts and permitting process for the proposed Project route.

Ms. Cronin testified that in addition to the petition before the Board, JCP&L would also be applying to relevant agencies for various approvals and authorizations to proceed with the Project.<sup>7</sup> (Exhibit JC-6 at 3-10 to 8-11).

Ms. Cronin described the permanent and temporary environmental impacts. Permanent impacts include the structure foundations and tree clearing, while temporary impacts result from construction access including access roads, work pads, and pulling areas. (Id. at 11-13 to 12-3).

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<sup>7</sup> Including: U.S. Army Corps of Engineers Section 404 and Section 10 Permits; NJDEP Division of Land Use Regulation ("DLUR") Freshwater Wetlands and Flood Hazard Area Control Act Permits; NJDEP DLUR Coastal Zone Management Rules Permits; DEP Division of Water Quality Stormwater Construction Permit Requests for Authorization: Construction Activities (5G3); New Jersey Turnpike Authority License to Cross; Monmouth County Soil Conservation District Certificate of Soil Erosion and sediment Control; New Jersey State Historic Preservation Office Approval.

Ms. Cronin also noted the Preferred Route will minimize environmental impacts by using existing NJT ROW and eliminating the need to clear additional forest cover which may impact wildlife habitat. (Id. at 12-10 to 16-14). Additionally, JCP&L will limit potential environmental impacts by restricting disturbances to the existing ROW and implementing sediment control measures. Additionally, Ms. Cronin stated that temporarily disturbed areas will be restored to approximate pre-existing conditions and seasonal work restrictions will be adhered to. (Id. at 16-18 to 18-17).

Ms. Cronin explained that Project construction activities at the NJT Aberdeen and NJT Red Bank Substations will result in environmental impacts to NJDEP non-regulated areas, while construction activities at JCP&L's Taylor Lane Substation will result in impacts to NJDEP regulated areas including freshwater wetlands and riparian areas. (Id. at 18-20 to 19-11). Finally, Ms. Cronin opined that the planned overhead construction would have far less environmental impact than an underground alternative, which would require horizontal drilling, duct banks, and manholes. (Id. at 20-11 to 21-3).

#### **h. Real Estate and Property Rights**

##### **Tracey J. Janis**

Tracey J. Janis, Manager of Right-of-Way Services for FirstEnergy Service Company, provided written direct testimony on behalf of JCP&L. (Exhibit JC-10). It described the necessary property-related rights, including additional ROW, access and vegetation clearing rights that may be required for the Project.

A large portion of the Project will be constructed within the boundary of the NJT railroad property, which will require a Railroad Property Construction and/or Occupancy Permit. JCP&L received notification that the excessing review was complete and the formal notice is forthcoming. Ms. Janis noted that NJT will determine the cost associated with the Railroad Property Construction and/or Occupancy Permit. With the exception of the Navesink River crossing, the remaining portions of the Project will be constructed on existing JCP&L ROW. (Exhibit JC-10 at 3). From the crossing at the Navesink River to Chestnut Street, there may be a need for additional ROW which JCP&L will acquire via negotiation but if unsuccessful, by seeking approval to exercise its eminent domain pursuant to N.J.S.A 48:3-17.6 and N.J.S.A. 48:3-17.7. Also, additional easement rights will be necessary for vegetation management and temporary right-of-entry agreements with private and/or public property owners may be necessary for access points and establishing possible construction laydown/storage yard areas. (Id. at 5)

##### **Jerome J. McHale**

Jerome J. McHale, the Principal of J. McHale & Associates, Inc., provided direct testimony on behalf of JCP&L. Mr. McHale's testimony was marked as Exhibit JC-11, and explained the Real Estate Property Analysis completed for the Project.

Mr. McHale provided a real estate property analysis that determined the impact on the market value of properties located within 150 feet of both sides of the transmission line conductor for the Project. (JC-11 at 3-8 to 10). Mr. McHale concluded that the addition of steel monopoles within the existing NJT ROW will create no further diminution in value to the properties adjacent to the ROW. He explained that the transmission lines, for the most part, will be located within

an existing NJT ROW that has existed for decades so any decrease in property value has already been absorbed or dissipated by the presence of the active commuter rail line. Any possible negative impact on the market value has been already realized in the sale and resale values of these properties due to their location abutting rail service. (Id. at 4-8 to 15).

i. **EMF**

**Kyle G. King**

Kyle G. King, President of K&R Consulting, provided direct testimony on behalf of JCP&L which analyzed the effects of electric fields, magnetic fields, audible noise, and radio noise associated with the Project. (Exhibit JC-12).

Mr. King provided a background on EMF. Mr. King further described the typical sources of electric and magnetic fields and stated that the average levels of background magnetic fields range from 0.5 to 5.0 milligauss (“mG”) in most homes. (Exhibit JC-12 at 3-7 to 5-16).

With respect to the Project, Mr. King stated that JCP&L employed a policy of “prudent avoidance”, a precautionary principle in risk management, under which reasonable efforts to minimize potential risks should be taken when the actual magnitude of the risk is unknown. Mr. King noted that while New Jersey has no specific magnetic field limit for power lines, certain states have either formally or informally adopted the prudent avoidance policy in considering power line applications. Mr. King asserted that the conclusions reached by national and international scientific and health agencies from their evaluation of EMF research, and the guidelines for exposure they have recommended, make clear that exposures to EMF that people encounter in their daily life, including those from transmission lines, like the Project, do not pose any recognized long-term health risks. Mr. King explained that while not adopted by any federal regulatory body, the prudent avoidance principle has been adopted in some form by a number of state regulatory bodies, as well as several international health agencies and the World Health Organization (“WHO”). (Id. at 5-20 to 6-21).

Mr. King modeled the existing and proposed line configurations to compare the expected levels of EMF in 2019 (the first full year in which the Project was projected to be in service). Mr. King stated that the study confirmed that the Project will meet all New Jersey regulations and guidelines for electric fields and audible noise. (Id. at 7-5 to 15). Specifically, the typical magnetic field levels along the edges of the ROW between the NJT Aberdeen and NJT Red Bank Substation will range from 2.4 to 154.7 mG in 2019, and the maximum magnetic field levels are between 39.1 mG and 163.5 mG. (Id. at 8-21 to 9-9). Mr. King noted that the Project will produce a maximum electric field of 0.8 kV/m along the edges of the ROW, which satisfies the New Jersey guideline of 3.0 kV/m. (Id. at 9-13 to 9-20).

While New Jersey does not have a limit for magnetic fields from transmission lines, Mr. King asserted that by using existing electrified railroad ROW for the majority of the Project, JCP&L has applied prudent avoidance principles and limited magnetic field levels. (Id. at 9-22 to 10-5).

With respect to audible noise levels after the Project is completed in 2019, Mr. King stated that the calculations show the levels to be approximately 36.9 A-weighted decibels (“dBA”), which is below the New Jersey limit of 50 dBA. (Id. at 10-8 to 15).

**William H. Bailey**

Dr. William H. Bailey, a Principal Scientist in the Center for Exposure Assessment and Dose Reconstruction in the Health Sciences practice of Exponent, Inc., provided direct testimony on behalf of JCP&L (Exhibit JC-13). Mr. Bailey's testimony detailed the expected levels of EMF associated with the operation of the power lines on the Project route between the NJT Aberdeen Substation and the NJT Red Bank Substation before and after the addition of a new 230 kV transmission line, and provided information about the current status of health-related research on EMF.

Mr. Bailey stated that the expected exposure levels at the edge of the ROW from the 60 Hertz ("Hz") electric fields would be, at most, 0.8 kV/m on the south side of Segments Four and Thirteen. Levels of electric fields from existing lower voltage lines were measured at the edges of the ROW on line Segments Four, Seven, Eleven, Twelve, and Fourteen and were reported to be 0.2 kV/m or less. Levels of electric fields outside the ROW would be even less due to fences, trees, and buildings. (JC-13 at 6-1 to 9).

With respect to magnetic fields, Dr. Bailey asserted that the existing lines, especially the NJT track circuits (in most sections) are and will remain the major sources of magnetic fields both before and after the Project. According to Dr. Bailey, the Project's increase in the magnetic field at the edges of the ROW above the magnetic field from the existing lines is small- less than 10 mG. Higher magnetic field at the edges of the ROW are mostly due to the lower voltage distribution circuits. (Id. at 6-13 to 23).

Dr. Bailey testified that EMF exposure standards established by the International Committee on Non-Ionizing Radiation Protection ("ICNIRP"), as well as, the International Committee on Electromagnetic Safety ("ICES"), have recommended limits on EMF. CNIRP and ICES recommend these limits to protect against the "acute established effects" of EMF, or the stimulation of nerves and muscles that occur at very high EMF exposure levels. (Id. at 8-4 to 9-4). Dr. Bailey further testified that these limits are difficult to measure directly, so both ICNIRP and ICES establish "screening levels," or exposure limits of EMF. The ICNIRP screening value for EMF exposure is 2,000 mG and the ICES screening value is 9,040 mG for magnetic field exposure and 5 kV/m for electric field exposure. (Id. at 9-1 to 17). Dr. Bailey stated that the electric field produced by the Project, even directly under the conductors, will be well below the lowest guideline limit, arguing that this will also be the case when magnetic fields along the Project route are elevated by currents on lines when NJT trains are operating. (Id. at 10-3 to 6).

With respect to the scientific community's consensus on the potential effects of EMF on public health, Dr. Bailey testified that the scientific consensus of the National Institutes of Environmental Health Sciences, the Health Council for the Netherlands, the National Radiological Protection Board of the United Kingdom, the International Agency for Research in Cancer, and the WHO, have all concluded that there is no scientific evidence sufficient to conclude that EMF exposure is a cause of any long-term health effects. (Id. at 11-11 to 21).

j. **Economic Impact Analysis**

**Will Irving**

Will Irving, a research project manager for Rutgers University in the Edward J. Bloustein School of Planning and Public Policy, specializing in researching and preparing economic impact

analyses, provided written direct testimony on behalf of JCP&L. (Exhibit JC-14). He explained his report entitled “Economic Impact Analysis of Expenditures for Construction of JCP&L’s Monmouth County Reliability Project.”

Mr. Irving stated that the Project’s total expenditures are estimated to be approximately \$75 million, representing 30% of JCP&L’s \$250 million anticipated expenditures for a multi-year transmission reliability program. (Exhibit JC-14 at 3-7 to 15). Of the estimated \$75 million in total expenditures, about \$60.9 million is expected to be made in-state, which will generate a total of 489 job-years in New Jersey. The 489 estimated job-years supported by the Project expenditures include 174 job-years directly associated with the Project activity and an additional 315 job-years in indirect employment. (Id. at 4-3 to 20). Mr. Irving further estimated that the total gross domestic product (“GDP”) generated as a result of the Project to be about \$55.8 million, and Project expenditures are estimated to generate approximately \$2.8 million in state revenues, and \$9.8 million in local government revenue. (Id. at 3-18 to 5-2).

## **2. Rate Counsel Direct Testimony**

### **Peter J. Lanzalotta**

Peter J. Lanzalotta, a Principal with Lanzalotta & Associates LLC, provided written direct testimony on behalf Rate Counsel which described the results of his review of the petition related to a determination of whether the Project is needed for the service, convenience, or welfare of the public. (Exhibit RC-2)

Mr. Lanzalotta concluded that: (1) the need for the Project, which was initially determined, in 2011, has been diminishing; (2) there are a number of technical approaches to improving reliability that the Company has failed to consider, such as static var compensators (“SVC”) or static synchronous compensators (“STATCOM”), distributed generation, smart invertors, or smart grid technologies that may potentially avoid or mitigate the NERC violation that drives the need for the Project; (3) the proposed routing of the transmission line follows an NJT rail ROW, access to which has yet to be granted, under unknown terms and conditions; and (4) the Company considered a number of alternative existing ROWs for the Project but eliminated most from consideration for reliability-related reasons before detailed development. (RC-2 at 3-11 to 4-10). In addition, Mr. Lanzalotta recommended that the Board defer its review of the Project pending (i) more detailed consideration of technologies regarding voltage management, such as a STATCOM, and other developing technologies and their ability to address the NERC violation that drives the purposed need for the Project; (ii) development of more detail regarding alternative routes, including their costs, and their impacts, such as tower height; (iii) resumption of load growth such that the load level at which the voltage problems have observed in planning studies is forecast to occur within the planning horizon; and (iv) a determination of whether and/or the terms and conditions under which the Company will be permitted to use the NJT rail ROW so those terms can be taken into consideration compared to alternative routes. (Id. at 4-11 to 21).

Mr. Lanzalotta stated that since the 2011 RTEP (which reflects loads from the 2012 PJM peak load forecast), the Company’s peak loads have decreased significantly. The highest forecasted load in the 2012 peak load forecast for the Company for the year 2016, in which the voltage collapse was first observed, was 6,696 MW. Since the time of that forecast, JCP&L’s future forecasted peak loads have been decreasing. Mr. Lanzalotta expects the probability of a voltage collapse from the common mode will decrease as the Company’s projected peak load

decreases. (Id. at 7-12 to 8 1). According to the PJM load forecast in 2016, the 2016 peak load forecast decreased to 5,958 MW, which reflects increasingly efficient use of electricity, increases in self-generation, changes in response resources, and changes to the load forecast model. Additionally, the 2016 PJM Load Forecast projects a summer peak load for JCP&L of 6,255 MW in 2031, the furthest projected year in the fifteen (15) year planning horizon used by PJM. Accordingly, the load level from the 2012 PJM load forecast (6,696 MW) will not be reached by JCP&L in any of the fifteen (15) years through 2031. (Id. at 8-2 to 14). The Company's prepared analysis uses a load level of 6,359 MW, a level of load that is higher than any of the company loads in the PJM fifteen (15) year planning horizon. Additionally, the preliminary 2017 PJM Load Forecast Report (issued on December 14, 2016), lowers the JCP&L 2031 forecast peak from 6,255 MW down to 6,219 MW, and projects a peak load in 2032 of 6,277 MW. Both of these load levels are lower than the load levels at which the common cause contingencies were found to cause a need for system reinforcement. (Id. at 9-1 to 13).

Mr. Lanzalotta explained that in early 2012, PJM changed its Operating Agreement to move away from the use of a "bright line" test to determine the need for transmission system reinforcements or additions. Under the "bright line" test approach, when loading of a particular system element reached 100% of its operating limit in transmission planning studies, a system modification was required to lower that loading level. If, however, the loading of that element only reached 99%, no modification was required. (Id. at 9-16 to 10-5). The "bright line" approach was replaced by the current approach which allows for flexible transmission planning criteria which expand PJM's analyses beyond a strict application of the reliability criteria, allowing PJM to go beyond the current NERC reliability criteria using: (1) using sensitivity analyses; (2) changing the modeling assumptions; (3) changing the planning scenarios; (4) taking public policy objectives into consideration; and (5) taking potential changes in expected future conditions into consideration, as well as including other considerations. Given this planning flexibility, the likelihood of a project cancellation is substantially reduced, if not completely eliminated. (Id. at 10-11 to 11-2).

Mr. Lanzalotta testified that the Company considered alternatives that provided for the construction of a new 230 kV transmission line into the Red Bank Substation from various locations based on their ability to address immediate and future reliability needs in the Red Bank area and surrounding areas. Each of the alternatives would remedy the NERC violation that is driving the need of the Project, but none were deemed to be as robust as the Project and each were judged as being less reliable than the Project in some way. (Id. at 11-11 to 12-5). Mr. Lanzalotta recommended that cost estimates for the alternatives be developed so that the reliability benefits and associated costs of the Project can be compared. (Id. at 13-11 to 19). Mr. Lanzalotta further asserted that there is no basis for JCP&L's claim that non-transmission alternatives would not effectively address the violation. Mr. Lanzalotta cited the use of a STATCOM, distributed generation, smart inverters, or smart grid technologies as potential non-transmission alternatives that should be evaluated. (Id. at 14-1 to 17-18).

Mr. Lanzalotta discussed the heights of towers for the Project and possible alternatives. Mr. Lanzalotta stated that the towers are expected to range in height from 100 feet to 210 feet, which is considerably higher than other 230 kV transmission line towers currently under consideration in New Jersey. (Id. at 18-1 to 6). Most of the Project as proposed will be located above or near the catenary of the NJT rail line. Complying with the NESC clearance requirements and NJT's additional clearance requirements will result in conductors being installed higher above ground compared to a transmission line installed above vacant ground. Mr. Lanzalotta noted that JCP&L did not perform any detailed analysis of transmission alternatives, so it has not been possible to determine if these alternatives would identify a



decrease in tower heights as well as potential cost savings. (Id. at 18-14 to 19-5).

### 3. **RAGE Direct Testimony**

RAGE filed the direct testimony of P. Jeffrey Palermo, David O. Carpenter, M.D., Donald M. Moliver, Ph.D, Stephen Lunanuova, and Michael Basch.

#### **P. Jeffrey Palermo**

P. Jeffrey Palermo, an Executive Consultant with PJP Consulting, a power system engineering consulting firm, provided direct testimony on behalf of RAGE. (Exhibit RAGE-1). His testimony presented a description of the Project, reviewed the analyses made by JCP&L, identified a range of alternative solutions, and recommended further actions for JCP&L.

Mr. Palermo provided an overview of the Project and noted how the Atlantic to Red Bank line identified an extreme contingency creating violations of PJM and JCP&L planning criteria and, as a result, was categorized as a P7 violation. (Exhibit RAGE-1 at 8-9 to 15).

Mr. Palermo testified that the analyses performed by PJM and JCP&L suffer from three (3) issues: (1) the power flow cases that identified the problem were non-convergent – that is, they did not find a solution; (2) there is no ‘visibility’ into the 34.5 kV network when using the power flow model; and (3) a power flow model is a ‘snapshot’ of a stable system and cannot evaluate the time-based characteristics of the protective relays. (Id. at 13-4 to 20-19).

With respect to the first issue, a non-convergent power flow gives very little useful results. While it is obvious that following the outage there will be no 230 kV power feeding either Red Bank or NJT Red Bank, the non-convergent power flow gives no indication as to how an outage affects the load in the area these two (2) substations serve or any of the other 230 kV substations in the area. (Id. at 12-5 to 12). In the area where the collapse occurs, the power flowing into a bus may be as much as 100 MW different from that power flowing out- the power in should equal the power out. Mr. Palermo testified that the only use for non-convergent cases is to determine the number of tries the model made before the results diverged, and, in most cases, the areas and buses with largest mismatches determined the locations of the most serious issues. He stated that the voltages and power flow results in the problem area, such as this case, are otherwise meaningless. (Id. at 14-3 to 11). Mr. Palermo found it unusual that the power flow cases used to justify the Project by PJM and JCP&L uses data that includes more than 100,000 buses, or connection points, and tens of thousands of transmission elements. Mr. Palermo explained that the PJM model does not include the 34.5 kV sub-transmission system that these two (2) 230 kV circuits service. Mr. Palermo noted that the load on the two (2) 230 kV circuits that serve Red Bank have maximum loadings of about 400 MW, yet their loss causes a loss of over 700 MW of load. He opined that this could only occur if the load that was served from other substations was also lost as a result of the extreme contingency. (Id. at 15-6 to 14).

The second issue Mr. Palermo had with the power flow model is that there is no ‘visibility’ into the 34.5 kV network. Even if the power flow model included the 34.5 kV network, it would still not be very helpful. When a voltage collapse occurs in the real world, the extent of the outage is limited either by the configuration of the network or protective system actions. Many distribution systems are not interconnected; they are radially connected to their main supply source. When power is lost from the main source, all power is lost in the radial system, but no other areas are directly affected. Mr. Palermo likened a radial system to a gated residential community where

there is only one entrance. If the two (2) Red Bank substations were configured in this way, only about 400 MW of load would have been lost because the outage would have been limited to the radial distribution systems. By contrast, the JCP&L 34.5 kV system is an interconnected network, where all the 230 kV substations involved are serving portions of all loads in the area through the 34.5 kV network. Mr. Palermo asserted that such a system offers quite a bit more flexibility than the radial system. (Id. at 15-16 to 17-19).

According to Mr. Palermo, in a voltage collapse with a networked 34.5 kV system, the voltages in the entire interconnected 34.5 kV network will be suppressed, with the lowest voltages occurring nearest the Red Bank substations, if it were the contingency that is driving this case. Such an interconnected 34.5 kV system must be protected by relays and circuit breakers. These devices are designed to sense overloads and voltage problems in the system and to open circuit breakers to protect the system from a total collapse. These protective devices limit the extent of the outage in a networked system. This should be the case with the 34.5 kV system in the Red Bank Area. Mr. Palermo further stated that a 34.5 kV protection system designed to respond to a voltage collapse event should make the event a 'controllable' outage under PJM criteria. (Id. at 18-1 to 10).

The third issue identified by Mr. Palermo is that the power flow model is a 'snapshot' of a stable system and cannot evaluate the time-based characteristics of the protective relays. Nor can it simulate the various swings and gyrations of the voltages and currents that occur during a voltage collapse event. This must be modeled using a dynamic model that includes the operating characteristics of the protective devices in the seconds following the extreme contingency. (Id. at 19-6 to 15). According to Mr. Palermo, the dynamic model allows the user to see what changes occur on the system in great detail recognizing the dynamic nature of the way the system behaves. This type of model is required to determine how quickly the voltage collapse occurs. The study would take two (2) or three (3) months, depending on personnel availability. (Id. at 20-10 to 19).

Mr. Palermo also discussed the impact JCP&L's load forecasts would have on results. Mr. Palermo stated that the forecasted 2016 load has fallen by nearly 1,000 MW from the load level forecasted in 2011. Mr. Palermo noted that there is a consistent pattern of PJM estimates being higher than actual system load growth. (Id. at 20-21 to 21-19).

Next, Mr. Palermo discussed a range of possible alternative solutions. Mr. Palermo stated that connecting Red Bank to Aberdeen is the obvious solution, but the Project must also consider factors such as cost, environmental impact, construction difficulty, visual impact, concerns about EMF, and the impact on homeowners, along the proposed route, among others. Mr. Palermo stated that a final factor is the amount of opposition that any particular project may raise. There are many opportunities for various stakeholders to object and delay various proposed system improvements. The best solution, according to Mr. Palermo, will often address these other factors in a way that reduces opposition and allows a project to be completed with minimal delays. (Id. at 22-4 to 19). Mr. Palermo stated that JCP&L should consider options that would cost less and have smaller impacts on residents, such as static var compensators and STATCOM. He claimed that these devices can provide fast-acting reactive power on electric transmission systems by regulating voltage, power factor, harmonics, and stabilizing the system. Additionally, it is also possible that a battery storage system could be used as part of the solution to provide a rapid power boost that would supplement the other techniques. (Id. at 23-6 to 25-24).

Mr. Palermo then stated that a special protection system (“SPS”) could be a viable option if the voltage collapse takes as long as (thirty) 30 seconds. An SPS would activate various circuit breakers and switches that would prevent or limit the extent of the voltage collapse. It might involve some loss of load, but should limit it to less than the 300 MW threshold used by PJM and JCP&L. The specifics would require a detailed power flow study and a dynamic study. (Id. at 28-5 to 29-4). Nonetheless, Mr. Palermo was confident that a STATCOM, together with a well-designed SPS, would meet all the planning criteria and avoid the need for the Project. In terms of cost, Mr. Palermo estimated that a STATCOM would cost about \$20 million and an SPS would cost \$1-2 million, which is much less than the \$111 current estimate for the Project. (Id. at 32-22 to 33-12).

Another potential solution, according to Mr. Palermo, is to utilize JCP&L’s ROW next to the Atlantic-Red Bank line. This ROW runs about 4.5 miles from the Atlantic substation to a substation near Pinebrook Rd. Besides being less than half the length of the proposed 230 kV line, it would be much easier to construct and would disturb no existing homeowners. Mr. Palermo estimated that this option would cost about \$20 million. (Id. at 33-22 to 35-8).

Regarding the 2008 and 2010 outages in the Red Bank area Mr. Palermo stated that the alternative solutions discussed in his testimony would, with a reasonable degree of engineering certainty, have been effective to prevent outages. Mr. Palermo recommended that the circuit connections be reconfigured so that the three pairs of circuits no longer have common breakers at Atlantic. Mr. Palermo estimated this would cost less than \$100,000. (Id. at 44-11 to 45-20).

In conclusion, Mr. Palermo stated that it is unclear if criteria violations will remain in 2019 after accounting for declining actual loads in the Red Bank area. Mr. Palermo stated that the Project is the obvious solution and should resolve the identified criteria violation, but it is not necessarily the best choice regarding other important factors, including cost and disruption. Mr. Palermo further stated that JCP&L has not made much of an effort to study alternatives, including various approaches to avoid the voltage collapse that drives this case, a range of options that should either prevent the voltage collapse or limit the loss of load to less than 300 MW. (Id. at 47-22 to 48-13). Mr. Palermo recommended that the Board require considerable additional transmission-related study work before approving any project in this case. This includes performing a dynamic study, evaluating the efficacy of a STATCOM/SPS solution, evaluating other solutions that would prevent the voltage collapse by supporting the voltage locally or making smaller transmission additions, evaluating options that would limit the lost load to less than 300 MW, and evaluating bus/breaker arrangements at the 230 kV substations for the kinds of vulnerabilities that the 2008 and 2010 outages exposed. (Id. at 48-19 to 50-3).

**David O. Carpenter**

David O. Carpenter, M.D., a public health physician and Director of the Institute for Health and the Environment at the University at Albany, SUNY provided testimony on behalf of RAGE providing an analysis of the impacts of EMF on human health. (Exhibit RAGE-2).

Dr. Carpenter stated that it was his professional opinion, within a significant degree of medical and scientific certainty, as a public health physician, medical researcher, and educator specializing in the study of ionizing and non-ionizing radiation effects on biological systems, that there is strong scientific evidence that exposure to magnetic fields from power lines with an intensity greater than 4 mG is associated with an elevated risk of childhood leukemia. There is also strong scientific evidence that lifetime exposure to magnetic fields over 2 mG is associated

with an increased risk of neurodegenerative diseases in adults, particularly Alzheimer's disease. While there is a debate as to which mechanisms are responsible, there is a large body of evidence discussing ways in which magnetic fields affect tissue at a cellular level, which may be the basis for the development of cancer and neurodegenerative disease. In 2002, the International Agency for Research on Cancer declared power line EMFs, which they refer to as extra-low frequency ("ELF") EMFs, a Group 2B - possible human carcinogen. (Exhibit RAGE-2 at 5-8 to 6-19).

In response to the Company's testimony, Dr. Carpenter criticized Dr. Bailey for placing too much emphasis on standards set by national and international bodies that are dominated by physicists and engineers who totally discount the strong evidence that comes from health studies documenting that exposure to ELF-EMF in excess of 4 mG results in human disease. In Dr. Carpenter's opinion, the standards set by these national and international bodies, including the Federal Communications Commission, are inadequate and fail to protect the health of the public. (Id. at 7-1 to 17). (Id. at 9 to 12-12).

Citing a 2007 WHO Environmental Health Criteria ELF Monograph (#238), Dr. Carpenter stated that the number of cases of childhood leukemia worldwide that might be attributable to exposure can be estimated to range from 0.2% to 4.9% of the total annual incidence of leukemia cases. It should be noted that exposure to other household sources of magnetic fields also elevate the risk of childhood leukemia. Children will be exposed to magnetic fields from household wiring, proximity to electric appliances and exposures at school and play sites. He further states, the level of evidence definitively proving an association between exposure to magnetic fields and adult cancer is somewhat less consistent than the relation with childhood leukemia, but is strong nonetheless. (Id. at 13-1 to 14-19).

Dr. Carpenter further stated that there is strong evidence of an association between EMF exposure and Alzheimer's disease at approximately two (2) or three (3) times the incidence in a control population. He also disagreed that the lack of a known causation mechanism between EMF exposure and the risk of leukemia is fatal to the implications for public health of the scientific research, as it is neither surprising nor significant. As with many environmental agents, it is often wrong to assume that only one mechanism of action exists, particularly where more than one disease is involved. It is more likely that multiple mechanisms of action would contribute to disease. (Id. at 17-7 to 20-8).

Dr. Carpenter accepted the post-Project edge of ROW magnetic field levels calculated by Mr. King of the maximum possible current as between 39.1 and 163.5 mG. (Id. at 20-15 to 17). However, Dr. Carpenter disagrees with Dr. Bailey and opined that these levels to be "outrageously" elevated magnetic fields that are certainly going to increase the risk of individuals living along the MCRP for cancer, Alzheimer's and other diseases. As a public health professional, he subscribes to the "precautionary principle" as enunciated by the United Nations Rio Declaration, which is to take steps to prevent exposure and disease even when not all questions are answered as to the mechanism whereby an exposure causes disease. (Id. at 21-13 to 17).

Dr. Carpenter concluded that the evidence for associations between childhood leukemia, brain and breast cancer and adult Alzheimer's disease in relation to exposure to ELF-EMFs is strong and consistent. Thus, he recommended that power line routing should avoid exposure above 4 mG for magnetic fields, and that precautionary principle suggests that high voltage lines be located as far from homes, schools and child care facilities as possible. In areas where avoidance is not possible, mitigation of EMF by placing lines underground and placing lines

where phase cancellation can reduce magnetic fields may also reduce human health impacts. (Id. at 24-16 to 25-14).

### **Donald Moliver**

Dr. Donald Moliver, PhD., the Dean of the Leon Hess School of Business at Monmouth University and Pozycki Professor of Real Estate at Monmouth University provided testimony on behalf of RAGE. (Exhibit RAGE-3). He provided an opinion as to whether the Project would adversely impact values of properties in the vicinity of the proposed monopoles and transmission lines and responded to the testimony of Jerome J. McHale.

Dr. Moliver stated that the range of impact of transmission lines to proximate properties is generally between zero (0) and negative ten (-10) percent. (Exhibit RAGE-3 at 5). Dr. Moliver noted that the size of the MCRP ROW is uncharacteristically narrow, which places nearby properties near the transmission line. Additionally, extensive tree clearing will increase the visibility of the transmission lines and poles to many homeowners. Dr. Moliver further noted that unwelcome noise associated with the transmission lines will increase. (Id. at 5). Dr. Moliver stated that the magnetic field of 4 mG or higher will extend in many instances to over 200 feet onto private property. Dr. Moliver concluded that the proposed Project would impose adverse effects upon properties/values that either abut or are in proximity to the transmission line. (Id. at 10).

Dr. Moliver disagreed with Mr. McHale's contention that the railway-generated stigma has already impacted property values, and the construction of the transmission lines would not cause any further adverse impact. Dr. Moliver elaborated that the Project would introduce further influences including impairment of view, removal of vegetation, increased noise levels, and health concerns. Dr. Moliver further criticized the fact that Mr. McHale assumes that there is no impact from potential electric and magnetic fields from the transmission line. As a result, Dr. Moliver concluded that in his opinion Mr. McHale's testimony is misleading, lacks credibility, and is unreliable. (Id. at 11 to 14).

### **Stephen Lunanuova**

Stephen Lunanuova, an officer of RAGE provided written testimony explaining the information given to Michael Basch at Virtual Access Tours so that Mr. Basch could create reasonably accurate visual depictions of the monopoles and vicinity once installed. (Exhibit RAGE-5). Mr. Lunanuova also represented that he provided Mr. Basch with sufficient information so that Mr. Basch could portray each location with all or most of the vegetation removed. (Exhibit RAGE-5 at 1 to 2).

### **Michael Basch**

Michael Basch, the proprietor of Virtual Access Tours, LLP, provided testimony on behalf of RAGE. (Exhibit RAGE-6). Virtual Access Tours, LLP, provides photography services to the real estate industry. (Id. at 1) He described how the photographs attached to his testimony were produced. (Id. at 2) Mr. Basch testified that the photographic depictions attached to his testimony were created by superimposing the information that was furnished to him as to location and dimensions of the monopoles, and the extent of vegetation removal, the resulting photographs represent to a reasonable degree of certainty the accurate application of that information to the original photographs taken by Mr. Basch. (Id.)

#### 4. **JCP&L Rebuttal Testimony**

JCP&L filed the rebuttal testimony of Scott M. Humphrys, Theodore R. Krauss, Kyle Whisner, Mark A. Korn, Peter W. Sparhawk, Lawrence A. Hozempa, Mark L. Sims, Tracey J. Janis, Jerome J. McHale, Kyle G. King, and William H. Bailey, Ph.D. To the extent that rebuttal testimony was filed in response to stricken or withdrawn testimony, it is not summarized herein.

##### **Scott M. Humphrys**

Scott M. Humphrys provided rebuttal testimony on behalf of JCP&L, (Exhibit JC-2R). Mr. Humphrys' rebuttal testimony responded to the direct testimony of P. Jeffery Palermo and Peter J. Lanzalotta.

Mr. Humphrys stated that Mr. Palermo's statements regarding costs of alternatives are irrelevant and that Mr. Palermo's statement regarding whether JCP&L provided detailed estimated costs is incorrect. Mr. Humphrys further addressed assumptions made by Mr. Palermo that the Company believes are incorrect. (Exhibit JC-2R at 5-5 to 11).

With respect to Mr. Palermo's claim that the estimated costs of his proposed alternatives are less costly than the Project, Mr. Humphrys argued that it is irrelevant because Mr. Palermo's proposed alternatives would not address the reliability criteria violation of the NERC standards. (Id. at 20 to 23). In addition, he noted that other transmission line considerations were evaluated on their ability to address the immediate and future needs in the Red Bank and surrounding areas, and none provided the same level of robustness without compromising the system in some other way. (Id. at 5-23 to 6-8).

In regard to Mr. Palermo's claim that JCP&L provided very little detail about the estimated cost of the Project, Mr. Humphrys stated that the total cost of the Project, including the costs associated with the work to be completed at the Taylor Lane Substation, is identified in both the Petition (Petition at 9-10) and Exhibit JC-2 at 6 to 7). Mr. Humphrys stated that JCP&L also provided a detailed cost analysis in discovery response questions JMG-JCPL-06, JMG-JCPL-47, S-MCRP-10, and S-MCRP24. (Id. at 6-12 to 17).

Mr. Humphrys also addressed Mr. Lanzalotta's statement that the Company considered alternatives to construct a new 230 kV transmission line into Red Bank, but failed to develop cost estimates for those alternatives. Mr. Humphrys stated that, as Mr. Hozempa indicated on pages 17 and 18 of his pre-filed testimony, the electrical alternatives listed by Mr. Lanzalotta were not chosen because they either added exposure to existing networked transmission lines, added transmission lines to existing corridors, or left parts of the transmission system radial. Accordingly, there was no reason for JCP&L to prepare detailed cost estimates for electric alternatives that were unviable options that the Company would never construct. (Id. at 8-12 to 9-10). With respect to Mr. Lanzalotta's recommendation that the Company develop more detail regarding alternative routes, including costs, Mr. Humphrys did not agree. The Company conducted and provided a detailed cost estimate for Alternative Route A, which was approximately \$39 million more than Route B. Mr. Humphrys asserted that costs should not be the only element the Company considers in assessing alternate routes. (Id. at 9-14 to 11-5).

**Kyle Whisner**

Kyle Whisner provided rebuttal testimony on behalf of JCP&L, responding to the pre-filed direct testimony of RAGE witness, Michael Basch and Rate Counsel witness, Peter J. Lanzalotta. (Exhibit JC-4R).

Mr. Whisner stated that Mr. Basch visually misrepresented the Project in his nine (9) exhibits. Mr. Whisner stated that there are several inaccuracies in Mr. Basch's exhibits, including incorrect pole placement and orientation, incorrect pole and wire height and diameter, and the extent of required vegetation removal. (Exhibit JC-4R at 1-18 to 2-2). Mr. Whisner provided an assessment of each of the Basch exhibits and the impact of the inaccuracies in attempting to provide an accurate visual representation of the Project once completed. Mr. Whisner asserted that Mr. Basch portrays the Project in a way that is inconsistent with the information provided in certain testimony accompanying the Petition as well as in the responses provide to RAGE in discovery. (Id. at 4-13 to 16-4).

With respect to Mr. Lanzalotta's testimony, Mr. Whisner asserted that Mr. Lanzalotta's statement regarding the tower heights of the Project compared to those approved in another transmission case are somewhat misleading. Additionally, Mr. Whisner believes that it is not logical for JCP&L to indicate tower heights for the electric alternatives that were not viable options, as requested by Mr. Lanzalotta. (Id. at 2-7 to 3-20).

Mr. Whisner addressed Mr. Lanzalotta's comparison of the Project's tower heights to those of a similar proceeding conducted by Atlantic City Electric Company ("ACE"). Mr. Whisner noted that the ACE petition makes no mention of the maximum heights of its towers. Furthermore, Mr. Whisner anticipates that the majority of the Project will feature tower heights that are comparable to those of the ACE project. (Id. at 19-2 to 20-21). Mr. Whisner then addressed the statement that the BPU should require more detailed information about the tower heights for the transmission alternatives. Mr. Whisner stated that this would only cause unnecessary delays because the transmission alternatives were not viable options. Finally, Mr. Whisner noted that the pole heights along the NJT ROW are necessary to accommodate NESC clearance requirements. (Id. at 21-4 to 22-16).

**Mark A. Korn**

Mark A. Korn provided rebuttal testimony on behalf of JCP&L, to respond to the testimony of RAGE witnesses Dr. Donald Moliver, Stephen Lunanuova, and Michael Basch. (Exhibit JC-5R).

Mr. Korn asserted that the RAGE witnesses expressed concerns regarding the vegetation issues associated with the Project in either an exaggerated and/or uncertain manner, claiming that JCP&L has been unclear or failed to provide sufficient details about its requirements and expectations relative to vegetation clearance. Through his rebuttal testimony, Mr. Korn attempted to clarify JCP&L application in the context of the Project. (Exhibit JC-5R at 1-16 to 21).

**Lawrence A. Hozempa**

Lawrence A. Hozempa provided rebuttal testimony on behalf of JCP&L to respond to the direct testimony of Mr. Palermo and Mr. Lanzalotta. (Exhibit JC-8R).

Mr. Hozempa first addressed the testimony of Mr. Palermo. Mr. Hozempa disagreed that an “extreme contingency” is driving the need for the Project. Mr. Hozempa believed that Mr. Palermo has misinterpreted NERC Standard TPL-0011-4 (“Standard”). The contingency driving the need for the Project is a P7 contingency, which is listed in Table 1- Steady State & Stability Performance Planning Events on page 10 of the Standard. The title of that table clearly stated this contingency is to be applied to the steady state model as a planning event. Mr. Hozempa stated that on page 11 of the Standard, there is a table for extreme events that does not contain a criterion for loss of a tower line with only two circuits, which leads Mr. Hozempa to conclude a common structure contingency is a planning event, not an extreme event. (Exhibit JC-8R at 3-15 to 4-22).

Mr. Hozempa also took exception to Mr. Palermo’s review of the analyses made by PJM and JCP&L. Specifically, where Mr. Palermo stated that, “the only studies presented as justification for the Project have been steady state power flow studies. Mr. Hozempa indicated the amount of load loss and the extent of the area impacted by the contingency was based on dynamic analysis performed by JCP&L. (JC-8 at 14-16). Dynamic analysis provides information on the condition of the system to the contingency in much shorter timeframes than steady state analysis. (Exhibit JC-8R at 4-16 to 22). Mr. Palermo further stated that no effort was put forth to understand the nature of and extent of the voltage collapse. Mr. Hozempa pointed to his testimony wherein he stated the magnitude of load loss and the extent of the area impacted was based on dynamic analysis performed by JCP&L. (Id. at 4-22 to 5-3).

With respect to Mr. Palermo’s assessment that the PJM power flow model does not include the 34.5 kV facilities, Mr. Hozempa stated that this is incorrect and the 34.5 kV facilities are, in fact, included. (Id. at 5-9 to 14). Mr. Hozempa testified that if the 34.5 kV facilities were not modeled in the power flow, the load that exists on those facilities would be rolled back into the transmission substations in the model. To illustrate this point, the model of Red Bank substation would consist of two (2) 230 kV lines from the Atlantic bus connected to the Red Bank bus with load connected to the Red Bank bus, which would differ from the actual model. Therefore, if the contingency is analyzed in the simplified model Mr. Palermo assumes in his testimony, each of the 230 kV lines would be disconnected, or opened between the Atlantic and Red Bank buses and would isolate the Red Bank bus. Whereas in the actual power flow model used in the Company’s analyses, the power flow solution is trying to solve the equations that include the mathematical representation of the 34.5 kV facilities, in which case it is unable to reach a solution, indicating a possible unstable state of the power system. In other words, Mr. Palermo’s statements about the power flow model failing to converge and the 34.5 kV facilities not being in the power flow model are mutually exclusive. If the model was a simplified model which did not contain the 34.5 kV facilities, the power flow analysis would solve the contingency. The only reason the power flow analysis is unable to reach a solution is because the analysis cannot find a solution for the power flow on the 34.5 kV facilities. (Id. at 5-17 to 6-22).

Mr. Hozempa also took exception with Mr. Palermo’s statement regarding the impact the load forecast has on the need for the Project. Mr. Hozempa stated that it is clear that even at recent peak load levels the amount of load loss will exceed 300 MW. The only impact is that the reduced load forecast in JCP&L will result in less load loss if there is an outage due to the contingency the Project will address. Based on the studies performed with the lower load forecast, the NERC violation still exists. (Id. at 7-1 to 10).

Mr. Hozempa next addresses Mr. Palermo’s proposed solutions. Mr. Hozempa stated, after having reviewed the models and the analyses performed, he does not think that Mr. Palermo’s solutions are reasonable given the magnitude of the problem. Mr. Hozempa stated that the



voltage collapse issue is not just a reactive power problem. Total power has two (2) components: real power – the component of electric energy that actually does the work and reactive power – the component of electric energy that facilitates the transfer of electric energy across and through the elements of the electric system. (Id. at 7-17 to 8-3). SVCs and STATCOMs would not resolve the issue because they do not provide real power flow, only reactive power. In this situation, the voltage collapse cannot be mitigated just by injecting reactive power because the real power flow is significantly contributing to the voltage collapse. (Id. at 8-3 to 7).

With respect to battery energy storage systems (“BESS”), Mr. Hozempa stated that they can provide either real or reactive power, but they have a limited amount of time in which they can provide energy to the system. Wherein the previous incidents experienced in the area lasted several hours, the largest BESS Mr. Hozempa is aware of can supply 50 MW for six hours, not several hundred MW for four hours. Additionally, SPSs are designed to reconfigure the system to keep the transmission system stable under certain contingency conditions. Any SPS that is designed to interrupt or shut off retail customer load to keep the system stable is only used as an interim solution until a transmission solution can be constructed. Accordingly, Mr. Hozempa did not believe that employing an SPS to shut off retail customer load to avoid constructing a transmission line is reasonable or acceptable. (Id. at 8-8 to 18).

Further, Mr. Hozempa stated that the other steps proffered by Mr. Palermo that could be taken within thirty (30) seconds of an event would be ineffective because they cannot be brought to bear quickly enough to prevent the voltage collapse and to address the violation and they are ways to improve the reactive power support to the area, not real power. (Id. at 8-21 to 9-4).

Mr. Palermo also proposed a short 230 kV line from Atlantic substation to the substation near Pinebrook Road. Mr. Hozempa asserted that this will not mitigate the violation. The subject substation, Eaton Crest, is already a 230-34.5 kV substation and has been included in the analysis. There is also not sufficient 34.5 kV transformer or line capacity from Eaton Crest into the 34.5 kV network to mitigate the violation. (Id. at 9-7 to 11).

According to Mr. Hozempa, no power flow analysis or, for that matter, analysis of any type has been performed by Mr. Palermo to verify whether any of these solutions or combinations of these solutions would actually mitigate the violation. Nor has Mr. Palermo determined the number of devices that would be needed, where the devices should be placed, or what the actual costs of the alternatives may be to implement such a solution, were it even practical. Additionally, none of these alternatives provide any enhancement to transmission capability to benefit the reliability and stability of the transmission system in the area. (Id. at 9-14 to 23). Mr. Palermo’s alternative solutions would not have been effective in preventing the widespread outages that occurred in 2008 and 2010. With respect to Mr. Palermo’s statement that the Federal Energy Information Agency annual report contains different numbers than Mr. Hozempa cited in his direct testimony, Mr. Hozempa pointed out that the initial submission was estimates, which JCP&L later trued up. (Id. at 10-4 to 18).

In response to Mr. Lanzalotta’s direct testimony, Mr. Hozempa explained that the decrease in forecasted peak loads do not change the need for the Project. Mr. Hozempa believes that Mr. Lanzalotta erroneously concluded the Company’s testimony indicated that the Project is not needed until sometime beyond 2031. Even at recent peak load levels, the amount of load loss will exceed 300 MW based on the studies that have been performed. (Id. at 12-22 to 13-10). Furthermore, Mr. Hozempa dismissed distributed generation, smart inverters, and smart grid technologies due to the extensive federal regulations involved, as well as the lack of cost,

location, or the period of time such a solution would take to design, engineer, finance, permit and construct. He stated that Mr. Lanzalotta also did not address the potential additional electric infrastructure required to support the interconnection of these resources or the environmental impacts of the installing such resources. (Id. at 14 to 14-12).

### **Mark L. Sims**

Mark L. Sims provided rebuttal testimony on behalf of JCP&L, to respond to the direct testimony Mr. Palermo and Mr. Lanzalotta. (Exhibit JC-9R.)

With respect to Mr. Palermo's categorization of the initiating event as an "extreme contingency", Mr. Sims did not agree, and pointed to NERC Standard TPL-001-4 that requires that the system be evaluated for the loss of two (2) facilities on a common structure. The Standard NERC TPL-001-4 requires that the system be stable and that both thermal and voltage limits are within applicable ratings for these type of events. (Exhibit JC-9R at 2-14 to 19). Mr. Sims asserted that the NERC criteria events driving the need for the Project are not "extreme", but are violations of NERC's basic TPL planning criteria. When PJM RTEP process studies identify a violation for a P6 or P7 event, or any other NERC-defined planning event, PJM must plan its system to prevent such event, as is the case here. (Id. at 3-7 to 23).

Mr. Sims testified that an SPS or Remedial Action Scheme ("RAS") as suggested by Mr. Palermo is not an acceptable long-term solution because they are generally limited to temporary conditions. Mr. Sims cited PJM Manual 7 which stated that a RAS (formerly known as an SPS) is not an acceptable long-term solution for this reliability criteria violation. Consequently, Mr. Sims asserted that the permanent fix, the Project, is the only long-term solution. (Id. at 5- 14 to 20).

Mr. Sims then addressed the claims of Mr. Lanzalotta. Mr. Sims testified that despite a decrease in forecasted peak loads, studies continue to show that the voltage collapse would still occur. Mr. Sims stated that Mr. Lanzalotta's assertion that PJM's identification of the need for the Project went beyond the current NERC reliability criteria is incorrect. PJM followed the current NERC reliability criteria as required by NERC TPL-001-4 to identify the need for the Project. Stating that based on the power flow analysis the Project is needed immediately, as the 2016 studies also demonstrated, Mr. Sims believed that Mr. Lanzalotta's assertion that "time is available" for additional analysis is unsupported. (Id. at 7-4 to 15).

### **Tracey J. Janis**

Tracey J. Janis provided rebuttal testimony on behalf of JCP&L to respond to the direct testimony of Mr. Lanzalotta. (Exhibit JC-10R). Ms. Janis provided a rebuttal to the portion of Mr. Lanzalotta's testimony containing his recommendation that the Board defer its review of the Company's Project pending a determination of whether NJT will allow use of its rail ROW and, if so, the terms and conditions under which JCP&L will be permitted to use the NJT ROW so that those terms can be taken into consideration in comparing alternative routes. (Exhibit JC-10R at 2-7 to 12). Ms. Janis stated that, fundamentally, an understanding of the final terms and conditions of the NJT approval is unnecessary for the Board to render a decision in this proceeding as to whether the Project is "reasonably necessary for the service, convenience or welfare of the public" under N.J.S.A. 40:55D-19. It is common industry practice, according to Ms. Janis, for the transmitting utility to file for transmission-related project approvals and permits in advance of securing all Project-related property rights since obtaining all necessary rights,

approvals and permits takes a significant length of time and must be done concurrently. Ms. Janis asserted that Mr. Lanzalotta's recommendation ignores this industry practice and his recommendation would make an already lengthy process unnecessarily longer and more difficult. This would be especially so where the Board's determination regarding the need for the Project may be required or challenged with respect to certain land rights, permits and/or other approvals. (Id. at 2-14 to 3-20).

Furthermore, Ms. Janis asserted Mr. Lanzalotta incorrectly assumes that the actual costs of the NJT Railroad Property Permit and the costs of the alternate routes considered by the Company must be known for the Board to make a determination in this proceeding. Additionally, Ms. Janis stated that Mr. Lanzalotta disregards the Board requirement that the construction of an overhead transmission line make use of available railroad rights-of-way whenever practicable. (Id. at 4-4 to 5-14). Although NJT will ultimately determine the cost of the Railroad Property Permit, Ms. Janis stated that JCP&L has estimated the initial payment to be \$450,000. In sum, Ms. Janis stated that there is sufficient information regarding the Railroad Property Permit for the Board to render a decision on the need for the Project. (Id. at 5-17 to 6-4).

### **Jerome J. McHale**

Jerome J. McHale provided rebuttal testimony on behalf of JCP&L which was marked as Exhibit JC-11R. The nature of Mr. McHale's rebuttal testimony was to respond to the testimony of Dr. Moliver.

Mr. McHale addresses several criticisms by Dr. Moliver of his direct testimony and opinions. The criticisms responded to by Mr. McHale are as follows:

1. Dr. Moliver's statement that Mr. McHale's review and use of literature and related reports do not adequately address the impact of high voltage transmission lines ("HVTLs") have on property values;
2. Dr. Moliver's contention that the Project represents a new round of external influences;
3. Dr. Moliver's assertion that Mr. McHale assumed away the effects of EMFs;
4. Dr. Moliver's opinion that because realtors must provide a form of written disclosure regarding the properties for which they become involved representing buyers and sellers, such disclosures negatively impact property values; and
5. Dr. Moliver's claim that FHA financing may be impacted due to the proximity of the Project monopoles to dwellings and improvements along the Project route.

(Exhibit JC-11R at 1-18 to 4-12).

### **Kyle G. King**

Kyle G. King provided rebuttal testimony on behalf of JCP&L to respond to the direct testimonies of RAGE witnesses Dr. David Carpenter and Dr. Moliver. (Exhibit JC-12R).

Mr. King stated that the testimonies of Dr. Carpenter and Dr. Moliver contained inaccurate claims concerning magnetic fields along the Project ROWs. Mr. King references the direct

testimony of Dr. William Bailey to show that the Project magnetic field levels will be below international guidelines. (Exhibit JC-12R at 1-16 to 23). In response to Dr. Carpenter's claim that the Project will create an unsafe level of magnetic field above 4 mG, Mr. King stated that the Project's future magnetic field levels along the proposed ROW are similar to the existing levels, which range from 30 to 80 mG. Although there are no Federal or New Jersey State limits on magnetic field from transmission lines, Florida and New York have adopted limits of 150 and 200 mG respectively. (Id. at 2-13 to 4-1).

Lastly, Mr. King responded to Dr. Moliver's discussion of existing and future electric and magnetic fields in his Appraiser-Consultant's Report. Mr. King stated that the magnetic field levels presented by Dr. Moliver are incorrect, and the distances where the Project will produce a level of 4 mG are overstated by an average of approximately seventy (70) feet. (Id. at 4-14 to 5-13).

### **William H. Bailey**

Dr. William H. Bailey provided rebuttal testimony on behalf of JCP&L to respond to the direct testimonies of RAGE witnesses Dr. Carpenter and Dr. Moliver. (JC-13R).

Dr. Bailey asserted that Dr. Carpenter's testimony contained a number of errors that render his conclusions scientifically invalid and his conclusions are inconsistent with those of major reviews conducted by multidisciplinary expert panels on behalf of a number of well-respected national and internal health and scientific agencies. Dr. Bailey attributed this to: a lack of understanding of the project-related exposures, the absence of clearly articulated methods for selecting and presenting studies, selective references to studies that Dr. Carpenter assumes support his conclusion, without considering earlier or more recent studies, and the selective reporting from, and misreading of, scientific studies. (Exhibit JC-13R at 3-18 to 4-9).

With respect to Dr. Carpenter's citation of Dr. Bailey's description of the Project's effect on magnetic field levels at the edges of the ROW as "small – less than 10 mG" as a key argument against scientific evidence for magnetic field health effects, Dr. Bailey disagrees. (Id. at 4-15 to 5-2) He asserted that the purpose of his reference to the calculations in the report of Kyle G. King was to describe the absolute magnitude of the Project's effects on existing magnetic field levels. According to Dr. Bailey, Dr. Carpenter does not mention that the operation of the adjacent NJT rail line is a stronger source of magnetic fields than the project or any other existing source. Dr. Bailey's recognition of the project exposures does not drive his opinion about magnetic fields and health. Dr. Bailey's opinions about magnetic field levels are based upon his review and evaluation of the scientific evidence on the topic of magnetic fields and health. (Id. at 4-11 to 5-2).

Dr. Bailey noted that King's chart shows that calculated magnetic field levels from the MCRP and other lines post-construction in 2019 are marginally higher than the existing lines at the northern edge of the ROW. There were two (2) sections on the southern edge with slightly higher or lower EMF levels. The operation of the NJT rail line produces higher magnetic fields than from existing or proposed power lines at all northern and southern edges of the ROW. Whenever an electric train going in either direction enters the track circuit near the Project route, which King noted occurs according to the regular schedule about sixty-eight (68) times per day during the week and about forty (40) times per day on weekends, the magnetic fields are increased. The magnetic field levels from the Project will be lower than the magnetic fields levels created by the trains when operating near the Project's route. (Id. at 5-7 to 6-19).

Dr. Bailey stated that the generally accepted method for health risk evaluation (i.e., the evaluation of the scientific literature for evidence, for or against, a potential causal association between an environmental exposure and health outcomes), is the weight-of-evidence approach. Dr. Bailey criticized Dr. Carpenter for not utilizing the weight-of-evidence approach, and would find that he “cherry-picks” the studies to get to his pre-conceived conclusions. Dr. Bailey considered the studies relied upon by Dr. Carpenter to be outdated and not peer-reviewed. (Id. at 8-17 to 14-13). Dr. Bailey also emphasized the lack of causation evidence for how EMFs could impact health, notwithstanding some support for statistical association between EMFs and childhood leukemia. (Id. at 16-1 to 26-10).

Dr. Bailey, therefore, concluded that the scientifically superior results do not support Dr. Carpenter’s claim that strong evidence supports extrapolations of his opinions to projections of actual excess cases of childhood leukemia due to magnetic fields. (Id. at 36-12 to 43-16).

Dr. Bailey also addressed the testimony of Dr. Moliver. Dr. Bailey stated that Dr. Moliver relied on four (4) unproven sources and the testimony of Dr. Carpenter. Dr. Bailey believed that it is inappropriate to consider 4 mG as a marker for significant health risks. Dr. Bailey found Dr. Moliver’s analysis is flawed in two (2) ways: (1) health authorities have not concluded that magnetic fields cause any health condition or disease; and (2) for Dr. Moliver to assume that Dr. Carpenter’s opinions are ground in facts and science is indeed “extraordinary” given that Dr. Moliver claims to have read the WHO and NIEHS reports. (Id. at 57-19 to 60-9).

### **C. Evidentiary Hearings**

Evidentiary hearings were held on April 4, 5, 6, 7, 10, 11, and 12, 2017 at the OAL in Newark, New Jersey. In addition to procedural and legal arguments made by the Parties, during the course of the evidentiary hearings, each witness presented any prefiled direct and rebuttal testimony, discussed above, as well as made its witnesses available for examination. On April 4, JCP&L witnesses Scott M. Humphrys, Theodore R. Krauss and Kyle Whisner were presented as a panel and subjected to examination by the Parties. On April 5, JCP&L witnesses Mark L. Sims and Lawrence A. Hozempa were presented as a panel and subjected to examination by the Parties. On April 6, Rate Counsel witness Peter J. Lanzalotta was presented and JCP&L witnesses Kyle G. King, William H. Bailey, Tracey J. Janis, Jerome J. McHale and Mark G. Korn were presented as a panel and subjected to examination by the parties. On April 7, the panel examination of Jerome J. McHale and Mark G. Korn continued. On April 10, JCP&L witnesses Kirsty Cronin and Peter Sparhawk were presented and subjected to examination by the parties. On April 11, the examination of Mr. Sparhawk resumed. Additionally, RAGE’s witness Avid O. Carpenter, M.D. and JCP&L’s witness Will Irving were presented and subjected to examination by the parties.

On April 12, RAGE witnesses Micheal Basch and Stephen Lunanuova were presented as a panel and Dr. Donald Moliver and P. Jeffrey Palermo were presented and subjected to examination by the Parties. At the April 12, 2017 hearing date and in light of certain analyses performed by RAGE witness P. Jeffrey Palermo and Rate Counsel witness Peter J. Lanzalotta, ALJ Cookson ruled that JCP&L would be permitted to propound discovery with respect to certain new information, respond to the testimony, and subsequently cross examine these witnesses at a supplemental evidentiary hearing which were subsequently held on July 6, 2017 and July 7, 2017.

#### **D. Post-Evidentiary Hearing Motions**

On May 11, 2017, RAGE filed a motion in limine to bar any evidence at the June 14, 2017 plenary hearing pertaining to the NERC P6 or P7 violations.

After the first round of evidentiary hearings, JCP&L filed the Rejoinder Report of its witness, Lawrence A. Hozempa, P.E. On June 22, 2017, Rate Counsel filed a motion to suppress the Rejoinder Report. On June 24, 2017, RAGE filed a motion to strike the Rejoinder Report. By correspondence dated June 26, 2017, JMG joined in the motions and filed a letter brief in support of the applications.

On July 6 and 7, 2017, ALJ Cookson presided over supplemental evidentiary hearings. At the hearings, P. Jeffrey Palermo was presented for examination. Additionally, Mr. Lanzalotta was made available, but no additional examination occurred. On July 7, JCP&L witnesses Lawrence Hozempa and Mark Sims were recalled and presented for examination by the Parties. In addition, ALJ Cookson acknowledged that the motion to suppress Mr. Hozempa's Rejoinder Report was still pending, and thus indicated that the parties should present testimony with respect to the report, and she would subsequently issue a written decision regarding the motion.

On August 30, 2017, ALJ Cookson issued an Order ("August 30, 2017 Order") finding that certain portions of the Rejoinder Report and the corresponding oral examination or cross-examination "will be stricken from the record." I/M/O Petition of JCP&L for Pursuant to N.J.S.A. 40:55D-19 for a Determination that the Monmouth County Reliability Project is Reasonably Necessary for the Service, Convenience or Welfare of the Public, OAL Docket No. PUC 12098-16. (August 30, 2017). RAGE, JMG and Rate Counsel filed motions to strike portions of the post-hearing reply brief filed by the Company on the grounds it violated the August 30, 2017 Order striking these portions of the rejoinder testimony of Mr. Hozempa. In response, on December 4, 2017, ALJ Cookson issued an Order requiring the parties to redact Mr. Hozempa's testimony from their briefs.

On September 7, 2017, pursuant to N.J.A.C. 1:1-14.10, JCP&L filed a request for interlocutory review of the August 30, 2017 Order. By Order dated September 22, 2017 ("September 22, 2017 Order"), the Board denied JCP&L's request for interlocutory review.

#### **E. Post-Hearing Briefs**

##### **1. Initial Briefs**

On October 23, 2017, JCP&L, Rate Counsel, RAGE, and the JMG filed post hearing briefs.

##### **a. JCP&L**

In its brief, JCP&L asserted that the Project should be approved because: (1) it satisfied the statutory criteria and established that the Project is reasonably necessary for the service, convenience or welfare of the public; (2) JCP&L completed a comprehensive route selection process and chose the route that will result in less cumulative impacts compared to the available alternatives; (3) JCP&L established that the Project will comply with all applicable requirements concerning EMF and audible noise; (4) the Company established that the Project will have no impact on property values; and (5) the Project will bring incremental economic benefits to the State of New Jersey and to the local economies. (JCP&L Initial Brief at 7 to 8).

JCP&L also emphasized that the Board's regulations do contain an additional standard that is relevant to this matter. N.J.A.C. 14:5-7.1(a) which provides that when an electric distribution company constructs an overhead transmission line, it must make "use of available railroad or other ROW whenever practicable, feasible, and with safety, subject to agreement with the owners." (JCP&L Initial Brief at 9).

JCP&L asserted that it has clearly and unequivocally established that the Project is reasonably necessary for the service, convenience or welfare of the public because it allows JCP&L to remedy a NERC reliability criteria violation, comply with PJM's directive to construct the Project as a baseline RTEP upgrade, and enables JCP&L to provide safe, adequate and proper service to its customers, while also, to the greatest extent possible, conserving and preserving the quality of the environment. (Id. at 9 to 10). JCP&L further argued that the route ultimately selected for this Project is environmentally responsible and makes significant use of existing ROW, including NJT's ROW. Accordingly, the Project also complies with the requirements of N.J.A.C. 14:5-7.1(a). (Id. at 10).

JCP&L reiterated that in 2011, as part of its RTEP process, PJM identified a planning criteria violation in regard to the transmission lines supplying JCP&L's Red Bank Substation. More specifically, PJM identified reliability criteria violations of NERC Category P7 contingencies for the N-1-1 outage of the Atlantic-Red Bank 230 kV circuits. This type of "common mode outage" is defined as two (2) or more automatic outages with the same initiating cause where the outages are not consequences of each other and occur nearly simultaneously. JCP&L confirmed the contingency would result in more than 700 MW of load loss, well above the 300 MW loss of load criterion limit, which violates the JCP&L Planning Criteria as well as PJM planning criteria. (Id. at 13-14). JCP&L asserted that the resulting loss would create a local area voltage collapse on the underlying 34.5 kV system centered at Red Bank Substation, with a loss of load exceeding 700 MW. In June 2015, this would impact approximately 213,938 customers. As such, the Project will provide additional reinforcement and redundancy to JCP&L's transmission system, thereby enhancing service quality and reliability. (Id. at 14).

JCP&L cited from PJM's testimony that PJM confirmed that the proposed Project would adequately address the reliability criteria violation and presented the Project at the PJM September 2011 Transmission Enhancement Advisory Committee meeting.

The Company highlighted Mr. Sims testimony that since the original need determination in the fall of 2011, PJM has annually validated the continuing need for the Project. In addition, the Category P7 violation exists at recent actual peak load levels. Every analysis since the original need determination has re-confirmed the need for the MCRP. There is no credible evidence in the record to support the notion that peak loads will decline in the JCP&L service territory to such a low level that the need for the MCRP will be obviated. (Id. at 15 to 17).

JCP&L asserted that it evaluated four (4) electric alternatives to resolve the potential local voltage collapse. The Company considered: (1) tapping the Atlantic-Raritan River 230 kV line to bring a third 230 kV source into the Red Bank Substation; (2) constructing a third 230 kV line from the Atlantic Substation to the Red Bank Substation; (3) extending a new 230 kV line from the Oceanview Substation to Red Bank; or (4) tapping the Freneau-NJT Aberdeen 230 kV line to add a third 230 kV source into Red Bank. Each of these alternatives was rejected because it did not provide the same level of robustness as the MCRP and/or would negatively impact the system reliability in some other way. (Id. at 17). JCP&L also emphasized that no other party has introduced any credible evidence that any of the four (4) electrical alternatives that JCP&L considered should be pursued instead of the MCRP. (Id. at 18). In sum, JCP&L stated that it is

clear that the Company gave appropriate and due consideration to electrical alternatives. No alternative that either JCP&L identified prior to pursuing the MCRP, or that intervenors have suggested in the context of this proceeding, addresses the violation as thoroughly as the MCRP from reliability, resiliency, least impact or cost perspectives. JCP&L contended that each alleged electrical alternative would either: (1) not remedy the NERC Category P7 violation; (2) cause other reliability issues to the JCP&L system; or (3) cost more and have more negative impacts on customers and the environment than the MCRP. (Id. at 19).

JCP&L argued that none of the non-transmission alternatives proposed by Rate Counsel and/or RAGE would solve the P7 at a high level analysis, and several potential routes at a more detailed level, therefore they would not satisfy the violation or the reliability needs of the Red Bank area. (Id. at 22 to 30).

JCP&L also stated that it adequately considered all potential route corridors at a high level and several potential routes at a more detailed level, satisfying its proof obligations under In re Public Service Electric and Gas Company, 35 N.J. 358 (1961). JCP&L noted that it conducted a comprehensive Routing Study to determine the best route for the Project. Following extensive field work and analysis and based on the seventeen (17) potential corridors originally identified, the Routing Study team selected four (4) alternative corridors for additional study. Ultimately, the Routing Study team selected Route B as the preferred route for the Project. Route B was chosen because the cumulative social, environmental, and financial impacts associated with constructing the MCRP will be less than any other alternative route. JCP&L reiterated in its Initial Brief that the preferred route can be constructed largely within existing ROW, and therefore is in accord with the Board's regulation governing construction of new electric transmission lines, N.J.A.C. 14:5-7.1(a)(1). (JCP&L Initial Brief at 36 to 37).

JCP&L repeated its assertion that it is under no obligation to complete negotiations with NJT for use of the ROW prior to the completion of this Board proceeding. The Company has not fully estimated the price of the yearly ROW use arrangement, although JCP&L has been in contact with NJT for several years regarding many aspects of the Project. (Id. at 61 to 63). NJT has informed JCP&L that the NJT "excessing review," which precedes the actual negotiation of the terms and conditions of the Railroad Occupancy Permit, was completed in May 2016. The Company anticipates NJT's issuance of a formal notice of completion of the excessing review. JCP&L does not believe that uncertainty of approval of another state agency should create an obstacle to the Board's approval of the Project provided the Board is satisfied that the Company has a reasonable basis for estimating such costs. (Id. at 67 to 68).

**b. Rate Counsel**

In its brief, Rate Counsel argued that the facts in this matter do not support granting the Company's petition. Rate Counsel stated that the change in load forecasts puts the need for the Project into question. Additionally, the Company did not consider alternatives to determine if the Project is in fact, the lowest cost solution to the voltage violations caused by the now outdated and overstated 2011 load forecast. Accordingly, Rate Counsel argued that the Project should be denied. (Rate Counsel Initial Brief at 6).

Rate Counsel argued that due process requires the Board to make an independent decision upon the facts, not simply defer to the judgment of the utility. Accordingly, while deference may be given to a particular proposed route, the Board is not relieved from making an independent judgment upon specific facts. Rate Counsel argued that this case requires an analysis of



competing options available to address a potential NERC violation. The PJM identified NERC violation was identified with outdated load projections that have not occurred.

Rate Counsel further argued the Company must demonstrate the need for the project. N.J.S.A. 40:55D-19 requires first a finding that “[the] proposed use by the public utility of the land described in the petition is necessary for the service, convenience or welfare of the public.” Rate Counsel claimed the Company has failed to properly show the requisite need because the justification for the project is based on outdated load forecasts and the NERC violation that was predicted to occur has not occurred. Since the violation did not occur and is no longer projected to occur in the planning period, the Company’s petition should be rejected. (Rate Counsel Initial Brief at 9 to 10).

Rate Counsel argued that the evidence in this proceeding demonstrated that the actual peak load has never approached the 2011 projected peak load, and therefore, obviates the need for the proposed solution, much less the particular route proposed. Therefore, the Company has not established that this line is needed to maintain reliable electric service. (Id. at 10). Mr. Hozempa and Mr. Sims both testified that the Project is still needed because a 2016 study showed that the voltage collapse potential is still present. However, there is no evidence in support of their conclusory rebuttal testimony. In response to discovery, Mr. Sims produced a PJM “computer readable power flow case” that under examination did not change Mr. Lanzalotta’s conclusions about the “need” for this Project. (Id. at 11). In the Rejoinder Report introduced by the Company, a power flow simulation run by JCP&L, confirmed Mr. Lanzalotta’s load number of 5,862.9 MW. In addition, an email between Mr. Hozempa and Mr. Sims dated July 15, 2016 stated that the solution was able to “resolve” the steady state power flow model at 5,918 MW. Accordingly, JCP&L has failed to demonstrate that the peak load assumption driving the potential NERC violation has occurred or, based on PJM’s current projections, will occur in the foreseeable future. Rate Counsel asserted that the Company has ultimately failed to properly demonstrate the need for the project as required by statute and, therefore, the request for the MCRP must be denied. (Id. at 12).

Rate Counsel continued that once a potential NERC violation has been identified in a PJM RTEP, the process of developing a solution to the potential violation begins. If the underlying assumptions leading to the potential NERC violation change, PJM is generally reluctant to revisit the initial decision. If the RTEP were to be applied under the Operating Agreement that existed in 2011 rather than the planning criteria used today, it would indicate that there is no need for the MCRP. (Id. at 13).

PJM, in 2011, used a “bright-line” test to determine which transmission projects should be included in the RTEP. In February 2012, PJM revised its Operating Agreement to address what PJM called the “whipsaw” effect of taking projects in and out of the RTEP due to changing conditions. The effect of the 2012 change is the current situation where PJM and the Company are moving forward with a project that is no longer needed to resolve a NERC violation. As Mr. Lanzalotta testified, “While PJM may have virtually unlimited flexibility to keep a transmission project alive once it has been approved by the PJM Board, as discussed above, the information in the Company’s testimony indicates that this need is currently past 2031, well into the future.” (Id. at 15 (quoting RC2 11-3 to 5)). The assumptions underlying the P7 violation giving rise to the need for the MCRP in 2011 have not been and will not be met, according to PJM’s own projections, until after 2031. Accordingly, Rate Counsel asserted that JCP&L has failed to demonstrate the requisite need for the MCRP. (Id. at 14 to 15).

Rate Counsel continued its argument by stating that N.J.S.A. 40:55D-19 not only requires a showing of need, it requires that the company demonstrate that "no alternative site or sites are reasonably available to achieve an equivalent public benefit. . . ." N.J.S.A. 40:55D-19. Rate Counsel asserted that in this case, the Company has failed to meet this requirement because it has not established what the true projected cost of the line will be, which is necessary to provide a cost comparison as part of the analysis of alternatives. Additionally, feasible alternatives exist that provide an equivalent public benefit at a lower cost and with less disruption. (Rate Counsel Initial Brief at 15).

The initial cost when the project was first identified was estimated to be \$22 million. (Transcript of hearing April 4, 2017 at 98-12 to 15, S-10.) The Company's current 2016 estimate, provided in discovery, was determined to be \$111 million. (Id. at 96-17 to 19, S-MCRP-10.) The 2016 estimate did not include many costs yet to be determined, most significantly the NJT ROW costs, and any terms and conditions that may apply. Rate Counsel argued that to accurately assess the total costs to ratepayers and consider the alternatives as required by the Supreme Court, it must be able to make an "apples to apples" comparison or be sufficiently informed as to the comparative advantages and disadvantages, including cost, to determine "reasonable necessity." Mr. Lanzalotta identified four specific transmission alternatives among the several offered by the Company that would remedy the potential NERC violation identified in the 2011 RTEP. Mr. Lanzalotta concluded that "None of these alternatives were deemed to be as robust as the Project, and each was judged as being less reliable than the Project in some way. However, all of these alternatives would fix the [identified] voltage collapse." (Rate Counsel Initial Brief at 16 to 17). Rate Counsel asserted that the Company acknowledged that it had not analyzed "alternative sites or methods and their comparative advantages and disadvantages to all interests involved, including cost ...." citing In re Public Service. The Company therefore did not demonstrate the full cost of the MCRP for consideration, or that there are no less costly alternatives that will address the NERC violation and provide an equivalent public benefit. (Rate Counsel Initial Brief at 17 to 18).

The Company also did not consider any non-transmission alternatives since it concluded that "it was apparent that a third line into Red Bank would be required to effectively address this violation." (Id. at 18 (quoting JC-8 at 18-15 to 19). As a consequence of that conclusion, the Company did not consider any alternatives, or their cost, other than that of the MCRP. As noted by Mr. Lanzalotta, "While it may be apparent that a new transmission line into Red Bank would address the violation, it is not apparent that a new transmission line would be required in order to do so, or that a new transmission line is the only reasonable alternative." The Company has only offered a single solution for the potential NERC violation identified in the 2011 RTEP, and, has therefore failed to meet its burden of proof. Accordingly, the Company's petition should be denied. (Id. at 18).

As explained in the testimony of Mr. Lanzalotta, Rate Counsel believes there are alternatives that would remedy the NERC violation, i.e., the voltage collapse, including: (i) extending a 230 kV tap off the Atlantic-Raritan River 230 kV line; (ii) constructing a third 230 kV line from Atlantic substation; (iii) extending a 230 kV line from Oceanview substation; or (iv) tapping the Freneau-NJT Aberdeen 230 kV line. (Id. at 19). While the Company presented these transmission alternatives without the necessary analysis, they were judged, in part, by how well they addressed other reliability needs since each of them would remedy the NERC violation. The Company ultimately determined that a project tapping an existing 230 kV transmission line for a new 230 kV feed into Red Bank would not be as reliable because it would increase the length of the line exposed to potential faults.

Rate Counsel discussed that another reliability shortcoming claimed by the Company for each of the transmission alternatives is that they did not provide a second supply line to some substations that currently only have a single supply transmission line. However, the Company did not represent that a single supply transmission line, or "radial feed" reflects a NERC violation. The Company rejected transmission alternative (ii) above, building a third 230 kV transmission line from Atlantic substation to Red Bank, because by adding a new transmission line to an existing transmission ROW, it would increase the exposure of the electric system to events affecting that ROW. While the Company opined that reliability is compromised when more transmission facilities share the same ROW or transmission structures, it did not state that this is a NERC violation, nor did the Company explain why this is of greater concern than sharing a ROW with an active train line. (Id. at 19 to 20).

Rate Counsel contended that as the Company did not develop cost estimates for any of these alternative transmission projects, it is impossible to determine how much it would spend for the additional benefits attributed to the preferred Project. Proper evaluation of the transmission alternatives would require cost estimates for each, including how much the NJ Transit ROW will cost. Since the Company did not consider any non-transmission alternatives or respective costs, there is no basis for the Company's unfounded assertion that only a new transmission line would effectively address the NERC violation. Rate Counsel argued that the Company failed to properly consider non-transmission alternatives presented by Mr. Lanzalotta that would help control system voltage and provide a fast response to system voltage changes, including an SVC or STATCOM. Rate Counsel noted that the Company did not consider using distributed generation, smart inverters or smart grid technologies to resolve the NERC violation. Rate Counsel's witness explained that PJM does not currently allow market-driven responses to solve a potential NERC violation, so there should be an effort to try to integrate these technologies into the Company's operations. Rate Counsel further stated that the Board should require an evaluation by the Company of the ability of those and other technologies to enable the system to survive the potential NERC voltage collapse driving the Project. Accordingly, Rate Counsel concluded that the Company failed to meet its burden of proof that the MCRP is necessary, or, the best solution to remedy the NERC P7 violation at this time. (Id. at 20 to 21).

**c. RAGE**

In its brief, RAGE asserted that JCP&L has not proven the need for the Project, gave little consideration to any alternatives, purposely underestimated the costs of the MCRP, undervalued the financial and aesthetic impacts to the residences along its route, and underplayed the health and environmental concerns. RAGE highlighted that the Company did not consider any other viable and cost effective alternatives to address the P7 contingency. (RAGE Initial Brief at 5 to 7).

RAGE argued that the "route study" undertaken by JCP&L was a complete sham. (Id. at 7). RAGE noted that the "study" was commissioned nearly a year before any notification of any P7 issue, and was devoted almost entirely to developing a justification for the MCRP. During the time that the "study" was in progress, JCP&L was engaged in detailed engineering planning for the MCRP, providing thousands of pages of documents to NJT to try to obtain the NJT's permission to build the line on its ROW. NJT has, to date, not given its authorization to use the NJT ROW. (Id. at 2 to 3).

RAGE contended that JCP&L does not appear to be very concerned about this potential voltage collapse as it has no plan in place to control one that might occur in the interim. It has done

nothing to limit the harm that its customers would suffer in that unlikely event. By contrast, RAGE proposed an SPS that would control any possible voltage collapse. The SPS would also minimize the P7 contingency until its proposed alternative solution is implemented. (Id. at 3).

RAGE also highlighted the fact that this is the third time that JCP&L has proposed this transmission line in Monmouth County. In December 1988, JCP&L proposed to construct substantially the same line as the MCRP, but using slightly shorter monopoles. JCP&L claimed that it was necessary to construct this line to meet its service obligations, although at that time the Company said the deficiencies were in the Taylor Lane area. When settlement negotiations failed, JCP&L withdrew the application. In 2000, JCP&L proposed a slightly less ambitious version, 6.5 miles of 230 kV line to be erected from Matawan to Middletown. The Company asserted that demand in the area was so strong that it doubted whether it could meet summer peak demand the following summer without the project. RAGE noted that this claim must have had no merit, as JCP&L withdrew the petition only a few months later. (Id. at 10 to 11).

Further, RAGE maintained that JCP&L justified its selection of the Project relying on the additional “robustness” and reliability to its system. RAGE stated that the Company asserts that the Project would provide improvements to the Freneau Substation and the Taylor Lane area, but these improvements are not relevant to the P7 contingency. The inclusion of those improvements in the Project appears to be subsumed under the Company’s definition of “robustness.” During the evidentiary hearing, JCP&L conceded that this case is solely about the P7 contingency, and that it would not be prudent to pursue the MCRP in the absence of the NERC P7 violation. (Id. at 19)

Based on its expert’s testimony, RAGE contended that SVCs and STATCOMs can provide fast-acting reactive power by regulating the voltage, power factor, and harmonics to quickly stabilize the system. These non-transmission alternatives would cause virtually none of the extensive disruption and permanent blight that the MCRP would create. (Id. at 28). A reasonable utility, concerned about the public it serves, would have conducted power flow analyses to determine whether the P7 contingency could have been mitigated or even eliminated by RAGE’s proposed alternative. RAGE asserted that JCP&L made a strategic decision to pursue the MCRP to the virtual exclusion of any alternative. (Id. at 31).

RAGE requested that the ALJ and the Board draw an adverse inference against JCP&L from its refusal to update discovery responses and Project data. Such an inference would demand that the Project be deemed to be a lot more expensive than \$111 million, and that the unexplored alternatives would be a lot less expensive. JCP&L’s estimates for the cost of the MCRP have escalated precipitously. In obtaining PJM’s concurrence for the MCRP, JCP&L first estimated its cost to be \$22 million. In 2012, it updated that cost to \$40 million. Then in 2015, the cost was estimated to be \$75 million. As of June 2016, the estimated cost was \$111 million, plus an additional \$3.9 million in Taylor Lane costs. RAGE stated that to the ALJ should not accept JCP&L’s claim that this inflation stopped in mid-2016.

RAGE also emphasized that the 2016 \$111 million estimate does not include the costs to use the NJT ROW, to cross the Earle Naval Weapons Station property, to acquire “priority tree rights,” overheads at Taylor Lane, or to cover legal and other expenses of these proceedings. With respect to the NJT ROW costs, RAGE argued that there is no reason to believe that JCP&L would bargain hard with NJT, especially given the extensive engineering, legal, and other investments the Company has made in the MCRP thus far. Moreover, there is no real incentive for JCP&L to negotiate since it expects that all costs of the project would be included

in the FERC rate of return. On the other side, NJT would have every reason to believe it is the one in the driver's seat. (Id. at 58 to 59).

RAGE argued that the environmental, aesthetic, and health considerations also demand rejection of the Project by the Board. RAGE stated that the MCRP would be a permanent blight on the landscape of five (5) of New Jersey's most livable towns, resulting in serious adverse impacts on the property values of the homes near the line, a blight on a large historic district, and ruining the ambience of numerous parks, schools, and playgrounds. (Id. at 4). Additionally, it argued that environmental impacts of the MCRP are both substantial and also unknown, according to RAGE, because JCP&L has chosen not to apply for permits in time for the Board to review those impacts. There can be no true comparison to alternatives to the MCRP because JCP&L only conducted "high level" analysis during its corridor and route studies. Further, RAGE asserted that the perception of harm from EMFs is strong even if not definitely proven to be harmful to human health. (Id. at 93).

RAGE concluded by requesting that the Board: (1) reject the MCRP; (2) direct JCP&L to promptly implement a remedial action scheme to mitigate any load losses in the event of a P7 event due to the simultaneous loss of the two lines; (3) direct JCP&L to promptly develop with PJM a reasonable solution to the P7 contingency such as the RAGE alternative that utilizes STATCOMs, based on accurate forecasts; and (4) direct JCP&L to promptly develop with PJM the method for offering the reasonable solution to the P7 contingency or any feasible alternative to any responsible market participant, consistent with FERC Order 1000, and if necessary, declare that it will not accept any solution to the P7 that has not been exposed to the market. (Id. at 110).

**d. JMG**

In its brief, JMG maintained that the MCRP is entirely unnecessary because of collapsing demand for power in the JCP&L service territory. JMG asserted that the record proves that the reliability issue is mitigated and theoretically solved when actual load usage falls to 5,862.9 MW – that is, the theoretical case "solves" and with a proper load-shedding strategy, no voltage collapse should occur. JMG also took the position that the Project may be unnecessary in light of the fact that the claimed reliability issue involving the theoretical loss of two (2) 230 kV lines on a common tower is a contingency that has not occurred in the forty-three (43) years since the second line was added to the common tower in 1974. (JMG Initial Brief at 1).

JMG also asserted that the Company has not met its burden of proving that the MCRP is a safe and reasonable response to the potential P7 violation. It maintained that JCP&L did not undertake a genuine analysis of alternative transmission routes and gave no consideration to non-transmission alternatives. JCP&L commissioned the "Potential Corridor Study" in early 2010, ten (10) months before PJM gave the Company its initial notice that there was any problem that needed to be addressed for Red Bank reliability. According to JMG, a cursory analysis of the study demonstrates that JCP&L and the route selection team rejected entire identified corridors deemed fit to deliver a solution to the electrical issue, often for the flimsiest of reasons, and for contradictory pretexts as well. (Id. at 2 to 3).

JMG supported the non-transmission alternative submitted by other parties that utilize two (2) STATCOMS and 34.5 kV network reconfigurations or upgrades to resolve the P7 violation. JMG asserted that the record proves that there are viable electrical non-transmission alternatives to the Project to address any reliability issues that may be present at the greatly-

reduced actual and forecasted peak loads for well into the future. As for any transmission-based alternatives, JMG indicated that there are several routes that would or could involve a partial or full build of an additional 230 kV circuit into Red Bank along an appropriate corridor that would not inflict the damage that the MCRP levels on property values, and aesthetics. (Id. at 4).

JMG claimed the record evidence thoroughly establishes that JCP&L has failed to carry its burden with respect to proving electric need for the Project. Id. at 8-9. It states that PJM over-forecasted demand from the 2010 Load Forecast and from the 2009 load forecast. The effect of PJM's demand over-forecasting has been to overstate (and accelerate) the necessity for electric transmission facilities, as more facilities are needed to meet forecasted increased demand. (Id. at 9-12).

JMG indicated that once the PJM 2011 RTEP base case produced a probable NERC violation, PJM performed an annual "re-tool" process involving power flow modeling to confirm that the issue still existed. Despite claiming in discovery that it did not keep records substantiating these findings, PJM witness Sims nonetheless testified that his team had confirmed a continued reliability issue at 5,955 MW in 2016, as the power flow case did not resolve. Probable or actual NERC violations can be "cleared" in a number of ways. There exist both transmission and non-transmission based solutions to clear such violations. Falling actual load usage can also clear a violation, and two (2) large transmission builds previously approved by PJM were canceled after changed demand conditions (including falling load usage) cleared the NERC violation. (Id. at 13-14).

JMG claimed that even using the minimum PJM five (5) year forecasting error noted above yields an actual usage value substantially below the theoretical power flow model case resolution point of 5,862.9, proving that falling demand in the JCP&L service territory is likely to obviate the NERC violation in the near future, a result that obviates any need for this massive MCRP. To proceed with the MCRP would be the electrical equivalent of swatting a gnat with a sledgehammer. (Id. at 15-16).

JMG alleged that, in response to the strong testimonies of Messrs. Lanzalotta and Palermo, Mr. Hozempa decided to prepare the Rejoinder Report for two (2) reasons: (1) to bolster the case for electrical need for the MCRP; and (2) to attempt to show that Mr. Palermo's admittedly workable solution was too expensive to implement. The Rejoinder Report fails on both attempts. It instead proves that falling customer usage obviates electrical need. It also did not competently address (and therefore cannot contradict) Mr. Palermo's cost estimates. (Id. at 21)

JMG also urged a finding that the Company (or PJM) could and should have calculated the load usage level that theoretically would stabilize the system without producing any thermally overloaded circuits (circuits loaded in excess of their emergency ratings), and thereby eliminating any need for any further analysis. JMG also noted that the Company's only counterpoint to the STATCOM or SVC non-transmission solutions is that they would be too expensive and time-consuming to implement. JMG claimed that there is no competent record evidence to support either of these assertions. (Id. at 25).

JMG also stated that there is no proven electrical need for the MCRP. Falling demand and falling actual usage have obviated any claimed need, and the system is stable within its current and projected usage. Also, to the extent any question could remain about need, there are clearly both non-transmission and transmission-based solutions that would more than

adequately address the claimed need in Red Bank which are much more effective and less costly than the discredited MCRP. (Id. at 26).

JMG next claimed the MCRP cannot be considered reasonably necessary to address any electric need because JCP&L failed adequately to consider alternative corridors and routes that could have hosted any facilities needed to provide another 230 kV circuit into Red Bank. (Id. at 28 citing *In re: Public Service*, 35 N.J. at 368). At the outset, JMG alleges that there are three (3) undisputable facts that disqualify the purported corridor and route study that JCP&L commissioned here: (i) the Company commissioned Louis Berger (a consulting company on corridor and route selection studies) to study alternative corridors and routes to alleviate the electrical issue in Red Bank in January of 2010, ten (10) months before PJM first told JCP&L of any potential problem involving a possible NERC violation in the Red Bank area; (ii) Berger eliminated 15 of 17 potential corridors by May 29, 2010, still six (6) months before any Red Bank problem was identified by PJM to JCP&L; and (iii) Berger spent an average of \$1,500 to "study" and eliminate entire corridors (and their potential routes), which reflects a paltry and insufficient effort to identify potential reasonable solutions to any real need. In short, the entire "corridor/route study" was a sham, a flawed and flimsy attempt to provide a veneer of cover to a decision that the Company had already made to attempt (for a third time) to build this Project along the previously-selected route. (Ibid.) JMG contended that the MCRP route selection study report is a post-hoc rationalization for a decision JCP&L made well before the study was even commissioned in January 2010. JMG argued that there are other reasonable, alternatives that would have less impact on the environment and other key criteria but that the Company has chosen to study none of them in anything more than a cursory, conclusory manner. (Id. at 33).

In addressing the costs, JMG stated the Project is estimated at \$111 million, but this figure grossly underestimates the probable real costs and burden that the ratepayers will be forced to bear. As recently as 2011, the Company estimated the cost of this Project at \$22 million for an eight (8) mile build, which the Company now admits was grossly underestimated. The Company also readily admits that siting this project along the NJ Transit railway adds significantly to the cost of the Project and contemplates that "until all permitting and approvals are obtained, there is potential for the estimates and total cost to change." With the costs of permits, approvals and rights-of-way acquisition still unsettled, in addition to unknown variables associated with pole construction so close to the tracks, there is no certainty as to the actual price tag of this Project. (Id. at 36).

With regard to FERC Order 1000, JMG stated that had PJM waited until that date to consider the Red Bank solution, the alleged violation that drove the MCRP would have been subject to FERC Order 1000 review and bidding, and a very different project, at a much lower and capped cost, likely would have emerged. JMG argued that ALJ Cookson should recommend that the Board reject the Company's current MCRP plan, and order the Company and PJM to conduct more studies concerning electrical need and potential solutions to what has proven to be an issue that seems to be solving itself with continued declining power demand. (Id. at 40-41).

JMG alleged that the MCRP will expose a substantial number of people, especially young children and the pre-born, to EMF levels known to be highly associated with major cancers and neurodegenerative diseases. These untenable risks are reason enough not only further to question the very need for such a project, but to cause decision-makers to look at every and any reasonable alternative (including further study of electrical need; use of non-transmission alternatives; planning along alternative routes) to avoid this expensive, risky Project. Id. at 44.

In addressing the Project's effect on property values, JMG stated that there can be no serious disagreement over the assertion that the MCRP will cause serious negative impacts to the real estate markets in areas the route will cross, especially residential areas. The Company's assertion to the contrary -that erecting hundred-plus foot tall monopoles with high tension wires just feet from private properties (near backyard playgrounds, decks, patios, recreational areas and/or front porch view sheds), in many cases after paring back or denuding buffer trees and brush, will have no negative impacts -is beyond absurd. The MCRP will reduce individual property values, as well as the perceived value of the affected communities. (Ibid).

JMG finally asserted that the economic impact of the MCRP is irrelevant to a decision to proceed with the Project. JCP&L offered the testimony of Mr. Irving for the proposition that building the MCRP would have positive economic benefits for the state. The witness ran a model that predicted economic benefits based on this Project resulting in 489 "job years" of construction-related employment over a three year span of construction. He could not determine whether the Project would produce any permanent jobs. these are not reasons to build the MCRP - any decision concerning the MCRP should be made according to electrical need, reasonable alternatives, effects on real estate values and other pertinent criteria. There are many alternatives to building the MCRP to address any proven electrical need. (Id. at 48-49).

## 2. Reply Briefs

On November 13, 2017, JCP&L, Rate Counsel, RAGE, and the JMG filed reply briefs.

### a. **JCP&L**

JCP&L reiterated the arguments raised in its initial brief and argued that the initial briefs of the other parties offered no persuasive evidence to deny the Company's petition. (JCP&L Reply Brief at 1 to 2).

In response to Rate Counsel's Initial Brief, JCP&L contended that because Rate Counsel's only witness, Peter Lanzalotta, failed to fully understand the JCP&L and PJM studies that established the need for the Project, and failed to offer any realistic or fully-developed alternatives, and as such, Rate Counsel's opposition to the petition must fail. (Id. at 2). The Company argued that Rate Counsel's belief that the forecasted load has never been reached and, therefore, the Project is no longer needed is flawed and incorrect.<sup>8</sup> JCP&L asserted that it has established that even at a peak load of 5,638 MW, there is a loss of load of 624 MW which is still a NERC P7 violation, as any load loss over 300 MW is a violation, and there is no reason to believe that the peak load will drop enough below this level to resolve the P7 violation. (Id. at 6).

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<sup>8</sup> JCP&L also contended Rate Counsel misinterpreted the 2016 email from Mr. Hozempa to Mr. Sims as alleging there would be no NERC Category P7 criteria violation at the peak Summer load level of 5,918 MW. JCP&L explained that the email actually established that a violation does exist at the 2016 peak load forecast level studied, and that the system was able to stabilize only after there was a 300 MW load loss, as shown in the cascade analysis. JCP&L contends that this test established that 291 MW of load was lost, but this was not a total load loss which is estimated to be between 423MW and 714 MW. (Id. at 5).



JCP&L also rejected Rate Counsel's claim that JCP&L should have done in-depth cost analyses of alternative routes. JCP&L argued that this would have been a waste of resources because the alternative routes were considered to be inferior to the MCRP from a reliability standpoint. JCP&L reiterated its belief that the requirements established by Hackensack Water<sup>9</sup> for electrical alternatives were met. JCP&L determined the Preferred Route was the best option and the cheapest alternative to Route A, the alternate viable option to solve the NERC P7 violation. JCP&L argued it would not be prudent to conduct cost analyses of the other four electrical alternatives because each had been determined to have serious reliability shortcomings. (Id. at 8).

JCP&L also argued the alternatives that Mr. Lanzalotta proposes are merely his hypothetical suggestions of potential alternative technologies and Mr. Lanzalotta has neither offered, nor substantiated, a single actual alternative to the MCRP. (Id. at 10 to 11).

In response to the JMG's initial brief, JCP&L maintained that the bulk of JMG's arguments resort to mischaracterization of the evidence or a disregard for all contrary evidence. The Company highlights that the JMG offered no witnesses or testimony but rather utilized improper friendly cross of Mr. Lanzalotta and Mr. Palermo. Specifically, the Company restated that it is irrelevant that the Louis Berger Group was retained to begin route selection study prior to the formal determination of the need for the project. The need for the Project was verified by the power flow analyses of the system. In addition, the Company attempted to build transmission projects in this area on two prior occasions, so the Company was very aware reinforcement of the transmission system in this area was necessary. (Id. at 11 to 12).

JCP&L refuted JMG's argument which references exhibit JMG-1 regarding PJM load forecasts. JCP&L inserted the publicly available actual and weather normalized peak demand information, available on the PJM website, to show that the Company's power demand is not rapidly falling as JMG tries to depict, but rather shows a slight downward trend between 2011 and 2016, and an even more minimal decrease on a weather normalized basis. (Id. at 13 to 14). JCP&L stated that JMG's assertion that the peak load in 2021 will be 5,170 MW is based on fuzzy logic utilizing data portrayed in a chart that is not in evidence. The JMG used the chart data to calculate its own "Five-Year Error Rate of PJM's Forecasts" JCP&L argued that the Court and the Board must reject JMG's data developed as pure conjecture because it used the average error of previous forecasted loads and was then applied to future forecasted loads. (Id. at 16 to 17). JCP&L also rejected the JMG's argument that according to Mr. Palermo's testimony, two STATCOMs and upgrades of the 34.5 kV lines would address the P7 violation and corrected several alleged misstatements by JMG. (Id. at 17).

JCP&L proceeded to highlight that JMG and RAGE both suggest the Company pursue new 230 kV transmission lines if the route is shifted to a different location within JCP&L territory. JCP&L contended this is a blatant attempt not in my back yard or NIMBY option to move the project out of their constituent's backyards and into someone else's backyards, thereby passing the buck onto someone else for a less robust electrical benefit for the area. (Id. at 19). In addition, the Company stated that the JMG's description of the route selection process was inaccurate and/or provided incomplete reasons the corridors were deemed inappropriate. (Id. at 25). JCP&L argued that the JMG and RAGE arguments tying the FERC Order No. 1000 to this proceeding are irrelevant and attorney conjecture utilizing documents not admitted into evidence including

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<sup>9</sup> I/M/O the Application of Hackensack Water Co., 41 N.J. Super. 408, 426-427 (App. Div. 1956).

similar financial documents which ALJ Cookson specifically excluded from evidence during the evidentiary hearing. (Id. at 33, fn. 17.)

JCP&L also addressed RAGE's argument regarding the burden of proof, specifically that JCP&L alone has the burden of proof and that burden never shifts. JCP&L argued that this is contrary to the long-established case law in New Jersey and should be rejected. The Company cited the Hackensack Water case wherein the Supreme Court held that "on the issue of 'alternatives' to a utility's proposed project in a petition filed pursuant to N.J.S.A 40:55D-19, the burden of proof shifts to an intervener that wants to propose an alternative solution." (Id. at 40 to 41).

JCP&L also stated that RAGE made several factually untrue allegations that JCP&L "refused to answer discovery seeking up-to-date and accurate information and has affirmatively misled the Board and court as to the true cost of the MCRP." JCP&L asserted that the Company answered several hundred discovery requests from RAGE and there are no pending motions to compel discovery, and the Company stated that it successfully objected to RAGE's inappropriate and untimely discovery requests. (Id. at 42).

JCP&L next addressed several statements made by RAGE regarding both the MCRP and Palermo's alternative. RAGE argued that JCP&L would not suffer any financial penalties if the Board does not approve the MCRP. JCP&L asserted that the issue of financial penalties has nothing to do with the need for the Project and solely relates to remedying the NERC Category P7 criteria violation. (Id. at 43). With respect to RAGE's criticism of JCP&L for not currently having a SPS in place in the Red Bank area, JCP&L believes this is an unsupported red herring that has no bearing on whether the MCRP is necessary under the statutory standard. (Id. at 44).

Additionally, contrary to the claim in RAGE's initial brief, the Company's modeling of the Palermo alternative clearly shows that even with the addition of two (2) 50 Mvar STATCOMS at the Red Bank Substation, a voltage collapse still occurs, resulting in a significant loss of load in the Red Bank load pocket, which violates the P7 criteria. (Id. at 45). JCP&L stated that it carefully analyzed Mr. Palermo's alternative. JCP&L conducted extensive power flow analyses to determine whether the Palermo alternative would resolve the NERC criteria violation at issue and then committed additional resources to determine what additional 34.5 kV system upgrades would be necessary to "make it work". (Id. at 48).

JCP&L disagreed with RAGE's contention that the \$111 million MCRP estimated cost is incorrect and therefore must be disregarded under the RAGE "adverse inference rule." JCP&L maintained that RAGE does not offer any cost analysis of their own to verify that the \$111 million cost estimate is inaccurate while JCP&L has documented its \$111 million cost estimate in its petition, direct and rebuttal testimony. The Company continues by mentioning that no other party has presented to rebut this cost estimate.

JCP&L also disagreed with RAGE's contention that the Taylor Lane Substation cost should not be included in the estimate because it is not needed to resolve the NERC violation, and RAGE's inaccurate \$4 million associated with this part of the project should be closer to \$7 million because overhead cost was not included. JCP&L asserted these allegations are incorrect. The Taylor Lane substation is part of the Project, whether or not those costs are directly related to resolving the NERC violation. JCP&L is in control of deciding how best to design their transmission system. In direct testimony and rebuttal testimony, the Company explained why the work on Taylor lane will help with reliability and is part of the MCRP. JCP&L witness, Mr. Humphry, explained that the \$6.9 million estimated cost for the project on Taylor Lane is

included in the \$111 million total cost estimate, which is in line with RAGE's estimation. (Id. at 50 to 51).

JCP&L continued that while the cost to use the NJT ROW is not yet known, JCP&L included a placeholder of \$450,000 until that cost was known. JCP&L believed that they will be able to obtain the railroad ROW permits at a reasonable rate once negotiations begin later this year. (Id. at 53 to 54).

**b. Rate Counsel**

In its reply brief, Rate Counsel argued that the Company failed to address the cost that New Jersey electricity customers will bear in connection with the Project. Instead, JCP&L summarily asserted that it has met its burden of proof by comparing the estimated cost of the Preferred Route (Route B) as being less expensive than the alternative route (Route A). Rate Counsel argued that the evidence and arguments advanced by JCP&L are insufficient to meet the legal requirement to examine costs. Additionally, the Company did not adequately review other viable, less costly alternatives, only the more expensive "strawman" it proposed. (Rate Counsel Reply Brief at 1 to 2).

According to Rate Counsel, the only evidence in the record that can be relied on regarding the costs of the Project is the 2016 \$111 million estimate provided by the Company in discovery which did not include many costs yet to be determined, most significantly the not yet negotiated NJT ROW costs, including any terms and conditions that may apply. With respect to this omission, JCP&L stated in its Initial Brief that "having the terms and conditions of the NJT ROW at this time is really irrelevant because we don't have the cost and terms and conditions that would be associated with the other routes," (citing JCP&L Initial Brief at 66) and that "Apples-to-apples comparisons would be highly impractical." (Ibid.) Rate Counsel recognized that some uncertainty with respect to potential costs may be unavoidable, but to sustain its burden of proof, the Company must attempt to provide an estimate of the total costs of the Project and alternatives so that the Board can determine if the costs are reasonable and just. (Rate Counsel Reply Brief at 2). Based upon the evidence in the record, the Company has failed to carry its burden of proof to demonstrate that the costs to ratepayers of the proposed route are reasonable when compared with the potential alternatives. (Id. at 3).

Rate Counsel asserted that in the Company's initial brief, it simultaneously argued that by comparing the cost of its selected and preferred routes it can demonstrate the reasonableness of the Project's cost, but that without knowing the costs of the NJT ROW, the Company cannot compare the costs of the alternatives. JCP&L cannot have it both ways, in that it cannot say the cost of the ROW is irrelevant when justifying the overall cost of the Project, and then argue it is indispensable when comparing the cost of the alternatives. This further demonstrates that the Company has failed to meet its burden. (Id. at 3 to 4).

N.J.S.A. 40:55D-19 provides for the balancing of interests including a comparison of "Alternative sites and their comparative advantages and disadvantages, including cost." To justify its selection, JCP&L argued that "it has completed a comprehensive route selection process and chosen the route that will result in the less [sic] cumulative impacts compared to the available alternative routes." However, the "cumulative impacts" were not considered in the elimination of a number of identified alternatives. The Company eliminated the alternatives because they were not as "robust" as its preferred alternative, as argued by JCP&L; "All of these alternatives were given serious consideration; however, each was rejected because it did not provide the

same level of robustness as the MCRP..." (citing JCP&L's Initial Brief at 17-18). Each of the alternatives that JCP&L dismissed resolved the potential NERC violation which is driving the need for the Project. The Company failed to compare the "cumulative impacts" of the alternatives, relying only on its preferred Project as it was more "robust" in resolving the potential NERC violation. (Rate Counsel Reply Brief at 4).

Additionally, Rate Counsel asserted that JCP&L's reliance on N.J.A.C. 14:5-7.1 (a) to support its selected route is misplaced. The Company relied on that portion of the regulation stating that it should make use of available railroad or other ROW..."but ignores the rest of the sentence which says that it should do so "[whenever practicable, feasible and with safety.]" There is no evidence in the record to establish the cost, or the practicality, feasibility or safety of using the NJT ROW. (Ibid.).

Rate Counsel further contended that JCP&L, in its initial brief, inappropriately referred to evidence that was subject to extensive argument and ultimately excluded from the record. A full paragraph is devoted to discussion of and argument about conclusions and assumptions that are drawn from the previously excluded evidence. Accordingly, no part of any decision here can be based on the excluded evidence. Rate Counsel stated that JCP&L's reference to excluded evidence only serves to illustrate the lack of evidence supporting the Company's petition. Only by referencing and relying on argument from evidence outside the record does the Company hope to bolster its position in support of the relief sought in its petition. The effort to "bootstrap" its argument in this manner should be rejected. (Id. at 6).

### c. RAGE

In its reply brief RAGE continued to request that the Board reject the MCRP. Overall, RAGE stated that it agreed with the arguments set forth in Rate Counsel's initial brief.

However, JCP&L<sup>10</sup> criticized both Rate Counsel and the JMG for failing to provide more information on the fact that there is a certain load level where the P7 contingency is no longer an issue, as pointed out by its witness Mr. Palermo. (RAGE Reply Brief at 1 to 2). RAGE contended that JCP&L is trying to use N.J.A.C. 14:5-7.1(a) to justify the route they are proposing. However, JCP&L failed to meet the four (4) qualifications delineated in the regulation: practicable, feasible, and with safety, subject to agreement with the owners. RAGE argued that contrary to the Project, its alternative would meet all of these qualifications. (Id. at 5).

RAGE further argued that this case is not about robustness, as JCP&L would have the Board believe. This case is solely about the P7 contingency. JCP&L admits it would be imprudent to seek approval of the MCRP on any other basis than the P7 contingency. RAGE maintained that the Board and the court must disregard all justifications for the MCRP except whether it is the best solution for the P7 contingency. (Id. at 7 to 9).

RAGE alleged that JCP&L admitted that the RAGE alternative would solve the P7 contingency, but tried to maneuver out of this alternative by saying it would be more expensive than MCRP. There is no basis for this claim and the record in this case has a detailed analysis on how Mr.

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<sup>10</sup> This Order was originally issued with an inadvertent typographical error. This paragraph was updated in this corrected Order to properly identify JCP&L who made the statements.

Palermo estimated the cost for his proposal. (Id. at 10)

There are three (3) insurmountable problems with this false speculation about the cost comparison of these two (2) proposals. First, RAGE gave JCP&L plenty of time to present an estimated cost of upgrading the eleven circuits and to provide a power flow analysis of Mr. Palermo's STATCOM proposal. Instead, JCP&L made the decision to simply provide rebuttal testimony by Mr. Hozempa to provide generalized and unsupported criticisms of Mr. Palermo's testimony. This report was determined to be too untrustworthy and inadmissible for the court to place into evidence. (Id. at 12 to 13).

Secondly, JCP&L refused to answer RAGE discovery questions, which would have provided admissible evidence on the cost of the RAGE alternative. (Id. at 13 to 15). Finally, RAGE indicated that it asked, in discovery, if any of the lines that were in the RAGE alternative were due for reinforcement, which would exclude those costs from being included in the RAGE alternative. Mr. Hozempa testified that there is no plan in place to regularly upgrade and reinforce the 34.5kV lines. The only time these lines are upgraded is when the lines fail. Mr. Palermo's testimony demonstrated that some of the eleven (11) circuits are going to be rebuilt in the normal course of business, to the new JCP&L standard, because older circuits are already overloaded. (Id. at 15 to 16).

Contrary to JCP&L's claim, RAGE stated PJM allows load shedding as part of a scheme to prevent a P7 event. While not a preferable option, PJM materials do allow limited load shedding to address a P7 contingency. (Id. at 18).

**d. JMG**

In its reply brief, JMG contended that JCP&L barely addressed any of the holes torn into its pre-filed case by the remaining parties and their experts. Further, JMG asserted that JCP&L simply regurgitated its case-in-chief and ignored many issues concerning its: (a) lack of electrical need; (b) failure to consider real alternatives including transmission and non-transmission solutions; (c) poorly-timed and ill-conceived route study; (d) dubious property value determination; and EMF/ELF exposure admissions. (Id. at 2). Accordingly, JMG stated that JCP&L has failed to carry its burden of proving electrical need generally, or the need for the MCRP. (Id. at 8).

JMG also stated that both Rate Counsel and RAGE are correct in their presentations of the evidence. Additionally, the conclusions of the evidence compels the ALJ to recommend against the MCRP and recommend that the entire process be returned to JCP&L and PJM with orders to conduct: (i) a good faith analysis of any electrical need; (ii) a process complaint with FERC Order 1000; and (iii) a process that gives thoughtful consideration to all alternatives that would alleviate any proven need in an efficient, effective, and least-intrusive manner. (Id. at 13).

**III. Initial Decision**

The record in this matter was closed on December 15, 2017. By Order dated January 31, 2018, the Board granted ALJ Cookson a forty-five (45) day extension of time to issue the Initial Decision until March 15, 2018.

On March 8, 2018, ALJ Cookson issued her Initial Decision, which denied JCP&L's petition for a determination pursuant to N.J.S.A. 40:55D-19, finding that it was not reasonably necessary for the service, convenience or welfare of the public. ALJ Cookson concluded that the Company's

application for municipal waivers was not supported by a preponderance of the relevant and admissible evidence, and therefore, must be denied. The Initial Decision was then filed with the Board for consideration.

**A. Factual Discussion, Credibility and Findings of Fact**

ALJ Cookson provided extensive summaries of the procedural history, testimony presented by the parties and post-hearing positions prior to the factual discussion, credibility and findings of fact in the Initial Decision, which are not necessary to be repeated herein.

**B. Need for the Project**

ALJ Cookson then addressed the “most important threshold question”—the need for the transmission Project. ALJ Cookson found that the need for MCRP is only driven if the P7 violation exists. (Initial Decision at 129). ALJ Cookson wrote:

It is also undisputed and I FIND that the P7 violation would occur if, but only if, the two 230 kV transmission lines on the common structure between the Atlantic Substation and the Red Bank Substation both failed during a period when the summer peak load was also occurring, resulting in a voltage collapse – “blackout” – in the Red Bank service area, with more than 300 MW of load being lost.

[Ibid.]

ALJ Cookson stated that the issue of whether the loss of two (2) HVLTS would result in a voltage collapse could only be determined by a power flow analysis, which is hypothetical modeling study. (Id. at 131). After detailing the power flow analysis data points and expert witness testimony, ALJ Cookson conclusively found that since the 2011 RTEP identified the P7 violation, the falling demand in the JCP&L service territory is significant. (Id. at 132). As a result, ALJ Cookson contemplated whether the lowered electrical demand is likely to obviate the NERC violation in the near future, thus removing any need for the MCRP altogether. (Ibid.) Since demand is less, the projected peak loads are “now in a very gray area of P7 event territory” and ALJ Cookson believed it “convenient” for JCP&L to not test that envelope.” (Id. at 133).

ALJ Cookson found that the Company had proven need for a solution to the P7 contingency event based on potentially outdated assumptions that pre-date the petition. In addition, she found that consistent with Palermo’s credible expert testimony, that the degree of risk should inform the extent, timing, and appropriateness of any proposed solution.” [citing Transcript of hearing July 6, 2017 at 188-7 to 22.] The preponderance of the credible evidence supports the finding that the P7 event is a ‘really low probability event.’” ALJ Cookson therefore found that JCP&L had sufficient time to perform a further review of the MCRP based on the significantly reduced load projections, which she determined, remained untested. (Initial Decision at 133).

**C. Alternatives to the MCRP**

ALJ Cookson found the Company provided alternatives to support its burden of proof under N.J.S.A. 40:55D-19, were merely “an exercise directed at forgone conclusion.” (Initial Decision at 134).

The Initial Decision stated that the Company proposed fundamentally flawed alternatives. ALJ Cookson points to the timing of the Berger invoice, the NJT presentations, the PJM considerations and other evidence to support the conclusion that other alternatives were not appropriately considered. First, she stated that the evidence shows that JCP&L commenced studies to justify the MCRP well before any problem was identified as needing a solution. Second, she noted many of the studied alternatives “were not analyzed at all in depth, and only a few were reviewed at a high level” and many of the alternative corridors were “strawmen set up to fail.” (Id. at 137, 141). Third, ALJ Cookson faulted the Company for its failure to put a dollar figure on one (1) the most essential elements of the Project, namely the cost to lease and maintain the ROW from NJT. (Id. at 143). This failure, according to the Initial Decision, was the Company’s deliberate attempt to “make it difficult for anyone to obtain a fair and accurate comparison” of the proposed alternatives. Lastly, ALJ Cookson indicated that a non-transmission alternative was ignored altogether. (Id. at 144).

In evaluating the evidence of the alternative corridors, ALJ Cookson suspected that the Company’s Corridor and Route selection seemed “partially driven by its non-essential goal of upgrading the Taylor Lane Substation, notwithstanding that such was not necessitated by the criteria violation.” (Id. at 142). She concluded that “the Company failed to undertake any meaningful inquiry into a solution to the P7 violation except the MCRP and failed entirely to consider any non-transmission solutions prior to the filing of the Petition.” (Id. at 146). With respect to non-transmission solutions, ALJ Cookson found that “Palermo was a very credible expert witness, with an extensive background. His approach was thorough and balanced, and well-researched.” She went on to state that “I was not convinced during the course of listening to all the testimony that Hozempa was an unbiased witness and I **FIND** that his critique of Palermo’s alternative was more about shooting it down than genuinely understanding it.” (Id. at 144).

ALJ Cookson also addressed the issue of the impact of FERC Order 1000 on the P7 solution selection process, including PJM’s ability to cancel the Project if the need for it changed substantially. (Id. at 146 to 148). ALJ Cookson noted that, had PJM waited until the date it adopted its compliance tariff implementing FERC Order 1000 to consider the P7 contingency solution, the alleged violation that drove the Project “would have been subject to FERC Order 1000 review and bidding, and a very different project, at a much lower and capped cost, might have emerged.” (Id. at 147).

#### **D. Electromagnetic Fields**

ALJ Cookson found that in regard to EMF, the “scientific testimony in this case is in equipoise and that neither side has been persuasive based upon the preponderance of the evidence standard.” (Id. at 148). The public health risks of EMFs, therefore, did not inform the Initial Decision, but ALJ Cookson recommended that the Board require post-construction measurements and mitigation if the MCRP is approved. (Id. at 150).

#### **E. Real Estate impacts**

ALJ Cookson acknowledged that the expert testimonies for the Company and RAGE were at odds with each other; however, Dr. Moliver’s conclusions were entitled to more weight. (Id. at 151). Mr. McHale’s credibility was undermined by his “careless quotation of synopses of studies he never read” and his findings were not the “work product of a professional entitled to much weight.” (Id. at 152 to 53).

ALJ Cookson summed up her findings on the impacts to real estate by stating that “the preponderance of the credible evidence supports a negative ten percent (-10%) real estate impact on the residential market because of both the height of the proposed monopoles and the narrowness of the ROW, which will not be offset by the North Jersey Coast Line tracks currently buffered and running only on a commuter schedule.” (Id. at 153 to 54).

#### **F. Environmental Impacts**

There was no testimony offered in direct contradiction to JCP&L’s expert on the environmental permits that will be required for the Project. ALJ Cookson therefore found that the “MCRP should not be built underground” since the environmental impacts associated with overhead transmission lines are limited to the footprint of the monopole foundations, while impacts associated with underground transmission lines would occur over the entire length of the Project.” (Id. at 154).

#### **G. Vegetation Management and Aesthetic Impacts**

ALJ Cookson found that the vegetation removal for the Project could be extreme, undermining the buffering qualities of the growth that presently surrounds the nearby residential structures. ALJ Cookson found that the one-hundred thirty-five foot (135’) monopoles, located fifteen feet (15’) from the edge of the ROW, will have disproportionately greater aesthetic impact on the local communities than eighty foot (80’) monopoles in the middle of the one-hundred foot (100’) plus ROW. (Id. at 155 to 56).

#### **H. Acquisition Issues**

ALJ Cookson found that either JCP&L or NJT, or both, failed to provide a price range for the costs of the Railroad Occupancy Permits. Notwithstanding that a Railroad Occupancy Permit from NJ Transit will provide the Company with the majority of its land use needs, she found that the Company’s failure to even place a price range on the record for that use was a significant omission. (Id. at 156).

#### **I. Miscellaneous Community Impacts and Public Opinion of MCRP**

ALJ Cookson noted that Mr. Irving testified that his scope of assignment was to produce a calculation of the economic benefits of the Project being constructed. He admitted he was never instructed or given the required information to evaluate any of the other corridors. ALJ Cookson pointed out that his report was prepared on the basis of cost estimates that pre-dated the \$111 million estimate for the Project. Mr. Irving admitted that if an alternative to the MCRP were to be approved and built, then it, too, would generate economic benefits for New Jersey. (Ibid.)

#### **J. Legal Discussion**

##### **1. Burden of Proof**

ALJ Cookson outlined the statutory requirements in N.J.S.A. 40:55D-19, stating that the Board may exempt a public utility from local ordinance control when the interests protected by the local zoning regulations need to be subordinated for the greater public interest. Further, “JCP&L has



the burden of proof on the need for the MCRP, the feasibility of the company's method, plans and actions, and the consideration given to alternatives, as well as the suitability of the site chosen for the proposed structure(s)." (Initial Decision at 157). ALJ Cookson concluded that the burden remains on JCP&L to show that "the deviation from the local municipal zoning regulations is sufficiently necessary for the convenience and welfare of the public in connection with the service to be provided by the utility through this particular facility to warrant its authorization." (Id. at 161).

In performing her analysis of the need for the Project, ALJ Cookson indicated that in contrast to cited cases "the evidence here has not 'overwhelmingly demonstrated the need' for the MCRP. Nor has the record 'pointed inexorably to the tremendously increased demand for electric power in the near future.' To the contrary, the great weight of the factual evidence shows that demand is decreasing in the Company's service territory due most likely to end user efficiency, conservation, and flat growth. (Id. at 162). She further stated that JCP&L has emphasized that the Project should be approved because it is the one (1) route alternative that relies upon a shared ROW with NJT. JCP&L argued that the Board's long-established support and encouragement for the use of railroad and other ROW for transmission line projects is similar to the approach of utility commissions in other states. (Id. at 163.) Nonetheless, citing numerous cases, ALJ Cookson concluded that "there is no in-state or national precedent for the co-location of a 230 kV transmission line within a narrow railway in close proximity to hundreds of residential properties, as proposed by JCP&L." (Id. at 166).

## 2. Conclusions of Law

ALJ Cookson set forth several reasons why JCP&L had not met its burden of proof under N.J.S.A. 40:55D-19 and that N.J.A.C. 14:5-7.1 could not be relied upon as the authority to approve its application. First, the proposed NJT ROW for 230 kV monopoles of an average height of one-hundred thirty-five feet (135') was "untried, untested and likely infeasible due to its narrow width, age, and proximity to residential communities." (Id. at 166). Second, the large aesthetic, real estate and environmental impacts on the surrounding communities is not offset by the interest of all the Company's ratepayers. This particular project seeks to solve a "highly improbable P7 violation that could cause a blowout on the Red Bank area and only that area." (Ibid.) Third, ALJ Cookson concluded that the Company used hollow alternatives, failing to meet the legal precedent under I/M/O Application of Hackensack Water Co., 41 N.J. Super. 408 (App. Div. 1956). The proposed alternatives also did not properly consider alternative corridors and "ignored non-transmission solutions entirely." (Initial Decision at 167).

ALJ Cookson determined that the Company's application for municipal waivers must be denied because "the Company has not supported its application by the preponderance of the relevant and admissible evidence." (Id. at 167). Ultimately, ALJ Cookson stated, that the MCRP is "not a safe or reasonable response to the potential P7 violation." (Id. at 167).

## 3. Recommendations

In the Initial Decision, ALJ Cookson included several recommendations that JCP&L be required to undertake including:

1. Establish an STS as a contingent and temporary measure to prevent peak load blackout of greater than 700 MW loss, to be armed for only the minimally necessary peak load hours of the summer while

further considerations are undertaken.

2. Replace or upgrade the three to eleven (3-11) 34.5 kV older and potentially overloaded conductors within the next two years.

3. Hire a neutral engineering firm, from a list created with input from all active parties hereto and selected from that list by the Board, to undertake a new Study of Routes and Alternatives, inclusive of both HVTL and non-transmission (e.g., STATCOMS), as solutions to the P7 violation, without regard to any upgrade to Taylor Lane or Freneau Substations.

(Id. at 167-168).

Accordingly, ALJ Cookson's Initial Decision concludes that JCP&L's petition be denied. (Id. at 168).

#### **IV. EXCEPTIONS TO INITIAL DECISION**

##### **A. JCP&L Exceptions**

On March 22, 2018, JCP&L filed exceptions to the Initial Decision ("JCP&L Exceptions"). JCP&L argued that it clearly and unequivocally established the MCRP is reasonably necessary for the service, convenience or welfare of the public. (JCP&L Exceptions at 1 to 2).

Specifically, JCP&L indicated that it took exception to the Initial Decision as follows:

1. JCP&L took exception to ALJ Cookson's finding of facts with regard to the need for the MCRP. The Company disputed many of the discussion points arguing that due to a misunderstanding of the evidentiary record, the ALJ inappropriately conditioned the finding that there was a need for the Project. (Id. at 3 to 4).
2. JCP&L requested that the Board reverse those portions of the August 30 Order excluding JCP&L's Rejoinder Report and testimony. (Id. at 4).
3. JCP&L took exception to the alternate remedies presented to ALJ Cookson by Rate Counsel and the interveners stating that JCP&L used the established process followed by other utilities to select the MCRP route. The Company states that the RAGE's witness, Mr. Palermo, alternate remedies were based on erroneous and unreliable facts. (Ibid.)
4. JCP&L took exception to ALJ Cookson's findings of facts regarding EMF. (Ibid.)
5. JCP&L took exception to ALJ Cookson's findings of fact with respect to real estate impacts resulting from the MCRP. (Ibid.)
6. JCP&L took exception to certain of the ALJ Cookson's findings of fact with respect to vegetation management and aesthetics for the MCRP. (Ibid.)

7. JCP&L took exception to ALJ Cookson's purported failure to find that there will be significant, positive economic benefits from the construction of the MCRP. (Id. at 5).
8. JCP&L took exception to ALJ Cookson's legal interpretation of New Jersey case law, which indicated that JCP&L had the burden of disproving the viability of intervenor RAGE's alternative proposed solution to MCRP. (Ibid.)
9. JCP&L took exception with ALJ Cookson's legal analysis of the precedents for or against approval, including N.J.A.C 14:5-7.1, the misapplication of *Petition of Vermont Transco, LLC, 2008 Vt. PUC LEXIS* (Vermont Public Service Board, Mar. 27, 2008), numerous findings of fact within this section of the Initial Decision, and the Conclusion section with respect to the co-location of the 230 kW line within a narrow railway that is close to residential properties. (Ibid.)
10. JCP&L took exception to all of ALJ Cookson's Conclusions of Law, arguing they are fatally flawed by the numerous and significant erroneous findings of fact that mar the entire Initial Decision. (Ibid.)
11. Need for the Project

With regard to JCP&L's Exceptions to ALJ Cookson's finding of facts addressing the need for the MCRP, the Company stated that it has "conclusively demonstrated that the MCRP is reasonably necessary for the service, convenience or welfare of the public, and no other party has identified a viable or reasonable alternative to the MCRP." (Id. at 6). The Company argued that ALJ Cookson's findings as to the need are at odds with the evidentiary record based on several points. (Id. at 6 to 8).

The Company also took exception with ALJ Cookson's application of the relevant peak load data, stating that "it is troubling that the ALJ would attempt to buttress her recommendation by faulting the Company for not using data before it was actually available." (Id. at 7). The Company further argued that ALJ Cookson misunderstood what constitutes a NERC P7 violation, distorting the evaluation of the evidence. (Id. at 9 to 10).

Additionally, the Company took exception to ALJ Cookson's finding regarding the "degree of risk," stating that compliance with NERC reliability standards is mandatory, and arguing that the Company does not have the option of a "wait and see" approach. (Id. at 11).

The Company stated that "there is no basis for the ALJ's finding that the probability of a voltage collapse occurring should be a controlling factor in the scope of the solution." (Ibid.) JCP&L asserted that the ALJ's finding on this aspect of the case is at odds with the Board's own decisions approving JCP&L's Oceanview and Montville-Whippany 230 kV projects. For both of those projects, the amount of load at risk was less than in the instant case. (Id. at 11 to 12). Additionally, the ALJ's suggestion ignores three (3) recent, real-life examples of outages in the Red Bank-MCRP area. (Id. at 12). The Company requested that the Board reject ALJ Cookson's findings that "the likelihood of a voltage collapse occurring is a factor in determining the appropriate solution to address the NERC Category P7 violation here." (Id. at 14). To the contrary, JCP&L asserted the electric utility should, as it did in this case, undertake an

evaluation of potential routes and electrical alternatives—to determine the most reasonable and complete solution. (Ibid.) JCP&L further stated the Initial Decision contains additional statements and findings of fact regarding the need for MCRP that are incorrect and contradict the record.

The Company contended that the Initial Decision contains additional statements and findings with respect to the “need” issue that are “simply incorrect.” (Ibid.)

JCP&L also took exception to ALJ Cookson’s finding that the Company failed to provide adequate analysis of the alternatives is incorrect, stating that the Company provided testimony explaining the electrical alternatives it evaluated prior to filing the petition. (Id. at 19).

JCP&L claimed that cascade analysis was performed in rebuttal to RAGE’s witness Mr. Palermo alternate solution to the MCRP. JCP&L states that it used cascade analysis as part of Mr. Hozempa’s Rejoinder Report in order to prove that Mr. Palermo’s alternative solution was more expensive to construct and would be less robust. (Ibid.)

The Company reiterated that it considered several alternatives, including: (1) the utilization of the Atlantic-Raritan River 230 kV line to bring a third 230 kV source into the Red Bank Substation; (2) the construction of a third 230 kV line from the Atlantic Substation to the Red Bank Substation; (3) the furthering of a new 230 kV line from the Oceanview Substation to Red Bank; and (4) the utilization of the Freneau-NJT Aberdeen 230 kV line to add a third 230 kV source into Red Bank. (Id. at 19 to 20). Because these alternatives did not provide the same level of robustness as the MCRP, they were rejected according to the Company.

JCP&L requested the Board review ALJ Cookson’s August 30, 2017 Order, and reverse the decision in regard to the Company’s Rejoinder Report and testimony for several reasons. The Board’s September 22, 2017 Order denied JCP&L’s motion for interlocutory review but afforded the parties the opportunity to address the issue prior to the Board’s issuance of a final determination. (Id. at 21). Specifically JCP&L argued that for the following reasons, the Board should reverse ALJ Cookson’s August 30, 2017 Order:

1. JCP&L’s power flow study process demonstrated the need for the project from the outset, and it used a cascade analysis as a fundamental component. According to JCP&L, ALJ Cookson made an incorrect finding that the cascade analysis presented in the Rejoinder Report was beyond the scope of Mr. Palermo’s sur-rebuttal report and testimony. (Id. at 27);
2. ALJ Cookson’s findings that the Rejoinder Report was beyond Mr. Hozempa’s area of expertise and was a net opinion are against both the plain facts and the law. (Id. at 30);
3. The Rejoinder Report did not constitute hearsay and therefore should not be excluded from the record. Specific regulations governing evidence in New Jersey administrative proceedings, controlling case law and the long-standing Board practice with respect to the preparation of pre-filed testimony in utility proceedings are cited as reasons by the Company to disregard ALJ Cookson’s decision. (Id. at 36);
4. The only opportunity for it to respond to RAGE’s alternative proposal was in its Rejoinder Testimony. JCP&L asserted that it was deprived of fundamental due

process rights by ALJ Cookson's decision to, first, allow such testimony, and then strike significant portions of it after-the-fact. (Id. at 39). Contrary to the ALJ Cookson's ruling, JCP&L argues the Rejoinder Report is narrowly focused and responded only to key issues. (Id. at 42); and

5. The Board's consideration of the matter is made more difficult by ALJ Cookson's rulings which created an incomplete record. (Id. at 45).

### **1. Alternative Route(s) Selection Study Process**

JCP&L's stated that the route selection study was decided by using a process of initial corridor screening, followed by a second, more comprehensive route selection study. JCP&L argued that witness testimony established that the preferred route was chosen by analyzing the cumulative social, environmental, and financial impacts associated with construction, and it would be less than any other alternative route. (Id. at 46). JCP&L stated that the MCRP Preferred Route will be constructed largely within existing ROW. The Company is of the opinion that ALJ Cookson placed too much credence on the Intervenor's attempts to discount the Project. (Id. at 54).

JCP&L also took exception to ALJ Cookson's findings with respect to both JCP&L's cost estimates for the MCRP and the cost estimates for alternative projects proposed by the intervenors. The Company stated that the estimate for the MCRP at \$111 million was current and up to date at the time when testimony was filed and the evidentiary hearings were held. (Id. at 55).

JCP&L stated that there is no precedent that requires the Company to price out every possible alternative. (Id. at 57). This precedent is contrary to the ALJ's suggestion of developed detailed cost estimates for all rejected alternatives, and the Company maintained that such an approach would be "pointless and would, in fact be akin to the 'knocking down strawmen' exercise that the Appellate Division specifically renounced..." (Ibid.) Instead, JCP&L argued the appropriate standard should be "reasonable *estimates* of costs, not complete certainty." (Id. at 57 to 58).

### **2. Real Estate Impacts**

In regard to the Initial Decision's findings on the real estate impacts, the Company argued that they are unsupported and contrary to the evidence in the record. (Id. at 58). While JCP&L stated that it is accurate that there is no evidence in the record of any studies related to the real estate value impacts for co-located commuter railway and a 230kV transmission line, one cannot conclude that there is no such co-location in the country. (Ibid.) The Company pointed out that this is an important distinction because acceptance of this erroneous finding of fact "leads to additional significant decisional errors." (Id. at 59).

JCP&L argued that the Initial Decision goes too far in assigning an actual negative value impact of ten percent (-10%) to an ill-defined area, and without empirical evidence to support the decision. Accordingly, JCP&L requested that the Board revise this aspect of the Initial Decision and reject ALJ Cookson's decision as arbitrary and unsupported. (Id. at 69).

### **3. Vegetation Management and Aesthetics**

The Company argued that the Initial Decision is inaccurate, specifically, stating that ALJ

Cookson may not have understood the Company's testimony regarding the extent of the clearance necessary throughout the corridor where the monopoles will be utilized. (Id. at 70). JCP&L stated the Initial Decision "arbitrarily dismisses the significance of the fact that NJT has had, and continues to have, a right to remove all vegetation from the entire 100 feet of the NJT ROW which entirely weighs against the finding." (Ibid.) Further, JCP&L asserted that ALJ Cookson failed to specifically identify the evidence upon which this finding is based. JCP&L stated that it provided extensive evidence regarding the vegetation management issue through Mr. Korn's testimony. (Id. at 71 to 78).

#### **4. Electric and Magnetic Fields**

JCP&L stated that while it would not be opposed to post-construction of EMF measurements, it objected to ALJ Cookson's recommendation that mitigation is necessary. The Company stated that there is no Board precedent for this requirement. The Company conceded that evidence exists of a statistically significant association between EMF and certain diseases; however, it does not support the opinion that those statistical associations reflect a causal relationship. (Id. at 79 to 85).

#### **5. Economic Benefits**

JCP&L stated that it had demonstrated that "there will be significant, positive economic benefits from the construction of the MCRP" and that the ALJ's failure to recognize these economic benefits is contrary to Board precedent." (Id. at 85).

The Company cited Board precedent and concluded that failure to do so in this proceeding was plain error, and therefore, must be reversed by the Board. (Ibid.)

#### **6. Precedent For or Against Approval**

JCP&L took exception to several aspects of the section in the Initial Decision titled "Precedent For or Against Approval."

First, the Company stated that ALJ Cookson is incorrect on the decreasing demand in the service territory. The Company further stated that "load forecasts have decreased, but demand itself (as based on the summer peak load) has been relatively flat over the last several years. (Ibid.) Based on the flat demand, the Company maintained that there is no credible evidence in the record that establishes peak load is likely to decrease such that the P7 violation no longer exists. (Ibid.)

Second, the Company disagreed with the monopole issue. JCP&L stated that the height of the poles and width of the ROW are within established parameters. JCP&L refuted ALJ Cookson's conclusion that the monopoles for MCRP are contrary to the Company's normal practice. JCP&L offered Mr. Humphry's testimony as providing support that is contrary to the ALJ Cookson's findings, and to demonstrate this practice is done in accordance with practices used on other projects in New Jersey. (Id. at 88).

JCP&L stated that the proposed 100-foot wide ROW, is only within five (5) segments of the MCRP. The Company contended it has demonstrated through exhibits that ROW's are as wide as 140 feet. In segment 13, JCP&L pointed out that it has planned to purchase easements because of the ROW is only 65- feet in that area. (Ibid.)

Although PJM has standards which call for a target ROW width of 150 feet, JCP&L stated that the 150-foot width is a target, not an absolute requirement. Relying on the NESC, JCP&L stated MCRP can accommodate variations in ROW widths. (Ibid.)

Third, the Company took issue with the historic property impact analysis done by ALJ Cookson. The Company claimed it will obtain all the required approvals necessary for the project, including approvals from the New Jersey State Historic Preservation Office. (Id. at 89 to 90). Lastly, the Company stated that ALJ Cookson failed to cite to any evidence in the record that supports her conclusion that there is no precedent for the 230 kV transmission line within a narrow railway in close proximity to residential properties. Further, the Company argued that the “ALJ’s restrictive interpretation of N.J.A.C. 14:5-7.1 should be rejected.” (Id. at 91). JCP&L contended that the Initial Decision is “incorrect in deciding that there is no in-state precedent for the MCRP and the Board should reject this conclusion. It stated, even if accurate, the lack of precedent is not sufficient grounds to reject a project under N.J.S.A. 40:55D-19 when the broader public welfare is entitled to primary consideration.” (Id. at 92).

## **7. Conclusions of Law/Recommendations**

JCP&L took wide exception to nearly all of ALJ’s Conclusions of Law, particularly the decision that the “interests of all JCP&L ratepayers, that is, the ‘general public’ cannot overcome the negative impacts on ‘the five communities’” because “this particular project is geared to a resolution of a highly improbable P7 violation that could cause a blackout in the Red Bank area and only that area.” JCP&L argued that in the Red Bank customers are not the only customers that will benefit from the MCRP. (Id. at 93).

JCP&L argues that the Board should reject ALJ Cookson’s recommendations for the Board to consider that JCP&L undertake: (1) a plan to prevent peak load blackout of greater than 700 MW losses until a permeant solution can be found; (2) a replacement or an upgrade the three to eleven (3-11) 34.5 kV older and potentially overloaded conductors within the next two (2) years; and (3) the hiring of a neutral engineering firm, that the Board has done business or is familiar with, to conduct a new study of routes and alternatives, that include both HVTL and non-transmission solutions to the P7 violation. (Id. at 94).

JCP&L argued that the Board should reject the bulk of ALJ Cookson’s findings of fact and conclusions of law. Instead, JCP&L requested that the Board’s final decision conclude that (1) the MCRP is reasonably necessary for the service, convenience or welfare of the public and fully satisfies the statutory criteria of N.J.S.A. 40:55D-19; and (2) authorize JCP&L to site and construct the MCRP as described in the record of this matter, including the Company’s pre-filed testimony and record evidence. (Ibid.)

## **B. Rate Counsel Reply Exceptions**

On April 12, 2018, Rate Counsel filed its reply to the Company’s Exceptions. Rate Counsel claimed that the ALJ’s opinion and conclusion in regards to the Initial Decision was correct and was completely aligned with the facts and testimony given at hearings. Rate Counsel agreed with ALJ Cookson that JCP&L failed to demonstrate that the Project was necessary for the service, convenience or welfare of the public pursuant to N.J.S.A. 40:55D-19. (Rate Counsel’s Reply to Exceptions at 1 to 2).

Rate Counsel stated that the 2016 forecasted peak load of 6,942 MW used as a basis for the Project was never reached. The actual summer peak load was 5,721 MW in 2017. (Id. at 2). Rate Counsel claimed that the RTEP identified potential of a voltage collapse to occur in 2016 based on a projected load of 6,942 MW. (Id. at 7). Rate Counsel stated that PJM never determined a voltage point that a collapse would not occur. (Id. at 8).

Rate Counsel indicated that its witness, Mr. Lanzalotta, testified that there is no load collapse at 5,869.2 MW. JCP&L's objection to Mr. Lanzalotta's testimony resulted in the Rejoinder Report. Rate Counsel claimed that contrary to JCP&L's objection, Mr. Lanzalotta's testimony demonstrated there would be no voltage collapse at a level well below the modeled value. (Id. at 3). The Rejoinder Report indicated that the simulated NERC Category P7 event used 5,862.9 MW, thus confirming Mr. Lanzalotta's peak load analysis, which had been objected to by the Company. (Id. at 8). Rate Counsel further asserted that ALJ Cookson correctly concluded that the load forecasted by JCP&L will never reach load forecasts for the next fifteen (15) years, thereby negating the need for the Project. (Id. at 9).

Rate Counsel also stated that PJM prepares a RTEP every year to identify potential problems. In 2011, PJM used a bright-line test to identify projects to be placed in the RTEP. Since February 2012 when PJM revised its Operating Agreement to address what PJM called the "whipsaw" effect. Rate Counsel claimed that because the test is not revisited on a yearly basis, ALJ Cookson correctly found that JCP&L did not perform its due diligence in re-evaluating the need for the Project. (Id. at 10 to 11).

With regard to the Rejoinder Report, Rate Counsel supported ALJ Cookson's decision that the bulk of the report exceeded the scope of proper rejoinder to the other parties sur-rebuttal. Rate Counsel believed that, for the Board to consider the entire report, it would deny its rights to contest the evidence in the excluded portions. (Id. at 12). Rate Counsel argued that the Rejoinder Report raises new issues that went beyond the calculations that were anticipated by ALJ Cookson, and, accordingly, the Board should deny complete acceptance of the Rejoinder Report. (Id. at 15 to 16).

In addressing the cost of the Project, Rate Counsel opined that the Company froze its cost analysis at \$111 million and left out essential items such as the cost to lease and maintain the ROW from NJT. (Id. at 17). Rate Counsel requested that the Board consider costs to ratepayers and include all alternatives that should be considered and weighed. (Id. at 18). Rate Counsel asserted that the Company did not provide adequate evidence to meet the statutory obligation to prove that the cost of the MCRP was reasonable compared to the alternatives, reiterating that ALJ Cookson was correct in denying the Company's petition on this basis. (Id. at 20).

Rate Counsel further indicated that JCP&L did not consider non-transmission alternatives as a solution to the P7 violation. According to Rate Counsel, a non-transmission solution could have reduced costs and protected property values. (Id. at 21).

Rate Counsel concluded that ALJ Cookson's decision is well reasoned, and supported by the record. Rate Counsel stated that the Company failed to demonstrate the following: (1) reasonable alternatives were not viable or unavailable; (2) that the Project cost estimates were reasonable; (3) the Company considered and compared the cost of alternatives, including non-transmission alternatives; and (4) other material relevant facts, when balanced with the statutory requirements of N.J.S.A.40:55D-19. Rate Counsel recommended that the Board adopt the Initial Decision in its entirety. (Id. at 22).



### **C. RAGE Reply Exceptions**

RAGE described JCP&L's Exceptions to the Initial Decision as meritless and recommended that the Board adopt the Initial Decision as final. First, RAGE asserted the P7 Contingency, on which the Company justifies the Project, has "never occurred and is extremely unlikely to occur." (RAGE Reply to Exceptions at 9). With the low probability of the P7 Contingency ever happening, RAGE stated the Company should opt for the more "realistic alternatives" that are less expensive and disruptive. (Id. at 11). RAGE questioned the need for the Project, stating that the possibility of an outage is remote and the forecasts used to justify the P7 contingency are overstated.

RAGE stated that JCP&L does not and appears unlikely to ever receive permission from NJT to use its ROW, and claimed that it was the Company's obligation to offer "persuasive proof" that it would ultimately obtain permission, which RAGE does not believe to be the case. (Id. at 15). RAGE criticized the participation and testimony of PJM's Mark Sims as a JCP&L witness and urged the Board to consider the hundreds of public comments submitted. (Id. at 1 to 4).

Next, RAGE concurred with the findings of the Initial Decision and reiterated that JCP&L failed to meet its burden of proof by not considering the cheaper, less harmful alternative that still solved the P7 contingency. (Id. at 4 to 7). RAGE insisted that the remote probability of an outage occurring must be considered by the Board, especially considering the estimated cost increase of the Project from \$22 million to \$111 million. (Id. at 8 to 9).

In its exception to the Initial Decision, JCP&L cited to two (2) prior transmission lines approved by the Board and three prior "events" that would have been mitigated by the Project. However, RAGE noted that these transmission lines were not comparable and these "events" were not P7 events. (Id. at 10-11). Also, RAGE stated that JCP&L concocted a sham route selection study that incorporated straw alternatives. (Id. at 15 to 17). RAGE elaborated on its proposed alternative of installing two STATCOMs and upgrading eleven (11) lines. RAGE estimated that its alternative would cost approximately \$30 million while causing none of the permanent disruption and health risks of the MCRP. (Id. at 17 to 34).

RAGE stated that ALJ Cookson was correct in striking portions of JCP&L's Rejoinder Report. First, RAGE stated that the Rejoinder Report was disingenuous because it did not include any detailed analysis or cost estimates of its proposed alternative. Second, RAGE noted that the Rejoinder Report was inadmissible because it was comprised almost entirely of hearsay. Third, RAGE stated that the report was a net opinion that the witness was not qualified to express. Specifically, RAGE questioned the qualifications of Mr. Hozempa in regards to distribution construction, STATCOM procurement, and real estate acquisition. Finally, RAGE argued that the excluded portions of the report were well beyond the scope of proper rejoinder testimony, and that the information in the Rejoinder Report should have been presented in the rebuttal testimony. (Id. at 34 to 49).

RAGE also responded to JCP&L's exceptions regarding significant economic benefits. RAGE stated that JCP&L made no effort to quantify these benefits and did not consider losses in property values, traffic delays, rail service interruptions, and costs of police and traffic services. RAGE further addressed the co-location issue. RAGE stated that the building of huge monopoles on a busy commuter ROW has never been tried before, and is therefore not practicable or feasible. (Id. at 67 to 69).

RAGE requested that the Board consider the approval of the MCRP in context. Specifically, RAGE noted how the decision to build the MCRP was arrived at and announced around the same time as FirstEnergy's decision and formal plan to spend billions on new transmission assets to save the company. Finally, RAGE recommended that the Board approve the relief recommended in the Initial Decision and include a mandate that JCP&L follow FERC Order 1000 procedures. RAGE claimed by exposing the P7 contingency to the FERC Order 1000 competitive process, an even better alternative may be identified. (Id. at 69 to 81).

#### **D. JMG Reply Exceptions**

JMG, in its reply to exceptions, agreed with the ALJ's Initial Decision to deny JCP&L's MCRP, and stated that the Board should uphold the ALJ's decision as written. (JMG's Reply Exceptions at 1).

JMG asserted that there are four (4) major issues with Company's approach in trying to establish the appropriate elements necessary for the Project's approval. First, the P7 "reliability issue" was not discovered by PJM and PJM did not inform JCP&L until ten (10) months after the Company claims it first had knowledge of the issue. Within those ten (10) months, the Company, along with its consultant, Berger, had already completed its route study and eliminated almost all "alternative" corridors, and was plotting out its preferred corridor for the Project. (Id. at 2).

Second, the corridor/route study proved that the preferred route was likely the least favorable option, and more favorable options were eliminated for reasons that could only be described as pre-textual or irrational. (Ibid.) The Company insisted that the Project included an upgrade to the Taylor Lane Substation, which the JMG asserted was non-essential. The Company also inappropriately froze the total cost of the Project at \$111 million. JMG concurred with the ALJ's findings regarding the use of 210 foot monopoles in the NJR ROW as well as the aesthetic, real estate, and environmental impacts of the Project. It therefore takes issue with JCP&L's exceptions regarding the cost freeze in light of the significantly higher cost estimate. (Id. at 2 to 3).

Third, JMG maintained the process in which the reliability issue in the Project area was determined was faulty as it was based on outdated peak load information. The original violation occurred when the PJM's planning process, which uses forecasted peak loads, determined that the system would have a P7 violation when a peak load of 6,942 MW occurred. However, the actual peak load, during the relevant period, decreased from the forecast load, with actual peak loads of 5,955 MW in 2016 and 5,751MW in 2017. Furthermore, Rate Counsel's witness found system stability occurring at a peak load of 5,862.9 MW. With this evidence, PJM and JCP&L failed to determine at what peak load the P7 would no longer exist and failed to provide evidence that the Project is indeed necessary. Ultimately, JMG supported the ALJ's determination that the "falling actual peak load usage" may cure the P7 violation. (Id. at 3 to 4).

Lastly, JMG argued that the Company failed to consider alternatives to the P7 violation that did not involve a 230 kV line. As Mr. Palermo, one of RAGE's witnesses, confirmed with Mr. Hozempa, a Company witness, there are cheaper and less intrusive alternatives to solve the violation. For example, the alternative to re-conduct certain existing 34.5 kV transmission over existing facilities and to install either two STATCOMS or one SVC to provide reactive power to the system would have been better than the route selected. JMG further maintained that some

of the other alternative routes proposed by the Company would have also been better than the Company's "preferred route". (Id. at 4).

JMG stated that JCP&L has not properly demonstrated the required need for the MCRP. In agreeing with the ALJ's characterization of a "gray area", JMG stated that it is "probable that the P7 issue no longer exists." (Id. at 8). The Company insisted that the P7 violation occurs at every load level down to a low of 5,638 MW. This conclusion is refuted by the Company's own witness, Mr. Hozempa, who ran a study, not disclosed in pre-filed testimony or the Rejoinder Report, that proved system convergence at a level of 5,918 MW. Both Mr. Hozempa and PJM witness Mr. Sims testified that a P7 violation could be cleared in several ways—one (1) is by falling peak usage. Several other projects, including the Mid-Atlantic Power Pathway and the Potomac-Appalachian Transmission Highline were proposed to solve similar problems, but were canceled because of falling peak usage. (Ibid.)

JMG also defended the ALJ's assessments of witness bias agreeing that Mr. Hozempa and Mr. Sims were "extremely biased" and provided confusing responses throughout their testimonies. (Id. at 15). On the other hand, Mr. Palermo and Mr. Lanzalotta's credibility were much stronger due to their even-handed and neutral testimony. JMG stated that the ALJ is "quite correct that Mr. Hozempa did not genuinely understand Mr. Palermo's solution regarding parts of the Rejoinder Report. (Id. at 16). JMG detailed the ways in which Mr. Palermo's testimony was correctly understood by the ALJ, and that the Company is wrong in taking exception to his expertise relating to the alternatives, STATCOMS and other issues. (Id. at 17-18).

JMG also provided a list of points, summarizing why it believed the ALJ to be correct in her August 30, 2017 Order striking portions of the JCP&L Rejoinder Report and testimony, including:

- 1) The ALJ properly conducted a full examination of the Report;
- 2) The ALJ correctly concluded that the Company acted in bad faith regarding the Rejoinder Report because she previously ruled that the Company had no duty to conduct the study, so when the Company did so, she was correct in striking parts of the study; and
- 3) The ALJ properly established Mr. Hozempa's lack of knowledge and expertise necessary to supervise properly.

(Id. at 19-21).

JMG pointed to the fact that the Company commissioned the study in early January 2010, or ten (10) months before the Company had notice of a P7 issue. JMG stressed that the testimonial admission, made under cross-examination, by Mr. Hozempa about these timing issues are supported by documentary evidence and un rebutted in any record evidence. (Id. at 23).

JMG also stated that the Company's exception to the ALJ's understanding of the Corridor Screening Study is unwarranted. JMG believed that study was done in such a way that a fair comparison of corridors would be impossible. The Company dictated that the Taylor Lane Substation must be included in the project for upgrades. While this does benefit the MCRP, the upgrade is irrelevant to other corridor solutions. Most of the other corridors that did not include this substation were tossed out for various reasons without a full scope of the corridor, reasonable estimation of the potential cost, and potential benefits and detriments. (Id. at 25 to 27). JMG contended that the ALJ "could not have concluded otherwise" in regards to her

finding that the potential corridor study and route selection study were an exercise directed at a foregone conclusion. (Id. at 29).

JMG also disagreed with the Company' exceptions relating to the project cost estimates and alternatives. JMG claimed that while the Company accused the ALJ of requiring the Company to price out each and every alternative, the ALJ set no such standard. (Id. at 30). Rather, the Company failed to make "even basic inquiries concerning the availability of certain corridors or estimating (even roughly) the sites or costs." JMG concluded its response to JCP&L's Exceptions to the Initial Decision that the Company need only provide "reasonable estimates" of costs. (Id. at 31).

## **V. DISCUSSION AND FINDINGS**

ALJ Cookson, consistent with N.J.A.C. 1:1-14.6, has the power to develop the record and render an initial decision dispositive of the issues before the OAL. The Board has reviewed the record developed before ALJ Cookson as well as the analysis provided in her Initial Decision. The Board believes that she thoughtfully and thoroughly developed the record, carefully considered the testimony of the witnesses and appropriately made credibility determinations and amply supported her findings of fact and conclusions of law. Accordingly, the Board **HEREBY ADOPTS** in part her findings of fact and conclusions of law, except as noted below.

Through its September 22, 2017 Order, the Board rejected JCP&L's request for an interlocutory appeal of ALJ Cookson's August 30, 2017 Order regarding JCP&L's Rejoinder Report and related testimony. In its exceptions, JCP&L restates its position that ALJ Cookson's August 30, 2017 Order was incorrect and requests that the Board consider the excluded portions of the Rejoinder Report and testimony in its decision. The Board has reviewed the record and the underlying motions. As noted by Judge Cookson in her August 30, 2017 order, portions of the Rejoinder Report and related testimony far exceeded the scope of rebuttal and sur-rebuttal testimony. Petitioner's attempt to introduce new evidence which it did not present in its direct and rebuttal testimony was an inappropriate attempt to expand the record, consequently the Board **HEREBY FINDS** that Judge Cookson properly excluded the portions of the report and testimony.

The Board fully evaluated the Initial Decision and record in this matter as well as the exceptions filed by the parties. The Board now hereby **ADOPTS** in part and **REJECTS** in part the Initial Decision as follows:

### **A. Criteria for Granting Relief from Local Zoning Restrictions**

Although a municipality may impose certain zoning regulations on a utility project, the Board retains "supervising authority ... to declare the local regulation inapplicable if [the Board] determines the proposed action necessary." In re Public Service, 35 N.J. at 373-374. A public utility may proceed in accordance with a decision of the Board, any ordinance or regulation made under the authority of the MLUL notwithstanding if, after hearing, on notice to all interested parties, the Board finds:

the present or proposed use by the public utility ... of the land described in the petition is necessary for the service, convenience or welfare of the public including, but not limited to ... that the present or proposed use of the land is necessary to maintain reliable electric or natural gas supply service for the general public

and that no alternative site or sites are reasonably available to achieve an equivalent public benefit . . . .

[N.J.S.A. 40:55D-19.]

The phrase “for the service, convenience and welfare of the public” refers to the whole public served by the utility, not merely the limited group that benefits from the local zoning ordinance. Hackensack Water Co., 41 N.J. Super. at 423. As such, when considering a municipal waiver, the Board must not limit its necessity analysis to those locally affected, but rather consider the larger public as a whole.

The proposed use must be also reasonably, not absolutely or indispensably, necessary. In re Public Service, 35 N.J. at 373-374. In finding that the particular location is “reasonably necessary”, the Board must consider the community zoning plan, the physical characteristics of the site, and the surrounding neighborhood. The Board may also consider aesthetics. In re Petitions of Public Service Electric & Gas Co., 100 N.J. Super. 1 (App. Div. 1968). Additionally, the Board may require modifications to a proposed project where important local considerations could be given recognition so long as the wider public interest is not sacrificed. State v. Jersey Central Power & Light Co., 55 N.J. 363, 371 (1970). “Alternative sites or methods and their comparative advantages and disadvantages to all interests involved, including cost, must be considered in determining such reasonable necessity.” In re Public Service, 35 N.J. at 377.

With regard to an application made pursuant to N.J.S.A. 40:55D-19 , the petitioner bears the burden of showing that the proposed use is reasonably, not absolutely or indispensably, necessary for public service, convenience and welfare at some location.” In re Public Service, 35 N.J. at 377.

## **B. Need for the Project**

In its petition, JCP&L stated that the Project seeks to correct a grid reliability violation identified by PJM, more specifically, a NERC Category P7 violation. A P7 Violation is the loss of transmission on a common structure resulting in voltage collapse and a loss of load of 300 MW or more. (Transcript of hearing April 5, 2017 at 206-8 to 24). In response to the violation, JCP&L proposed the MCRP, and the Project was subsequently approved by PJM in its 2012 Baseline Reliability Assessment issued January 4, 2013 as PJM baseline project #b1690. (Petition at 12).

Although a P7 violation may have existed at the time the Company proposed the MCRP to PJM, testimony and discovery in this proceeding shows that the violation is based on potentially outdated assumptions. The modeling study relied upon by JCP&L indicates that load within the service territory has declined since the NERC violation was identified by PJM. (Transcript of hearing, April 5, 2017 at 23-5 to 24-21). Mr. Hozempa’s testimony further demonstrates that numerous variants exist between the projected peak demand forecasts and actual measured peak demand over the past several years and the actual peak load continues to decrease. (Transcript of hearing, April 5, 2017, at 66-11 to 22, 72-4 to 14). For example, actual peak load for the area in 2016 was 5,966 MW, or 1,368 MW less than what PJM had forecasted peak load to be in its 2010 analysis when the violation was filed. The lowest peak load trigger of the P7 violation that was used on the PJM power flow analysis was 5955 MW. (Transcript of hearing,

July 7, 2017 at 86-4 to 25). It was not clearly shown if loading below this level would still cause a voltage collapse. According to PJM testimony (Transcript of hearing, April 5, 2017 at 94-11 to 16) the Project is still needed based on outlook from the PJM 2016 study. However, this updated study was a “retool” based on the original. (Transcript of hearing, April 5, 2017 at 97-15 to 18).

The discrepancies, between the actual and projected demand in the MCRP area, suggest that PJM’s analysis used to support the Project should be re-examined. The burden remains on the utility to provide valid, current load forecasts. The Board notes that it cannot accurately rely on the presented data regarding system load forecasts and peak demand analysis to determine if the P7 criteria violation exists or will exist in the near future. Accordingly, based on the evidence provided in the record, the Board cannot make a clear determination on the Project’s reasonable necessity pursuant to N.J.S.A. 40:55D-19.

Thus, the Board **ADOPTS** ALJ Cookson’s decision with regard to the need for the Project.

### **C. Alternatives to the MCRP**

The Board agrees with ALJ Cookson that the alternatives provided by JCP&L failed to satisfy the requirements under N.J.S.A. 40:55D-19. The Company has the burden of proving that “no alternative site or sites are reasonably available to achieve an equivalent public benefit.” N.J.S.A. 40:55D-19.

To satisfy this requirement, a requesting utility must conduct in-depth analysis on the alternatives. The Company presented several alternatives, failing to satisfy the proper analysis that is required under the statute. In fact, the record in this matter suggests that the Company selected the proposed route before the alternatives study was completed, thus calling into question the validity of the Company’s entire alternative route analysis. (Transcript of hearing afternoon April 10, 2017 at 84-1 to 8, 89-4 to 8.) As Mr. Palermo testified, “JCP&L identified the obvious solution, confirmed that it eliminated the criteria violation, and pretty much stopped there.” [RAGE-1 at 23.]

Further, the New Jersey Supreme Court has held that the costs of alternative sites must also be considered compared to the proposed project. In re Public Service, 35 N.J. at 377. The record reflects that the cost of the Project increased from to \$22.1 million to \$111 million. In addition, the Company did not provide dollar amounts on several key aspects of the Project. Without a reasonable estimate of these costs, the Board cannot properly assess the alternative presented by the parties in this case as they relate to the Project.

Thus, the Company has failed to demonstrate that the MCRP, including its cost, was reasonable compared to the alternatives as required by N.J.S.A. 40:55D-19. Alternatives may include non-bulk transmission solutions available to resolve any existing NERC violation as compared to the 230kV line. Accordingly, the Board **HEREBY AFFIRMS** ALJ Cookson’s determination with regard to the Company’s alternative site analysis.

Following her determination that JCP&L had not satisfied the requirements under N.J.S.A. 40:55D-19, ALJ Cookson made three (3) specific recommendations<sup>11</sup> that JCP&L should be required to undertake. The design, construction, operation, and maintenance of utility infrastructure is the responsibility of the Company or designated party. N.J.S.A. 48:2-13(a) vests the Board with general supervision and regulation of and jurisdiction and control over public utilities. The Legislature has also endowed the BPU with broad powers to regulate public utilities. In re Pub. Serv. Elec. & Gas Co.'s Rate Unbundling, 167 N.J. 377, 384 (2001). Therefore, the Board's purview begins and remains in ensuring that the utility provides safe, adequate and proper service to customers and not, in the ordinary course, propose specific design decisions to address potential NERC violations.

Accordingly, the Board **REJECTS** ALJ Cookson's three (3) recommendations on pages 167-68 of the Initial Decision. However, should a subsequent study identify a NERC violation in the JCP&L service territory that must be addressed, the Board expects that any future N.J.S.A. 40:55D-19 application regarding a potential solution will include a thorough and proper analysis of the various alternative solutions to resolve the potential violation.

Based on the review of the record in the proceeding, the Board **HEREBY FINDS**, in accordance with N.J.S.A. 40:55D-19, that JCP&L has not met its burden of demonstrating the Project "is reasonably necessary for the service, convenience, or welfare of the public" and that "no alternative site or sites are reasonably available to achieve an equivalent public benefit."

Therefore, the Board **HEREBY DENIES** JCP&L's petition.

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<sup>11</sup> ALJ Cookson recommended that JCP&L be required to: (1) establish an STS as a contingent and temporary measure to prevent peak load blackout of greater than 700 MW loss, to be armed for only the minimally necessary peak load hours of the summer while further considerations are undertaken; (2) replace or upgrade the three to eleven (3-11) 34.5 kV older and potentially overloaded conductors within the next two years; and (3) hire a neutral engineering firm, from a list created with input from all active parties hereto and selected from that list by the Board, to undertake a new Study of Routes and Alternatives, inclusive of both HVTL and non-transmission (e.g., STATCOMS), as solutions to the P7 violation, without regard to any upgrade to Taylor Lane or Freneau Substations. Initial Decision at 167-68.

This Order shall be effective on July 13, 2018.

DATED: 7/11/18

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BY:

  
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COMMISSIONER

ATTEST:   
AIDA CAMACHO-WELCH  
SECRETARY

I HEREBY CERTIFY that the within  
document is a true copy of the original  
in the files of the Board of Public Utilities.



IN THE MATTER OF THE PETITION OF JERSEY CENTRAL POWER & LIGHT COMPANY  
PURSUANT TO N.J.S.A. 40:55D-19 FOR A DETERMINATION THAT THE MONMOUTH  
COUNTY RELIABILITY PROJECT IS REASONABLY NECESSARY FOR THE SERVICE  
CONVENIENCE OR WELFARE OF THE PUBLIC

BPU DOCKET NO. EO16080750 & OAL DOCKET NO. PUC 12098-16

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