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To: Stacey Roth <Stacey.Roth@njpines.state.nj.us>, Nancy Wittenberg <Nancy.W...
CC: "'Valeri, John G.'" <jvaleri@wolffsamson.com>, "Fatzinger, Robert (SJG)"...
Date: 10/16/2013 9:50 PM
Subject: BL England Electric Reliability Benefits
Attachments: BLE Electric Reliability Benefits.pdf

Dear Nancy & Stacey:

Here is the PowerGEM report which finds that continued operation of the facility is critical to electric reliability in the region.

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POWERGEM

Power Grid Engineering & Markets

Benefit to Pinelands Area of BL England Repowering

Updated Analysis

Prepared for

RC Cape May Holdings

Submitted by

Scott Gass
Principal Consultant

Updated – 10/11/13

POWERGEM

Power Grid Engineering & Markets

Purpose of Study and Update

In May 2012, a study was completed to determine the approximate percentage of electricity to be generated by the repowered BL England plant that will be distributed to load within the "Pinelands Area," which includes both the State designated Pinelands Area and the Federal Pinelands National Reserve Area.

We have updated this study to incorporate certain changes which significantly impact the analysis. First, since the May 2012 study, combustion turbine (CT) retirements have been announced which have a direct impact on the results. Additional studies were also performed to determine any expected overloaded circuits in proximity to the Pinelands Area due to the recently announced retirements coupled with the retirement of Oyster Creek under the scenario where BL England could not repower.

System Model and Analysis Description

For the analysis that was completed in May 2012, the PJM 2016 RTEP summer peak load flow model was used for the analysis. The 2016 model was used since it was the most recent publicly available PJM model at that time.

For this updated analysis, the PJM 2018 RTEP summer peak load flow model was used since it was the most recent publicly available model.

A map of the Pinelands Area which is available at the following link http://www.nps.gov/pwr/customcf/apps/maps/showmap.cfm?alphacode=pine&parkname=New%20Jersey%20Pinelands was compared to a map of New Jersey transmission facilities located at the following link http://www.pjm.com/documents/maps.aspx. The Pinelands Area is primarily located in the Atlantic Electric (ACE) and Jersey Central Power & Light (JCP&L) service territories.

In comparing the Pinelands Area map and the New Jersey transmission map, the transmission facilities associated with the Pinelands Area and the corresponding load were determined.

Summary of May 2012 Results

For the 2016 summer peak load flow model, the total load within the Pinelands Area is estimated to be approximately 930 MW.

Prior to Oyster Creek retiring, generation in proximity to the Pinelands Area would total 1485 MW and consists of the Oyster Creek Nuclear facility (615 MW), the repowered BL England facility (570 MW) and several smaller combustion turbines (300 MW). Assuming that the local

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generation all contributes in equal proportion to the Pinelands Area load, 38% (570/1485) of the BL England energy would be distributed to load within the Pinelands Area.

Under the 2016 RTEP model, after Oyster Creek retires, the total generation in proximity to the Pinelands Area would be 870 MW and would consist of the repowered BL England facility (570 MW) and several smaller CTs (300 MW). Assuming that the local generation all contributes in equal proportion to the Pinelands Area load, 65% (570/870) of the BL England energy would be distributed to load within the Pinelands Area.

The life of the repowered BL England plant is estimated to be 40 years and the Oyster Creek license expires in 2019. So for the first 4 years (10% of the plant life), 38% of BL England's energy would be distributed to the Pinelands Area load and for the remaining 36 years (90% of the plant life), 65% of BL England's energy would be distributed to the Pinelands Area load. Therefore, over the life of the BL England repowered facility approximately 62% of the BL England energy would be distributed to load within the Pinelands Area.

A prior PJM study had indicated that the retirement of the Oyster Creek Nuclear facility would result in at least $100 million in new transmission or transmission upgrades. Presumably most, if not all, of the new / upgraded transmission would be located either within or in proximity to the Pinelands Area. The 570 MW repowered BL England facility should help to alleviate some of these potential transmission additions within the Pinelands Area.

Summary of Updated September 2013 Results

For the 2018 summer peak load flow model, the total load within the Pinelands Area is approximately 933 MW.

Under the updated model, prior to Oyster Creek retiring, the total generation in proximity to the Pinelands Area would be 1277 MW and consist of the Oyster Creek Nuclear facility (615 MW), the repowered BL England facility (570 MW) and several smaller CTs (92 MW). The CT MW value has decreased significantly since the May 2012 study due to announced generation retirements scheduled prior to summer 2015 at Middle, Missouri Avenue and Cedar. Assuming that the local generation all contributes in equal proportion to the Pinelands Area load, the contribution of the BL England plant distributed to load within the Pinelands Area would increase to 45% (570/1277).

After Oyster Creek retires, generation in proximity to the Pinelands Area would total 662 MW and would consist of the repowered BL England facility (570 MW) and several smaller CTs (92 MW). Assuming that the local generation all contributes in equal proportion to the Pinelands Area load, 86% (570/662) of the BL England energy would be distributed to load within the Pinelands Area.

As with the 2016 study, the life of the repowered BL England plant is estimated to be 40 years and the Oyster Creek license expires in 2019. The present scheduled in-service date for the BL England repowering project is June 2017. So for the first 2 years (5% of the plant life), 45% of the energy would be distributed to the Pinelands Area load and for the remaining 38 years (95% of the plant life), 86% of BL England's energy would be distributed to the Pinelands Area load. Therefore, over the life of the BL England repowered facility approximately 84% of the BL England energy would be distributed to load within the Pinelands Area.

Overloaded Circuits

A study was complete using the PJM 2018 RTEP model[1] to determine if there would be any overloaded circuits in proximity to the Pinelands Area after the CTs and Oyster Creek Nuclear facility is retired. This study was performed under a scenario where BL England repowering could not be completed so the existing BL England generation was also retired. A study was also performed assuming that BL England was repowered. By performing studies both with and without BL England repowered, any impacts to the transmission in proximity to the Pinelands Area due to the BL England generation repowering could be identified.

All transmission limits were calculated under contingency conditions according to the PJM reliability criteria and relevant procedures such as the PJM generator deliverability test.

Conclusion

The updated analysis demonstrates that BL England's presence as a power generating facility is even more critical now that there appear to be additional retirements prior to June 2015 of smaller, peaking CTs in the Pinelands region. Based upon PJM's own models, the retirement of BL England will negatively impact eight (8) transmission circuits in proximity to the Pinelands Area. As with other areas of New Jersey, overloaded circuits will be considered transmission violations by PJM and, therefore, require a solution to avoid the consequences of overloads, including the potential for blackouts. As stated above, a prior PJM study had indicated that the retirement of the Oyster Creek Nuclear facility would result in at least $100 million in new transmission or transmission upgrades. The continued retirements of CTs would likely exacerbate this need for transmission upgrades.[2]

There were eight overloaded circuits in proximity to the Pinelands Area that were identified and are listed in Exhibit 1. These circuits are not overloaded if BL England is repowered.

Overloaded Circuits in Proximity to Pinelands Area
Union - Corson 138 kV
Corson - Middle Tap 138 kV
Cumberland - Union 138 kV
Lewis - Minotola 138 kV
Lewis - Dorothy 138 kV
Minotola - Landis 138 kV
Corson - Dennis 138 kV
Dorothy - Deepwater 138 kV

Exhibit 1

[1] The PJM 2018 RTEP model included the proposed West Deptford (Q90), Woodbridge (W4-009), Old Bridge (W4-021) and Deepwater (W3-175) natural gas generation projects.

[2] It should be noted that during preliminary studies many other overloaded facilities in southern New Jersey were also identified. While these other overloads were beyond the scope of this study, if both Oyster Creek and BL England retired the full list of reliability issues that would need to be addressed are expected to be much greater than the eight overloaded circuits listed in Exhibit 1.

The approximate geographic locations of the eight overloaded circuits relative to the Pinelands Area are shown in Exhibit 2. Relevant generation and the total Pinelands Area load are also shown on Exhibit 2.

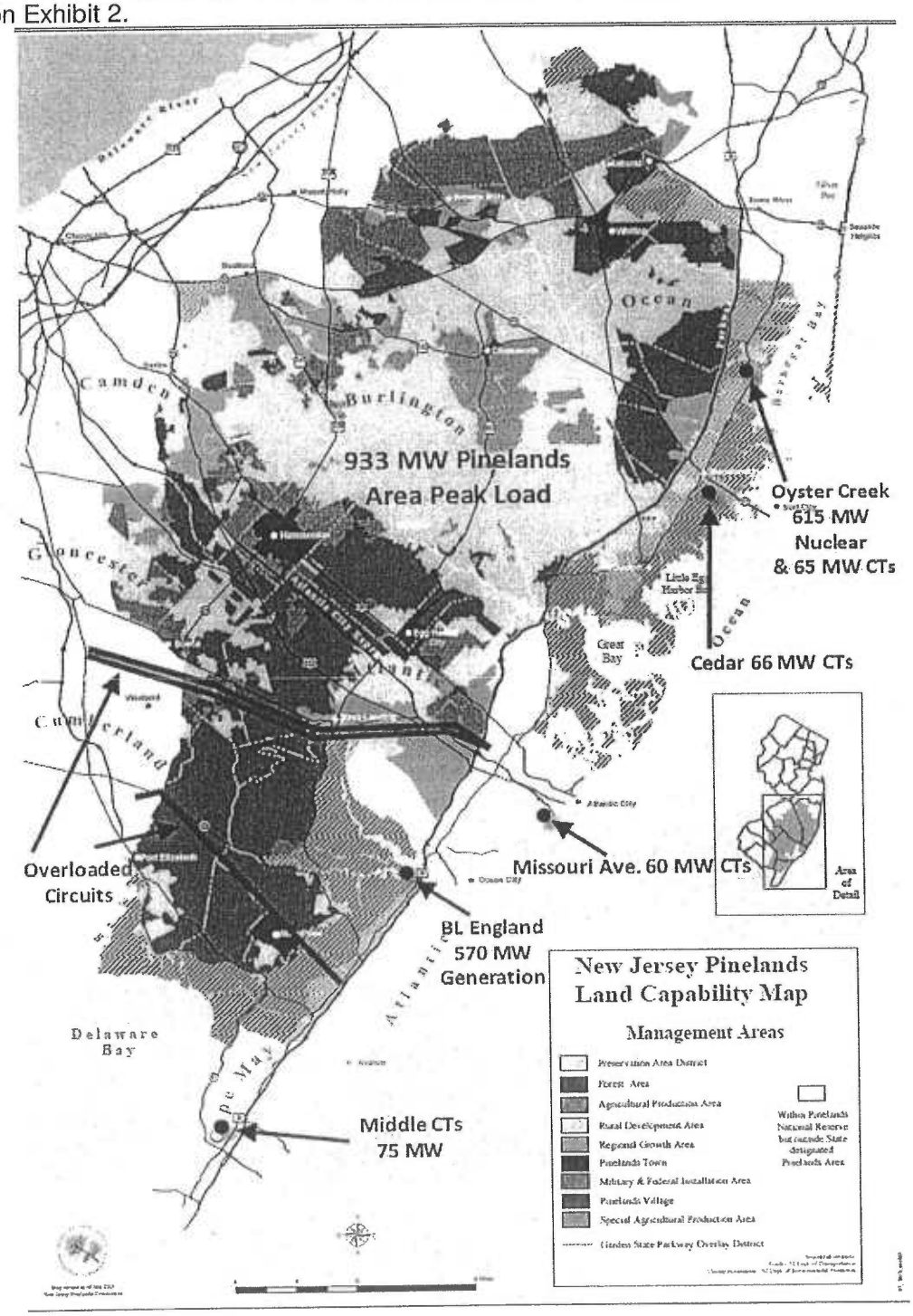

Exhibit 2