

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE
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June 23, 2014

Honorable Dina M. DeGiorgio
Councilwoman – 4th District
Town of North Hempstead
220 Plandome Road
Manhasset, NY 11030

Re: Matter Number 14-00820, North Hempstead Transmission Project

Dear Councilwoman DeGiorgio:

In response to concerns that have been expressed by public officials and individuals in the Town of North Hempstead relative to the Port Washington to Great Neck Overhead Transmission Project (North Hempstead Project), the Department of Public Service (Department or DPS) performed an independent review to address the incremental cost of undergrounding the project and related payment issues. In addition, we have reviewed the public outreach process used to inform elected officials and the community about the project and initiated an examination of PSEG's plans for the future reliability projects and will make recommendations directly to PSEG-LI for improvement of that process. The accompanying Department of Public Service Staff (Staff) report sets forth the results of our review and recommendations relative to cost. I have also attached my letter to PSEG-LI advising of the results of our review and subsequent actions that need to be taken by PSEG-LI.

The results of our review of the incremental costs of undergrounding the projects are set forth in the Staff Report on Ongoing Transmission Projects for East Hampton and North Hempstead in Long Island, New York – Costs for Undergrounding that accompanies this letter. In conducting its review, Staff considered the information provided by PSEG-LI and available reports and studies on undergrounding. As a result of its review, Staff concluded that the cost of

undergrounding the East Hampton project would be approximately \$4 million per mile and the cost of undergrounding the remainder of the North Hempstead project would be approximately \$5.5 million per mile. These estimates are consistent with PSEG-LI's estimated cost of \$4-\$6 million per mile for undergrounding each of the projects.

Providing these costs alone, however, does not provide the residents and public officials in the affected areas with adequate information with which to make a reasoned determination as to the course of action they will follow. As an initial matter, we see no reason to deviate from the procedure established in Southampton in which the incremental costs of undergrounding are borne by the affected residents and guaranteed by the affected municipality. In order for the specific costs per customer to be accurately ascertained, PSEG-LI must work with each municipality to identify the total distance to be undergrounded and based on that information PSEG-LI must develop an accurate cost for the project. The municipality is responsible for identification of the affected customers who will bear the incremental cost of the project. The municipality and PSEG-LI must then reach agreement as to the length of time over which the incremental cost of the projects will be amortized and with respect to the guarantee of payment. With that information, the affected residents and community will know the extent of their financial responsibility and be able to proceed with their decision making. I have requested that PSEG-LI advise DPS of its progress in determining these costs in accordance with milestone dates set forth in my attached letter.

The foregoing course of action, in which each of the entire projects are undergrounded, would be expected to be the most costly alternative to leaving the transmission lines above ground as they are now. The municipalities and affected communities should be able to consider less costly alternatives that may meet their needs. Such alternatives, for example, less than full undergrounding or reducing the magnitude of the project, may be possible with consideration by PSEG-LI of alternative energy sources, distributed generation, energy efficiency or other innovative measures that could mitigate the visual impact or need for these projects. Although we recognize the necessity of these projects to ensure reliability for the summer peak period, mitigation measures should be considered for implementation subsequent to their completion. I have asked PSEG-LI to provide this information for consideration by the municipality in accordance with milestone dates set forth in my attached letter to PSEG-LI.

To enable public officials on Long Island to be fully informed of future infrastructure projects it intends to implement in the future, we have asked PSEG-LI to provide to DPS and the affected municipalities its plans for both near and long term projects on Long Island. Staff will work with PSEG-LI to ensure that these plans demonstrate a thoughtful approach to aesthetics and provide adequate advance notice of proposed projects and that the outreach process is sufficient for affected communities to fully understand the magnitude of the project, be aware of alternatives, and have a meaningful opportunity to provide input. In addition to the short and long term plans we are requesting now, the Department will review and provide recommendations as to PSEG-LI's planned capital expenditures beginning January 1, 2015 and annually thereafter in accordance with the LIPA Reform Act.

If you have any questions, please do not hesitate to contact Michael Worden, Deputy Director-Electric at 518-486-2498; Wayne Brindley, Deputy Director, DPS-LI at 516-490-2304; or me directly.

Sincerely,



Audrey Zibelman
Chief Executive Officer

Enclosures

CC: Michael Worden, Deputy Director-Electric
Wayne Brindley, Deputy Director, DPS-LI

**STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE**

June 16, 2014

TO: Audrey Zibelman, Chief Executive Officer

FROM: Michael Worden, Deputy Director – Electric

SUBJECT: Staff Report on Ongoing Transmission Projects for East Hampton and North Hempstead in Long Island, New York – Costs for Undergrounding

Executive Summary:

In response to concerns expressed by public officials on Long Island regarding two transmission line projects being constructed by PSEG-LI, one in East Hampton and one in North Hempstead, the Department of Public Service (Department) performed a review and analysis of the estimated costs to underground the proposed transmission lines associated with the two projects. Each project is intended to alleviate reliability concerns in the area where it is located. In the case of East Hampton, the area for which reliability is a concern extends to the eastern end of Long Island, including Montauk. The estimated costs associated with undergrounding of these two transmission projects were evaluated based on historical costs of similar undergrounding projects on Long Island, utility reports, and other industry studies performed in recent years. The Department Staff has reviewed the information provided by PSEG-LI and the reports and studies available on the costs of undergrounding. Upon review, the Department believes that the East Hampton projects would be expected to cost approximately \$4 million per mile for undergrounding and the North Hempstead project would be expected to cost approximately \$5.5 million per mile for the remainder of the undergrounding on that project. These estimated figures are in the range of PSEG-LI's estimated cost of \$4-\$6 million per mile for each of the projects.

Background:

The Department has performed an independent review to determine the estimated cost for undergrounding the transmission projects in East Hampton and North Hempstead. Specifically, the Department Staff has reviewed historical costs for undergrounding similar projects on Long Island, construction standards for undergrounding, a 2007 Con Edison estimate on the cost of undergrounding in Westchester and Staten Island, a 2005

review by Navigant consulting on potential storm hardening improvements on Long Island, and a 2012 report by the Edison Electric Institute (EEI)¹. The Con Edison Westchester studies are particularly applicable to North Hempstead due to similarities in the two areas.

Discussion:

In response to DPS information requests, PSEG-LI stated that the estimated costs to underground the proposed East Hampton and North Hempstead transmission projects would be approximately \$4-\$6 million per mile. The proposed East Hampton overhead project route is 6.2 miles, resulting in a total estimated project cost of \$25-\$37 million. The proposed North Hempstead overhead project route is 5 miles, resulting in a total estimated project cost of \$20-\$30 million. The total project costs for the overhead transmission projects at East Hampton and North Hempstead are \$6.5 million and \$10 million respectively. The construction of this undergrounding work includes the digging of trenches and burying of conduit and associated cable along the selected route.

One of the inputs into PSEG-LI's \$4-6 million per mile estimated cost figure for these two efforts came from a 0.75 mile section of the North Hempstead project that was required to be undergrounded due to overhead obstacles and other constraints in the area. The cost for that section of transmission undergrounding is approximately \$5.3 million per mile. Additionally, PSEG-LI referenced a recent project completed in 2008 in the Southampton area where the transmission line was constructed underground for 8.7 miles at a cost of \$3.6 million per mile (\$3.96 million per mile in 2014 dollars)². Looking at a breakdown of the costs in terms of labor, engineering, and materials, the labor costs associated with each project account for the largest portion of the undergrounding costs.

In Con Edison's 2007 estimate on the costs of undergrounding the electric facilities in four Bronx/Westchester locations, the costs ranged from \$4.37 – \$7.42 million per mile (\$4.99 – \$8.48 million per mile in 2014). In Staten Island, the 2007 underground costs ranged from \$3.77 – \$7.44 million per mile (\$4.31 – \$8.5 million per mile in 2014). The Navigant report completed for LIPA in 2005 identified a cost of \$3.66 million per mile (\$4.44 million per mile in 2014) for undergrounding. The EEI report provides a wide spectrum of costs for undergrounding of electric facilities ranging from \$1.4 million per

¹ *Out of Sight, Out of Mind 2012*, (January 2013) This report looks into the issue of placing overhead electric transmission and distribution lines underground and examines the issues of reliability, cost and benefit, and effect on neighboring communities.
<http://www.eei.org/issuesandpolicy/electricreliability/undergrounding/Pages/default.aspx#sthash.aMziblpy.dpuf>

² All historical undergrounding project costs were converted into 2014 equivalents using the Consumer Price Index (CPI) inflation calculator.

mile for rural areas to \$30 million per mile for urban areas (\$1.45 – \$31.0 million per mile in 2014).

The pros and cons of undergrounding are widely known throughout the electrical utility industry and documented in the studies and reports staff reviewed as part of this analysis. Each of the studies and reports reviewed show that installation of underground electrical facilities is significantly more expensive than overhead facilities. Factors such as the construction type, density of the area, soil content, and other factors unique to each location can change the installation costs for undergrounding projects. As stated in the EEI report, a project with direct buried cable in a rural area without many obstacles or other utilities in the area could be installed for as little as \$1-2 million per mile. This type of work is typically associated with the installation of new underground residential distribution facilities to a residential sub-division of homes. On the other hand, Con Edison has identified costs of undergrounding projects in some areas of its service territory in excess of \$8 million per mile. These estimates are associated with the undergrounding of its distribution system in a looped configuration for reliability and include installation of concrete duct banks, manholes, and transformer vaults underground in an urban environment, which increase the cost.

The two Long Island projects consist of transmission facilities, which if installed underground would be located in electrical conduit along the proposed route with manholes for connection and splice locations. Whether installed underground or overhead, the installation of transmission facilities is almost always more costly than distribution facilities simply due to the larger size of conductors and materials needed to completed the transmission jobs, along with the more stringent required construction standards set by the National Electric Safety Code for these higher voltage installations.

The analysis performed in looking specifically at each of the two projects and the differences between the two, identifies unique challenges at each location that would be expected to result in costing differences between the two projects. As stated earlier, the North Hempstead project PSEG-LI recently completed contained a 0.75 mile section of undergrounding which cost \$5.3 million per mile. Based on its experience from that undergrounding work and the existing overhead work, PSEG determined that a new / alternate route would need to be determined if undergrounding the entire project was required. The North Hempstead area is more urban in nature and more densely populated than the area in which the East Hampton project is located which also tends to increase construction costs as noted in the EEI report. Based on the information available at this

time, we believe that the cost of the North Hempstead project would be in the upper portion of the \$4-6 million per mile estimate at a cost level comparable to the work already completed earlier this year at \$5.3 million per mile.

The cost of the East Hampton project appears to be more closely related to the cost of the 2008 Southampton project as the areas are more similar in population and geography. Therefore, the East Hampton project would not be expected to be subject to some of the undergrounding issues associated with the population density and geography of the North Hempstead project. As previously stated, undergrounding the Southampton project cost approximately \$3.96 million per mile in 2014 dollars and we believe the cost of undergrounding the East Hampton project would be comparable.

The Village of East Hampton proposed an alternate 2.2 mile underground route for a portion of the East Hampton to Amagansett 33 kV transmission line. Based on information request responses provided by PSEG-LI and the cost of the new 33 kV transmission line already installed in this area, the incremental cost of this alternate route and reconstruction of the existing 13 kV line in-kind would be approximately \$9.2 million. This figure includes \$4 million per mile costs for the new line construction and \$200,000 per mile replacement of the 13 kV line in-kind. It should be noted that we would need more information to determine if this newly proposed route is technically feasible.

The Village also asked if it was possible to keep the newly constructed line in place, however, not keeping it energized. This is possible, however, but not recommended. As long as there are no issues or faults along the new line when it is energized, then it would take a short amount of time (5-10 minutes) to switch the line into service as needed depending on the configuration of the substation connections. If the line is kept out of service, the utility is not able to tell if there are issues or problems along the lines during the time it is out of service. When the time comes and the line is needed for emergency conditions and the utility attempts to switch the new line into service and there has been an unknown fault on the line, then that fault would need to be cleared before it could be used for operation. Additionally, for a more efficient operation of the electrical system, the utility would prefer to use both the existing and new lines to keep the electrical loads of these lines balanced and voltages support for the area at appropriate levels. This is standard utility practice.

It should be noted that undergrounding offers lower storm damage costs and lower preventative maintenance cost when compared with overhead construction. Another consideration is that of aesthetics and the "out of sight, out of mind" concept associated with undergrounding of electric facilities. The actual value of that concept is difficult to ascertain and may well be controversial. A countervailing consideration is that in addition to the higher installation cost associated with undergrounding as compared with overhead construction, electrical underground installations are subject to higher repair costs and a shorter life expectancy than overhead construction. It is much easier and faster to identify and repair an overhead fault on the electrical system than the same issue on an underground electrical system. The life expectancy of an overhead line is typically 50+ years, whereas an underground line's life expectancy is approximately 40 years.

At this time, both the North Hempstead and East Hampton overhead transmission projects are nearly complete, and include the installation of new larger poles and conductors along the entire routes. Therefore, the majority of the estimated costs for each of the projects (\$10 million for North Hempstead and \$6.5 million for East Hampton) have already been spent. If a decision were made to underground the overhead transmission facilities already installed, a large portion of those expenditures and efforts would be considered lost. Additionally, a decision would then need to be made as to what to do with the new transmission poles already installed. Two options are: (1) to the poles could be removed and smaller distribution poles installed to prior heights and conditions or (2) the new poles could remain, however, be cut to the original distribution heights. Based on estimates provided by PSEG-LI for the North Hempstead project, option 1 costs are not known at this time because they would be contingent upon the extent of the transmission facility included in the underground installation and option 2 would cost approximately \$2.5 million. PSEG-LI estimates for the East Hampton project, that option 1 would cost approximately \$2.5 million and option 2 would cost approximately \$0.5 million. These estimated costs are in addition to the estimated cost for the undergrounding of the transmission lines discussed above.

The question of how payment should be made for the significant increase in costs associated with undergrounding has come into question. Should all ratepayers bear the costs of undergrounding the entire projects, should only the areas directly impacted by the projects pay, or should it be a mix? For the 2008 Southampton project the Town was required to pay for the incremental costs of undergrounding that was in excess of the original design costs of the project. Generally, in New York investor owned utilities, current electrical service tariff language associated with customer requests for

undergrounding states that the affected customer is responsible for the costs that exceed the overhead installation costs. Additionally, Staff asked the National Association of Regulatory Utility Commissioners (NARUC) to poll other States across the United States regarding undergrounding rules and regulations and the associated costs. Twelve states responded and the majority of those responses support the requirement for incremental undergrounding costs to be borne by the requesting party. Therefore, the general rule or requirement in this area is that the affected customer / requester be responsible for the incremental costs of undergrounding. The costs and payment terms, however, must be reasonable. In addition, it is essential that affected municipalities be fully informed with respect to future projects, options are discussed, and the wishes of the community be appropriately taken into consideration.

Conclusion:

Staff reviewed the cost of undergrounding in comparison to overhead construction. Based on our analysis, we believe that the North Hempstead project would be expected to cost approximately \$5.5 million per mile in accordance with the cost of the undergrounding work already completed on the project and the East Hampton project would be expected to result in a lower cost of approximately \$4 million per mile. Both of these estimated figures are in the range of PSEG-LI's estimated cost of \$4-\$6 million per mile for each of the projects. Detailed engineering, route selection, construction bids, construction, and removal of existing facilities would still need to take place before these projects were completed or a firm cost estimate could be made.