

A. INTRODUCTION

This attachment considers the potential impacts of the Proposed Action with regards to Noise and Electromagnetic Fields (EMFs).

A detailed Noise Impact Assessment Study was completed to evaluate the potential sound-level impact of future operational noise levels at the Proposed Substation. The Noise Impact Assessment Study is included as **Appendix D**. The proposed Off-Site Work components of the Proposed Action do not include the installation of any noise-generating equipment and are therefore excluded from the analysis below. Potential impacts from construction related noise are addressed in **Attachment G**.

Detailed Electric and Magnetic Field Assessments prepared by Exponent for the West Bartlett Substation, dated June 20, 2016, and Berry Street Substation, dated April 11, 2016, were evaluated for reference purposes in order to assess potential EMF impacts associated with the Proposed Action. The Electric and Magnetic Field Assessments for the West Bartlett Substation and Berry Street Substation are provided in **Appendix E**.

B. NOISE STUDY

The Noise Impact Assessment Study includes: 1) measurements of existing sound levels collected along the future fence line of the Proposed Substation on April 17, 2018; 2) computer propagation modeling of worst-case potential future noise level impacts at the nearest non-industrial receptor, the Hempstead Plains Education Center, a recreational and educational center located approximately 300 feet northeast of the Proposed Substation. Computer propagation modeling was based on the proposed installation of two 69/13kV 33 MVA transformers operating at maximum capacity, and; 3) an evaluation of the results of the assessment to applicable noise standards, guidelines and limits.

EXISTING CONDITIONS

Existing ambient background daytime noise levels measured at the future fence line of the Proposed Substation ranged from 62 dBA (western property line) to 74 dBA (southern property line). Nighttime ambient background noise levels ranged from 56 dBA (northern property line) to 71 dBA (southern property line). In addition, ambient daytime and nighttime noise levels were recorded at the closest non-industrial receptor, the Hempstead Plains Education Center, located approximately 300 feet northeast of the Proposed Substation. Ambient daytime and nighttime noise levels at this receptor were 65 dBA and 56 dBA, respectively. The closest residential receptors are located over 1,800 feet from the Proposed Substation and the nearest commercial receptors are located more than 700 feet from the Proposed Substation.

POTENTIAL IMPACTS OF THE PROPOSED ACTION

The NYSDEC noise guidelines are defined in their publication “Assessing and Mitigating Noise Impacts”¹ (“NYSDEC Noise Guidance”). This document states that sound pressure level (“SPL”) increases from zero to three decibels should have no appreciable effect on receptors; increases of three to six decibels may have the potential for adverse impact only in cases where the most sensitive of receptors are present; and increases of more than six decibels may require a closer analysis of impact potential depending on existing noise levels and character of surrounding land use. NYSDEC Noise Guidance also indicates that the addition of any permanent noise source should not raise ambient levels above 65 dBA in any non-industrial setting.

The projected (modeled) noise impact levels for the Proposed Substation were evaluated based on worst-case future noise levels from the simultaneous operation of the proposed two new 69kV transformers at maximum capacity. The modeled noise impact level (noise level of transformers, excluding ambient noise levels) from the Proposed Substation was 15.3 dBA at the Hempstead Plains Education Center. The generation of new noise levels lower than the existing noise levels does not create a mathematical additive effect because the higher noise level muffles the lower noise level. If new noise levels are less than the existing noise levels by 9 dBA or more, the projected noise levels increases will be less than 1 dBA. The future noise level (ambient noise level plus the noise level from the transformers) at this receptor will not result in any recordable (<0.1 dBA increase) or perceptible noise increase above existing ambient noise levels (a maximum daytime ambient noise level of 65 dBA was recorded at this location). Although the Noise Impact Assessment Study concluded that existing ambient noise levels at the southern future fence line of the Proposed Substation exceed 65 dBA, operation of the Proposed Substation will not result in any cumulative perceptible noise increase above background levels at the nearest non-industrial receptor, and therefore, will not result in any adverse impacts.

The closest residential receptors are located over 1,800 feet from the Proposed Substation and the nearest commercial receptors are located more than 700 feet from the Proposed Substation. As future noise levels at the Hempstead Plains Education Center located 300 feet northeast of the Proposed Substation will not result in any perceptible noise increase, the Proposed Substation will not result in any adverse noise impacts at the closest residential and commercial receptors.

C. ELECTROMAGNETIC FIELD STUDY

The estimated EMF levels for the Proposed Action will be significantly lower than the magnetic field “prudence avoidance” health standard set forth by the New York State Public Service Commission (NYSPSC) for EMF exposure. According to the NYSPSC’s Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (issued and effective September 11, 1990), the standard for magnetic field is 200 milligauss (mG).

¹ NYSDEC. “Assessing and Mitigating Noise Impacts”. October 6, 2000. Revised February 2, 2001. http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf (Accessed September 5, 2017).

The potential EMF impact of the substation equipment and OH 69kV transmission lines associated with the Proposed Action has been evaluated relative to the EMF levels modeled for the West Bartlett Substation. For comparison purposes, the West Bartlett Substation is a 69kV substation containing two 69/13kV transformers, two 13kV switchgears and connections to UG 13kV distribution exit feeders. The West Bartlett project also includes two existing OH 69kV transmission lines that connect to the substation. Similarly, the Proposed Action will include the construction of a 69kV substation consisting of two 69/13kV transformers, two 13kV switchgears, and connections to UG 13kV distribution exit feeders. In addition, the Proposed Action consists of two OH 69kV transmission lines. Since the West Bartlett Substation and the Proposed Substation are the same with regard to EMF-generating equipment, the two facilities will generate the same, or comparable EMF levels, as detailed below.

The Electric and Magnetic Field Assessment (“EMF study”) that was undertaken for the West Bartlett Substation determined that the peak-load EMF levels at various locations along the substation fence line (which is located at distances ranging from approximately 25 feet to 65 feet from the substation equipment) ranged from 1.0 mG to a maximum of 26.1 mG. EMF levels exponentially decline as the distance away from the substation equipment increases. It should be noted that the maximum EMF level of 26.1 mG was detected where underground distribution exit feeders pass below the substation fence. With the exception of this particular location, maximum peak-load EMF levels along the substation fence were 1.5 mG.

With regards to EMF levels for OH transmission, peak-load EMF levels immediately below the center-line of the OH 69kV transmission lines at the West Bartlett Substation ranged from 10 mG to a maximum of 20.5 mG. EMF levels rapidly decreased with distance from the transmission circuits, with levels ranging from 1.9 mG to 9.0 mG at distances of 50 feet from the transmission lines, and levels ranging from 0.3 mG to 4.2 mG at distances of 100 feet from the transmission lines.

As the Proposed Substation will consist of substation components operating at the same voltages as the West Bartlett Substation, and equipment within the Proposed Substation will be located at distances ranging from approximately 25 feet to 65 feet from the fence line, similar to the West Bartlett Substation, EMF levels for the Proposed Substation are anticipated to be the same, or comparable to the West Bartlett Substation. As the Proposed Action will also consist of two OH 69kV transmission lines operating at the same voltages as the West Bartlett Substation project, EMF levels for the OH transmission lines are anticipated to be the same, or comparable to the West Bartlett Substation project. Based on the EMF study for the West Bartlett Substation, maximum peak-load EMF levels at the substation fence line, and immediately below each of the OH 69kV transmission lines were substantially lower than the NYSPSC’s standard of 200 mG, and decrease with distance from the substation fence line and/or the transmission circuits.

With regards to EMF levels for UG transmission, the potential EMF impact of the UG 69kV transmission tie-in cables associated with the Proposed Action have been evaluated relative to the Berry Street Substation project. The Berry Street Substation project is a 69kV substation that

consists of connections to two UG 69kV transmission tie-in cables. Peak-load EMF levels immediately above the center-line of the UG 69kV tie-in cables at the Berry Street Substation was 28.6 mG. EMF levels rapidly decreased with distance from the UG transmission tie-in cables, with levels ranging from 2.3 mG to 3.4 mG at distances of 50 feet from the transmission tie-in cables, and levels ranging from 1.1 mG to 2.1 mG at distances of 100 feet from the transmission tie-in cables. As the Proposed Action will consist of two UG 69kV transmission tie-in cables, operating at the same voltages as the Berry Street Substation project, EMF levels will be the same, or comparable for both projects. Therefore, EMF levels associated with the UG 69kV transmission tie-in cables associated with the Proposed Action will be substantially lower than the NYSPSC's standard of 200 mG.

With regards to EMF levels for the distribution components of the Proposed Action, all OH and UG distribution components will operate at voltages of 13kV, whereas the OH and UG transmission components of the Proposed Action will operate at higher voltages of 69kV. Therefore, the EMF levels associated from the distribution components will be lower than the EMF levels associated with the transmission components. As discussed above, EMF levels associated with the 69kV components were substantially lower than the NYSPSC's standard of 200 mG. As a result, EMF levels associated with the 13kV distribution components of the Proposed Action will have EMF levels substantially lower than the NYSPSC's standard of 200 mG.

Based on a comparative analysis of the West Bartlett Substation and Berry Street Substation Electric and Magnetic Field Assessments, the predicted EMF levels from of the Proposed Action would be well below the 200 mG threshold established by the NYSPSC and would not result in any significant adverse environmental impacts.