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August 1, 2022

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Executive Director
Connecticut Siting Council
10 Franklin Square
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Re: Docket No. 508 - The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project

Dear Ms. Bachman:

Enclosed for filing with the Connecticut Siting Council (the "Council") is The United Illuminating Company's Post Hearing Brief.

An original and fifteen (15) copies of this Brief will be mailed via UPS to the Council for tomorrow's delivery.

Should you have any questions regarding this letter, please do not hesitate to contact me.

Very truly yours,



Bruce L. McDermott

Enclosures

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STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

The United Illuminating Company (UI) application for a : Docket No. 508
Certificate of Environmental Compatibility and Public :
Need for the Milvon to West River Railroad :
Transmission Line 115-kV Rebuild Project that consists :
of the relocation and rebuild of its existing 115-kilovolt :
(kV) electric transmission lines from the railroad :
catenary structures to new steel monopole structures :
and related modifications to facilitate interconnection of :
the rebuilt 115-kV electric transmission lines at UI's :
existing Milvon, Woodmont, Allings Crossing, Elmwest :
and West River Substations along approximately 9.5 :
miles of the Connecticut Department of Transportation's :
Metro-North Railroad corridor traversing the :
municipalities of Milford, Orange, West Haven and New :
Haven, Connecticut. : August 1, 2022

POST-HEARING BRIEF OF
THE UNITED ILLUMINATING COMPANY

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STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115-kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River Substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

Docket No. 508
August 1, 2022

POST-HEARING BRIEF OF
THE UNITED ILLUMINATING COMPANY

I. INTRODUCTION AND SUMMARY

On February 28, 2022, The United Illuminating Company ("UI" or the "Company") filed an application (the "Application") with the Connecticut Siting Council (the "Council") for the issuance of a Certificate of Environmental Compatibility and Public Need (the "Certificate") in connection with the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project (the "Project"). The Project is part of UI's long-term plan for relocating its electric transmission facilities along the Connecticut Department of Transportation's ("CTDOT") corridor in Fairfield and New Haven counties to enhance the reliability and resiliency of the electric transmission grid. Specifically, the Project consists of the relocation and rebuild of the existing 115-kilovolt ("kV") overhead transmission lines that extend for approximately 9.5 miles southwest-northeast within the CTDOT

Metro-North Railroad (“CTDOT/MNR”) corridor in the City of Milford (“Milford”), the Town of Orange (“Orange”), the City of West Haven (“West Haven”) and the City of New Haven (“New Haven”) (the “115-kV lines” or “the rebuilt 115-kV lines”). The Project entails removing the existing 115-kV lines from UI-owned bonnets fastened on top of the railroad catenary structures and rebuilding the 115-kV lines on new independent double-circuit self-supporting steel monopoles, predominantly located north of the MNR tracks and mostly within CTDOT property. The Project also will involve other related improvements and modifications, including those necessary to remove the existing 115-kV line connections and link the rebuilt 115-kV lines to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations.

UI designed the Project to avoid or minimize adverse environmental and social impacts to the extent practical and has coordinated with and plans to continue to coordinate with federal, state and local agencies as the planning for and construction of the Project proceeds. The Project will continue the long-established co-location of UI's 115-kV transmission lines within or adjacent to the CTDOT corridor and is therefore consistent with federal guidelines for the siting of energy transmission facilities. Response to CSC-44. The Company has met all the procedural requirements as set forth in the applicable regulations, statutes and the Council's guidance documents.

To identify and evaluate alternatives for upgrading the existing 115-kV lines between Milvon and West River Substations, the Company conducted an extensive iterative process involving the analysis of different transmission line locations and configurations. This process resulted in the selection of the Project - as proposed in the

Application and subsequently referred to during this Council proceeding as “Option A” Late-Filed Exhibit 6 (“LF-6-1”) - as the preferred solution for rebuilding the 115-kV lines.

Further, in response to interrogatories from the Council and Milford representatives during the course of the Council’s proceeding, UI evaluated nine additional alternatives (referred to as “Options B through J” in LF-6-1) to certain portions of the Project route and line design in the general vicinity of downtown Milford. Each of these options involved variations to the originally proposed (“Option A”) rebuilt 115-kV line configuration and/or alignment in Milford and reflected alternatives to potentially address concerns regarding the height and visibility of certain of the proposed new double-circuit monopoles. UI compared each of the nine options to Option A in terms of total route miles and estimated cost.

As a result of the options analysis, UI endorsed Option J, which will reduce the height of certain proposed new double-circuit 115-kV monopoles to be located north of the MNR tracks (within the CTDOT corridor) in Milford (between Structures 904N to 916N) but will otherwise remain the same as the line configuration as filed in the Application (i.e., Option A).

With the adoption of Option J for the planned 115-kV line configuration, the Project represents the least-cost alternative that will also address Milford concerns regarding structure height and visibility. Further, this Project configuration ensures that the overhead 115-kV transmission lines, co-located within the CTDOT railroad corridor between Milvon and West River Substations, are upgraded to adhere to the current National Electrical Safety Code (“NESC”), conform to UI design standards and criteria, including the ability to withstand hurricane Category 3 wind loads, improve the reliability

of the regional electric transmission system, minimize environmental impacts, and satisfy visual impact concerns with the Project identified by the City, all in the most cost-effective manner. Thus, Option J represents the ideal Project design to meet the Project goals, e.g., address reliability needs of the bulk transmission grid, while balancing environmental, visual aesthetics and cost considerations.

For these reasons, the Project satisfies the criteria for the issuance of a Certificate.

II. OVERVIEW OF THE PROJECT

The Project primarily consists of the relocation and rebuild of the existing 115-kV lines that extend from UI's Milvon Substation in Milford to UI's West River Substation in New Haven, specifically the relocation of the lines from the bonnets fastened on top of the railroad catenary structures to independent new double-circuit self-supporting steel monopoles, located predominantly north of the railroad tracks, mostly within the CTDOT corridor. Application, Vol. I at 1-1. In certain parts of the Project route, the rebuilt 115-kV lines will also be located on the south side of the CTDOT corridor and in single-circuit monopoles, to maintain the existing 115-kV line substation connections. *Id.* at 2-4. The monopoles will be offset from the railroad catenary structures based on the CTDOT corridor width, clearance requirements specified by CTDOT/MNR, and electrical clearance standards. *Id.* at ES-3. To the extent possible, the Company has designed the Project in a manner such that most of the rebuilt 115-kV lines will be located within CTDOT property. Where it will not be feasible to locate the lines within CTDOT property because of constraints within the railroad corridor, UI plans to acquire new easements from abutting property owners in order to accommodate the new structures, maintain

required clearances to conductors, and/or access the structures. *Id.* at ES-4, 1-8, 2-6 to 2-9.

The new transmission structure heights will vary by location, depending on span length, but will be in the range of 70 to 170 feet. *Id.* at 2-10. The span length between structures will range from approximately 300 to 400 feet, but in some locations, longer spans will be utilized to minimize impacts to environmental resources and to nearby land uses. *Id.* The 115-kV lines will generally be rebuilt in a double-circuit configuration on galvanized steel monopoles that include braced post insulators to limit conductor movement and blowout. *Id.* at 2-9. When designing the Project and selecting proposed structure locations, the Company took various factors into consideration, including the need to maintain clearances between the 115-kV conductors and vegetation, as well as between the monopoles and the MNR catenary structures; existing and planned land uses within and adjacent to the CTDOT corridor; and location of underground utilities, among others. *Id.* at 2-11. UI undertook an iterative process where competitive interests were balanced and ultimately the Company selected strategic locations to place the proposed structures that minimized environmental impacts and eliminated constructability concerns in a cost-effective manner.

The rebuilt 115-kV lines will be interconnected to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River Substations, all of which are connected to the existing 115-kV lines. Other than the installation of new and/or single-circuit monopoles to maintain the existing 115-kV line connections and some minor hardware modifications to accommodate the new conductors, e.g., 1590 kcmil conductors and Optical Ground Wire ("OPGW"), UI does not expect any significant construction at the substations to take

place. *Id.* at 2-4, 3-14. No expansion of the existing substations will be required for the Project. *Id.*

As part of the Project, UI also will modify or remove certain existing transmission line structures situated along both the north and south sides of the MNR tracks that were installed as part of UI's previous transmission upgrade projects. In addition, UI will decommission and remove the existing 115-kV facilities (bonnets, wires, hardware) from the railroad catenary structures. *Id.* at 1-8. The Company proposes to remove all of its bonnets except for those that CTDOT/MNR requested remain in place to support the existing UI shield wire that is used for lighting protection purposes of the railroad's electrical facilities. *Id.* at 2-1. Upon completion of the Project, UI expects to transfer ownership of these bonnets and shield wire to CTDOT.

The Project will be constructed in four segments over an estimated six-year span, with each segment involving the same general sequence of activities. *Id.* at 3-3. The first segment will be from Elmwest Substation to West River Substation, followed by Allings Crossing Substation to Elmwest Substation, Milvon Substation to Woodmont Substation and concluding with Woodmont Substation to Allings Crossing Substation. *Id.* at ES-4. Generally, each segment will be rebuilt and placed into service prior to the initiation of extensive work on the next segment. *Id.* at 3-2. However, some construction activities may overlap from segment-to-segment and require that the Company work on two substation segments concurrently. *Id.*¹ UI will coordinate with MNR on the Project

¹ "For example, civil and foundation work may commence on the Milvon [to] Woodmont substation segment (the longest of the four segments) prior to the completion of the Allings Crossing to Elmwest substation segment." Application Vol. I at 3-2, footnote 17. Additionally, removal of the existing UI facilities along the south side of the railroad track of a substation segment is not a prerequisite for placing that segment of the rebuilt 115-kV lines into service. *Id.* at 3-2. Thus, to maximize construction efficiency, the Company might remove the facilities along the south side of a segment at the same time it conducts work on the next segment. *Id.*

construction hours and will endeavor to schedule construction activities that require railroad and/or transmission line outages to times that will minimize impacts to the public and business operations. *Id.* at 4-3. The Company anticipates that the rebuilt 115-kV lines will be in service in the third quarter of 2028 and that final restoration activities will extend into 2029. *Id.* at ES-6. As the final phase of Project construction, UI will restore, to the extent practical, the areas affected by construction to approximate pre-construction conditions. *Id.* at 2-1; 3-1.

The Project transmission facilities are expected to have a minimum service life of approximately 40 years. *Id.* at 2-12.

III. DISCUSSION

Pursuant to Connecticut General Statutes Section 16-50p(a)(3), the Council shall grant a Certificate if it finds that there is a public need for the Project, the proposed location of the electric transmission line would not pose an undue hazard to persons or property along the area traversed by the line, and the effects associated with the construction of the Project, including electromagnetic fields and effects on the natural environment, ecological balance, public health and safety, agriculture, forests and parks, scenic, historic, and recreational values, air and water purity, fish, aquaculture and wildlife are not disproportionate either alone or cumulatively with other effects compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the Application.

A. There is a Public Need for the Project that Could only be Fulfilled by Removing the 115-KV Lines from the Railroad Catenary Structures

The Project is necessary to maintain the reliability and resiliency of the bulk transmission grid in Connecticut and the New England area. Due to the age and condition of the existing catenary structures, UI's bonnets and related transmission line infrastructure², in 2018, the Company conducted engineering analyses of the 115-kV lines between the Milvon and West River Substations to evaluate the asset condition of the portions of the existing catenary structures that support the 115-kV lines. *Id.* at 1-7. These studies confirmed that the portions of the existing catenary structures that support the transmission lines exhibit age-related physical limitations, e.g., corrosion, loss of structural steel thickness, etc., and that to maintain the reliability of the bulk transmission grid, the 115-kV transmission lines must be rebuilt to meet current NESC and UI standards. *Id.* On account of these conditions, UI determined that taking no action would present potential risks to railroad operations and jeopardize the Company's ability to deliver reliable electric service to its customers. April 28, 2022 Transcript ("Tr.") at 85; Application, Vol. I at ES-9.

UI identified and evaluated various alternative solutions for its 115-kV transmission line system between West River and Milvon Substations and ultimately concluded that to maintain the reliability of the bulk transmission grid, the 115-kV lines must be relocated off the catenary structures and rebuilt using new galvanized steel monopoles, conductors,

² The catenary structures, which are owned by CTDOT and operated by MNR, were originally built between 1912 and 1914. *Id.* at ES-2. In the 1940s, UI constructed support columns, referred to as "bonnets," on top of either end of catenary structures and it then installed the 69-kV transmission lines on the bonnets, along with shield wires for lightning protection. *Id.* In the 1960s, the lines were converted to 115-kV and in the 1980s, UI reconducted the lines with larger conductor to support increased electrical load. *Id.*

and OPGW. *Id.* at 1-7. The Company considered the option of making improvements and/or upgrades to the 115-kV lines to support the UI loads, while maintaining the lines on the existing catenary structures, but concluded that such changes could cause further stress on the structural integrity of the catenaries, thereby, making the contemplated improvements impracticable. April 28, 2022 Tr. at 86. UI also considered the alternative of rebuilding the catenaries along with completing the necessary upgrades to the 115-kV lines, but it discarded this option as not viable because of the various uncertainties around its implementation, including UI's ability to rebuild the catenary structures that are owned by CTDOT and subject to different industry codes, time delays and significant Project cost increases. Response to MIL 1-1, MIL 2-2, MIL 3-13; UI Letter from SHPO dated June 8, 2022. Additionally, the CTDOT has indicated that it prefers the removal of the transmission lines from the existing catenary structures as it aids in "maintenance of the traction power system and wayside equipment, by not having to request UI transmission line outages." June 10, 2022 Letter from CTDOT.

Lastly, the Company assessed the possibility of rebuilding the 115-kV lines in an underground configuration and evaluated a diverse array of underground Project routes. Application, Vol. I at 9-3; Exhibit LF-6-1, However, these underground options were eliminated from consideration because of their high costs, constructability issues and/or potential for causing greater environmental and social impacts. *Id.* Therefore, of all the alternatives considered, only the option to remove the 115-kV lines from infrastructure that the Company does not own, i.e. the CTDOT catenary structures, and relocate the transmission lines to self-supporting steel monopoles, guaranteed that the required reliability and resiliency improvements to the electric transmission grid could be delivered.

UI's 115-kV lines along the CTDOT corridor provide critical electric connections to the five substations along the Project route. Cumulatively, these substations feed the distribution system that provides electricity to approximately 57,000 UI customers in Milford, Orange, and West Haven. Application, Vol. I at 1-3. Further, the Project will enhance the reliability and resiliency of the electric transmission grid not only in Connecticut, but in the New England area. For this reason, the Project is listed in the ISO New England Regional System Plan Asset Condition List, which comprises all the assets that must be upgraded or replaced to maintain the reliability of the New England region's power system. Response to CSC-11. Additionally, the objectives of this Project are consistent with recent Federal commitments to modernize the grid and make it more resilient, such as the U.S. Department of Energy's "Building a Better Grid" initiative that seeks to catalyze the nationwide development of new and upgraded high-capacity electric transmission lines, as enabled by the Infrastructure Investment and Jobs Act. Response to CSC-7. Thus, based on the foregoing, the Project fulfills a clear public need - it is necessary to maintain the reliability and resiliency of the bulk transmission grid in Connecticut and the New England area at large - and that need can only be fulfilled by removing the transmission lines off the catenary structures.

B. The Project will not Cause Adverse Environmental Effects or Pose an Undue Hazard

Based upon the Company's design of the Project, including the proposed Project route and overhead line configuration, the construction and operation of the Project will not have any significant permanent adverse effects on the environment or pose an undue hazard. As discussed at greater length in the Company's Application and summarized

below, UI has taken the necessary steps to ensure that all aspects of the Project meet the applicable environmental standards, including consulting with federal state and local agencies, as needed. As such, the record demonstrates that the Project will not cause adverse environmental effects or pose an undue hazard that would warrant a denial of the Application.

1. Public Safety and Security (including Lighting)

The Project will not present any public safety and/or security concerns. UI will coordinate with CTDOT regarding safety protocols for construction within the railroad corridor and also to plan construction activities to avoid or minimize conflicts with rail operations.

Some construction activities could result in minor and short-term effects to vehicular traffic on the local roads leading to Project work sites. To the extent practical, UI will coordinate with the impacted municipalities and landowners to minimize potential impacts to traffic, including erecting construction warning zone signs and ensuring that flaggers and/or police personnel is present onsite to redirect traffic as needed. Application, Vol. I at 6-26.

The rebuilt 115-kV lines for the most part will be situated within the CTDOT corridor that is generally inaccessible to the public, except at the Milford and West Haven railroad stations. *Id.* at 3-21. Each of UI's five substations is entirely enclosed with a 14-foot high chain-link fence topped with approximately one foot of barbed wire to discourage unauthorized entry. *Id.* at 3-22. Additionally, access to the substations will be controlled with the substation gates, which will be kept locked as needed during construction hours and at all times after construction hours. *Id.*

For safety reasons, during any nighttime construction hours, temporary portable lighting will be used at the railroad construction sites. *Id.* at 6-29. Lighting will be installed to directly illuminate the work sites and avoid lighting-caused glare outside of the construction work zone. *Id.* The substations are already equipped with low-level lighting for safety and security purposes. *Id.* at 3-22.

The Project has been designed in compliance with the Council's White Paper on the Security of Siting Energy Facilities, initially adopted in Docket No. 346. *Id.* at 3-22. The Project will use the Company's existing protective relaying equipment, which is capable of detecting abnormal system conditions and send a protective trip signal to circuit breakers to isolate the faulted section of the transmission system. *Id.* at 3-21. The Company has also designed the Project to try to avoid impacts to existing utility systems, including the electrification, communications, and signaling systems used by MNR along the railroad corridor, and when needed, UI will temporarily or permanently relocate existing infrastructure outside of construction zones. *Id.* at 6-26 to 6-27. Lastly, all construction activities within the CTDOT corridor will be planned and coordinated with representatives of CTDOT/MNR. *Id.* at 6-25; April 28, 2022 Tr. at 56.

2. Water Resources and Water Quality

The Project will cause minor and localized impacts to water resources and water quality. However, these impacts will not result in adverse effects to the State's water quality goals or any vernal pools. *Id.* at 6-5. The rebuilt 115-kV lines will span the Wepawaug, Indian and West rivers, but no work will be performed in these watercourses and none of the transmission line structures will be located in a watercourse. *Id.* at 6-6. Although smaller watercourses will need to be crossed for monopole installations,

construction equipment will be prohibited from directly fording through streams and watercourses will be protected using best management practices, including erosion and sedimentation controls. *Id.* The Company will also implement other measures, such as using timber mats or equivalent to span small streams and maintain water flows, to minimize the potential effects of Project construction on water resources. *Id.* at 6-8.

The Project will result in short-term and long-term impacts to tidal and freshwater wetlands, including the removal of vegetation in forested wetlands. *Id.* at 6-10. Short-term impacts will result from the installation of temporary construction access roads and work pads, while permanent impacts will stem from the placement of certain monopoles and permanent access roads in inland wetlands. *Id.* at 6-8. The permanent access roads are necessary for the Company to conduct the appropriate periodic maintenance on the rebuilt 115-Kv lines and to promptly respond during emergency events. *Id.* at 6-10.

The rebuilt 115-kV lines will also extend across Federal Emergency Management Agency - designated 100-year and 500-year flood zones. Even though the Project will require the installation of monopoles in the 100-year and 500-year floodplains, these structures will have little to no adverse effect on floodplain storage capacity in comparison to the total flood storage capacity of each drainage basin. *Id.* at 6-5, 6-14; April 28, 2022 Tr. at 110. The Project design also accounts for future sea level rise and the appropriate adjustments to the elevation of the top of the foundations have been added. *Id.* at 6-14. Lastly, neither the construction nor operation of the Project will adversely affect groundwater resources – groundwater within the Project area is not used for direct potable water supply. *Id.*

3. Biological Resources

Because the Project area is within densely developed urban/suburban areas, neither the construction nor the operation of the Project is expected to result in significant adverse effects to vegetation, wildlife, or fisheries resources. However, both short-term and long-term minor effects will result from the vegetation removal required for Project construction and, as necessary, thereafter for the operation of the 115-kV lines. *Id.* at 6-15. In areas where riparian vegetation must be removed, UI will implement erosion and sedimentation control procedures to prevent disturbances to existing fisheries. *Id.* at 6-17. Additionally, the Company will minimize post construction tree clearing activities to ensure only trees that present a realistic threat to the resiliency of the electric transmission system are removed. *Id.* at 6-15.

The removal of upland and wetland vegetation will also cause temporary and permanent impacts to the Project area wildlife species. These impacts are expected to be minimal because most of the existing habitat along the CTDOT corridor supports generalist species, similar habitats exist in nearby areas, and when revegetation is allowed, wildlife species are expected to repopulate in the affected habitats. *Id.* at 6-16. Further, UI will mitigate any impacts by scheduling construction, to the extent feasible, around time of year restrictions to these species, e.g., nesting, breeding, fledgling of young birds, etc. *Id.*

The Company also consulted the Connecticut Department of Energy and Environmental Protection's Natural Diversity Database ("NDDB") about the Project area to identify the State-listed species that may be present in the Project vicinity. The NDDB identified seven State-listed species that might be present in the vicinity of the Project

area and provided recommendations both for pre-construction surveys and for protective measures to be implemented during construction to avoid adverse impacts to each species. *Id.* at 5-23. UI commissioned surveys of the plant species identified by the NDDB and determined that two of the State-listed plants are not present within the Project area. *Id.* at 6-17. For the other listed species, the Company will work with the applicable state or federal agency to identify best management practices to implement during construction activities and potential time of year restrictions.

4. Coastal Resources

Although the Project extends along the CTDOT corridor for approximately 2.52 miles within the designated coastal boundary, most of the area extends through uplands. *Id.* at 5-25. Exceptions are the spans of the Wepawaug, Indian, and West rivers and associated tidal wetlands. *Id.* The Project is not expected to adversely affect any designated coastal resources, e.g., beaches and dunes, rocky shorefronts, coastal waters, etc., or waterfront coastal uses or recreational areas. *Id.* at 6-19. The Company will implement sediment and erosion best management practices to avoid the potential for secondary impacts or degradation of existing drainage patterns and shoreline erosion, as well as to protect existing wildlife. *Id.* Lastly, the Project design incorporates longer conductor span lengths over tidally-influenced water resources, thereby avoiding impacts to these coastal resources. *Id.*

5. Visual and Aesthetic Characteristics

Whereas the heights of the proposed monopoles will be taller than the 115-kV lines on top of the railroad catenary structures, the new structures will be aligned primarily on

CTDOT property within the long-established railroad corridor. As a result, the monopoles will not create a substantial change in the visual and aesthetic characteristics of the Project area and those changes that do occur will be highly localized in the vicinity of the transmission lines. *Id.* at 6-21; Appendix C.

Through a combination of three-dimensional computer modeling and field evaluations, as well as viewshed analysis mapping and photo-simulations portraying scaled renderings of the Project structures, UI completed a visual assessment of the Project. *Id.* at 6-20. Although the proposed monopoles will generally be taller than the existing catenary structures, they will not create substantial change in the visual and aesthetic characteristics of the Project area. *Id.* at 6-21. At distances of approximately 0.75 mile and beyond, the tops of the new structures and transmission circuits will not be prominent features, particularly with the amount of intervening existing infrastructure common to the railroad corridor area. *Id.*

During this proceeding, be it through the issuance of interrogatories and/or during the Council's cross-examination of the Company, some concerns were raised regarding the visual aesthetics or visual impact of the Project, specifically in the vicinity of the transmission line route in Milford because of the proximity to some of the City's historic resources. May 24, 2022 Tr. at 166; Response to MIL 3-8. In an effort to address these concerns, UI evaluated various Project alternatives, including underground designs and modified overhead configurations. Response to MIL 3-12. Ultimately, in response to these visual concerns, UI refined the overhead transmission line configuration along the CTDOT corridor near the downtown Milford area (to be further discussed in Part III.C)

that resulted in decreases to the proposed monopole heights, addition of two structures and the removal of another. June 14, 2022 Tr. at 256-257.

The Company maintains that the Project would not create an adverse visual impact as originally designed but acknowledges that the proposed Project refinements through Option J will further reduce the visual impact of the rebuilt 115-kV lines.

No designated scenic areas are located in the Project vicinity, thus, neither the construction nor the operation of the Project will have adverse effects on recreational uses or scenic areas. Application, Vol. I at 6-20. Although the Project area extends through a variety of community facilities, including daycare centers, schools, group homes, and youth camps, none of these facilities will be directly affected by the Project. *Id.*

6. Cultural (Archaeological and Historic) Resources

The Project is not expected to adversely affect archaeological resources or to directly impact standing historic structures. The rebuilt 115-kV lines will generally be located within or adjacent to the long-established CTDOT corridor. Response to CSC-44.

The Company commissioned Heritage Consultants LLC (“Heritage”) to conduct a cultural resources assessment of the Project area and subsequent archaeological field survey of a portion of the proposed transmission line route. Heritage concluded that even though the Project will not directly impact standing historic structures, there will be indirect visual impacts to standing structures in Milford that are listed on the National Register of Historic Places (“NRHP”)/State Register of Historic Places (“SRHP”). Such indirect effects would stem from views of the taller rebuilt monopoles, compared to the heights of the existing 115-kV lines on the existing railroad catenary structures. *Id.* at 6-22. The

removal of the 115-kV facilities from the catenary structures, a historical resource, however, will have no adverse visual effects to the railroad infrastructure. *Id.*

The visual impact of the monopoles on the SRHP/NRHP sites will vary for each historic property and to an extent, it will depend on intervening vegetation and building structures. Application Vol. I at 6-23; Response to MIL 3-8, 3-9. Heritage and UI have consulted on multiple occasions with the State Historic Preservation Office (“SHPO”) about the Project. SHPO indicated that it recognized the need for the Project and the potential indirect visual effects on the NRHP structures, for this reason, to compensate for these effects, SHPO identified two cultural resource projects in Milford that the Company could undertake to adequately mitigate and resolve the adverse, indirect impacts. Application Vol. I at 6-23. SHPO in a letter dated June 8, 2022 asserted that “it still believes a comprehensive archaeological survey of Charles Island, coupled with interpretive signage, would constitute adequate mitigation [for the Project].” See UI Letter from SHPO dated June 8, 2022 at 2.

Heritage also concluded that the Project would have minimal to no impact on archaeological resources because the Project will be located in areas that have been modified by previous development. *Id.* at 6-23. However, two Project locations, the Milford Cemetery and a proposed access road in the Orange, were identified as areas that could produce intact archaeological deposits. *Id.* at 6-23. Nonetheless, project design measures (i.e., increase span lengths) and an archaeological reconnaissance survey of the access road determined that no significant archaeological impacts at these locations are expected. *Id.* at 6-24. Lastly, although unlikely, UI will include in the Project Development and Management Plan(s), protocols for implementation if unanticipated

cultural resource materials are unearthed during construction within the railroad corridor.
Id.

7. Electric and Magnetic Fields

The potential electric and magnetic fields (“EMF”) impacts of the Project will not pose an undue hazard or conflict with policies of the State. The Project design proposed by the Company will place the transmission lines at strategic locations chosen to minimize EMF impacts to the public and that are consistent with the Council’s EMF Best Management Practices (“BMP”). *Id.* at ES-9; April 28, 2022 Tr. at 88-90. UI commissioned Exponent, a company with specialized expertise in EMF evaluations, to measure and compare the EMF associated with the existing 115-kV lines and the rebuilt 115-kV facilities. Application Vol. I at 7-1. The results of the Exponent analyses showed that compared to existing overall EMF levels on both the north and south sides of the CTDOT corridor, the Project will generally result in a decrease in overall EMF levels. *Id.* at ES-9. The study also revealed that although the relocation of the 115-kV lines will shift the EMF profile to the northern side of the CTDOT corridor, the EMF levels associated with the rebuilt 115-kV lines will be a small fraction of those recommended for the general public by international health-based standards and the Council’s EMF BMP. *Id.* at ES-9, 7-3 to 7-4. Lastly, Exponent also found the Project to be consistent with the Council’s EMF BMP. *Id.* at 7-5.

8. Air Quality and Noise

The Project will have minimal, short-term, and highly localized effects on air quality and noise. Although there will be emissions from construction equipment and vehicles,

including fugitive dust emissions generated during earth-moving and drilling activities, these emissions will be minimal and will not cause any adverse impacts to air quality. *Id.* at 6-27. Further, the Company intends to implement dust control measures such as the use of crushed stone (or equivalent) anti-tracking pads and adhere to anti-idling standards, standard dust minimization practices by suppression along with the adherence to the Project's Stormwater Pollution Control Plan, among others, to further mitigate any air pollution effects. *Id.* at 6-5, 6-27.

Construction activities, including those at the substations, will also result in minor and short-term increases in noise resulting from the movement and operation of construction equipment. *Id.* at 6-28. These impacts will only be temporary and localized, - concentrated to the immediate vicinity of the work sites and only for the duration of such activities - and are not expected to cause any long-term change to the surrounding environment. *Id.* Most importantly, all construction activities will be at or adjacent to the CTDOT railroad corridor or UI owned facilities, near major highways and in urban/suburban areas, therefore, any noise associated with these activities will be minimal in comparison to the background noise environment. *Id.* Nonetheless, the Company will coordinate the construction schedule with the affected municipalities to ensure that construction activities are in compliance with local noise ordinances. Lastly, the rebuilt lines will utilize larger conductors or a bundled conductor that have a lower potential to create audible noise, compared to a smaller conductor. April 28, 2022 Tr. at 35 - 36.

C. Option J is the Best Alternative

1. Overview of the Option J Design

During the June 14, 2022 hearing, the Company presented a refined design of the Project, introduced as the “Option J” Project alternative. The Option J design refines the phase spacing and reduces the heights of certain new monopoles planned for location along the north side of the CTDOT corridor near the downtown Milford area. June 14, 2022 Tr. at 256. Specifically, Option J:

- Reduces heights for the structures from P904N to P916N by a range of five (5) to twenty (25) feet;
- Adds two monopoles (P907N and P909N);
- Removes the tallest pole in the vicinity (P915N);
- Installs Anti-Galloping Devices in the span between P914N and P916N in order to remove P915N; and
- Shifts structure P908N by approximately 135 feet west.

June 14, 2022 Tr. at 256-257; Exhibit LF-6-1 at 48. Other than the aforementioned alterations, this alternative has the same components as “Option A” with an overhead configuration primarily on the north side of the tracks between Milvon Substation to West River Substation. Exhibit LF-6-1 at 45. For this reason, the incorporation of these design Project alterations is not expected to result in any significant changes to the Company’s environmental assessment of the Project. That is, Option J will not have any significant permanent adverse effects on the environment or pose an undue hazard.

2. Milford Supports the Implementation of the Option J Design

As previously discussed, the development of the Option J Project design was triggered in response to issues raised by Milford representatives concerning the Project’s

potential aesthetic effects on the visual environment in the Milford downtown area. June 14, 2022 Tr. at 264. The City, through its City Planner, Mr. David Sulkis, indicated during the last evidentiary hearing for the proceeding that it supported UI's implementation of Option J.

Mr. McDermott: ... I have a question for Mr. Sulkis ... am I correct that your testimony is that the city's preferred option is Option J as discussed at the onset of the hearing today?

The Witness (Sulkis): That would be correct. *Id.* at 315.

Additionally, and as further discussed in Parts III.C.3 and 4, Option J balances competing interests - Project costs and the Project's environmental/cultural/social impacts - to achieve the Project objective of maintaining the reliability of the regional transmission system. Thus, Option J exemplifies the Project alternative contemplated in response to Interrogatory MIL 1-11. Response to MIL 1-11.

3. Option J Minimizes Visual Impacts and Impacts to Cultural Resources in Downtown Milford

Heritage's cultural resources assessment of the Project and archaeological survey of the Project site indicated that the Project would have indirect (visual) impacts to NRHP/SRHP-listed districts structures located in Milford because of the height of the rebuilt transmission line. Application Vol. I at 6-22. By reducing the height of seven monopoles and removing the previously planned tallest monopole (P915N) in this area, Option J will minimize the visual impact to these historic structures. June 14, 2022 Tr. at 256-257.

As shown on the route maps for Option J, "UI 115-kV RR Project Milvon to West River Option J - OH Reduced Str. Heights," all the monopoles with reduced heights will be located within approximately 0.15 mile of the NRHP/SRHP structures and other

historic properties of concern in the downtown Milford area, including but not limited to Academy of Our Lady of Mercy, Lauralton Hall, Milford Historic District No. 2 South of the Green and Taylor Memorial Library. Exhibit LF-6 at 45-48; Response to MIL 3-4, MIL 3-8; June 14, 2022 Tr. at 311. Thus, Option J will undoubtedly minimize visual impacts and impacts to cultural resources, including those of particular concern to the City, in downtown Milford.

4. Option J will Provide the Desired Benefits in a Cost-Effective Manner

Although Option J will increase the estimated Project costs by approximately \$350,000 in comparison to Option A, it is still the most cost-effective alternative that will not result in any adverse environmental impacts or pose an undue hazard, and most importantly, it also addresses the City's concerns regarding the visual aesthetics of the Project. Exhibit LF-6-1. As previously discussed, Project alternatives involving an underground design for all or portions of the rebuilt 115-kV lines were considered as a means to mitigate visual impacts. However, a cost analysis of these alternatives. "Option E" through "Option I," revealed that an underground design would increase the total Project cost significantly - by \$69.4 million to \$1.3 billion, in comparison to Option A. Exhibit LF-6-1.

Because any incremental Project costs over the least costly alternative would be paid solely by Connecticut ratepayers, as opposed to being regionalized, an underground design would also result in a significant burden to Connecticut ratepayers. June 14, 2022 Tr. at 284. Consequently, Option J is the only alternative that balances competing interests - costs and environmental/visual impacts - while ensuring that the Project's objective is met.

5. Other Options are not Practical or Feasible

In addition to cost concerns, there are other reasons why the other Project alternatives are neither practicable nor feasible. For example, undergrounding has a greater likelihood of encountering unknown archeological resources and CTDOT has indicated that no longitudinal underground utilities are permitted in the CTDOT railroad corridor. June 14, 2022 Tr. at 266; Application Vol. I at 6-24. Further, underground construction would face greater schedule restrictions and would have to be carefully coordinated around CTDOT/MNR railroad projects or scheduled maintenance of the tracks. Therefore, in addition to being cost-prohibitive and increasing the duration of the Project, there are technical and environmental concerns with the underground options, Options E through I.

The options that propose that the 115-kV lines be shifted to the south side of the railroad corridor, “Options B and D”, face greater design constraints and complications that could possibly prevent construction of the Project. “... the CT DOT corridor appears to be much narrower on the south side than on the north side. There are locations where, there are two locations in particular where we don't believe we can place poles within 1,000 feet of each other... At that length we get into designs a lot more complex.” June 14, 2022 Tr. 289-290. Thus, in addition to the incremental costs, estimated to be between \$11.7 to \$ 44.8 million, Options B and D are not practicable or feasible. Exhibit LF-6-1.

That leaves Option C, which although preferable to the above options, it does not minimize visual impacts to the same extent as Option J. Option C requires three additional monopoles, instead of one, reduces the height of six instead of seven

monopoles, and monopole height reductions are not comparable to those proposed in Option J. Exhibit LF-6-1 at 13. Thus, for the above reasons, of all the options considered, Option J is the most cost-effective, feasible and practicable alternative considered.

IV. CONCLUSION

The record demonstrates that the Project complies with all applicable statutes, regulations and Council's guidance documents. There is a public need for this Project and the proposed location of the rebuilt 115-kV lines and the effects associated with the construction, operation and maintenance of the Project, including electromagnetic fields which will not pose an undue hazard to person or property, are not in conflict with the policies of the State concerning such effects and are not sufficient reason to deny the Application. Further, the Project design now proposed by UI (Option J) is the most cost-effective, compliant and practicable Project alternative identified by the Company that addresses concerns with the visual aesthetics of the Project. For the foregoing reasons, the Company respectfully requests that the Council approve UI's Application by granting a Certificate for the Project.

Respectfully submitted,

The United Illuminating Company



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