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August 26, 2022

Melanie A. Bachman, Esq.
Executive Director
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10 Franklin Square
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Re: Docket No. 3B - The United Illuminating Company Amended Certificate of Environmental Compatibility and Public Need for Replacement of a Portion of the Existing Derby – Shelton 115-kV Electric Transmission Line Facility

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 hand delivered to the Council today.

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

Very truly yours,

Bruce L. McDermott

Enclosures

cc: Service List

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

The United Illuminating Company Amended Certificate of Environmental Compatibility and Public Need for replacement of a portion of the existing Derby – Shelton 115-kV electric transmission line facility. Reopening of this Certificate based on changed conditions pursuant to Connecticut General Statutes §4-181a(b)	:	Docket No. 3B
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POST-HEARING BRIEF OF
THE UNITED ILLUMINATING COMPANY

I. INTRODUCTION AND SUMMARY

On May 13, 2022, pursuant to Conn. Gen. Stat. § 4-181a(b), The United Illuminating Company ("UI" or the "Company") filed a motion to reopen Docket No. 3 and modify, based on changed conditions, the July 16, 1974 Decision and Order (the "1974 Decision") and the Council's December 8, 1976 final decision in Docket No. 3A. The 1974 Decision approved the replacement of approximately 2,800 feet of UI's Derby-Shelton 115-kilovolt ("kV") electric transmission lines between the former Derby Substation and Transmission Structure No. 359 (the "Facility"), the construction of a 3,400-foot temporary wood pole transmission line and granted a Certificate of Environmental Compatibility and Public Need ("Certificate") to the Company. On June 9, 2022, the Council granted the motion to reopen Docket Nos. 3 and 3A to consider modifications to the existing 115-kV lines and initiated the instant proceeding.

The UI transmission lines that are the subject of the motion consist of three overhead 115-kV circuits that are located within an existing UI right-of-way ("ROW") extending approximately 4.1 miles from Derby Junction in the City of Shelton (Fairfield County), across the Housatonic River to Indian Well Substation in the City of Derby,

through portions of Derby and the City of Ansonia, to UI's existing Ansonia Substation in Ansonia (New Haven County). These 115-kV circuits provide critical connections to both Indian Well and Ansonia substations, which are located at the edge of UI's transmission system and serve approximately 26,400 customers in the Shelton, Derby, and Ansonia areas.

The infrastructure that supports the existing 115-kV circuits, including double-circuit lattice steel towers, is almost 100 years old. Given the age of the transmission infrastructure, UI conducted detailed inspections and engineering studies of the 115-kV facilities. These studies found that all three of the circuits must be rebuilt in order to continue to provide critical and reliable electric service to the Lower Naugatuck Valley area, in conformance with National Electrical Safety Code ("NESC") criteria. Accordingly, the Company proposes to rebuild the 115-kV lines, install new monopoles, conductors, insulators and related hardware; interconnect the rebuilt circuits to Derby Junction, Indian Well Substation, and Ansonia Substation, and dismantle and remove the existing 115-kV structures, conductors, insulators, hardware, and structure foundations (collectively, the "Project"). The Project will interconnect the rebuilt 115-kV lines to The Connecticut Light and Power Company dba Eversource Energy ("Eversource") transmission system at Derby Junction and will require minor modifications within both Indian Well and Ansonia substations to link the rebuilt 115-kV lines.

Because the existing transmission line infrastructure was installed in 1924, the existing transmission line ROW varies in width, generally from 50 to 80 feet, with some areas of undefined width. As part of the Project, UI will establish a defined ROW width in locations where the permanent easement is presently unspecified and will expand the

width of the existing ROW as necessary to align the new transmission line structures such that the distance from the conductors adheres to NESC blowout clearance and UI vegetation management requirements. Generally, UI proposes an approximately 80-foot-wide ROW, although the ROW must be wider in some areas.

UI designed the Project to avoid or minimize adverse environmental and social impacts to the extent practical and will continue to coordinate with federal, state and local agencies, as well as Eversource, the planning and construction of the Project. Because the rebuilt 115-kV lines will continue to be located along UI's long-established ROW in Shelton, Derby and Ansonia, the Project will be consistent with federal policy for the siting of linear energy transmission facilities.[1]

Prior to identifying the preferred solution for improving the reliability of the transmission grid in the lower Naugatuck Valley area, the Company identified and evaluated various Project alternatives, including a "No Action" alternative, an all underground configuration, a partial rebuild of the overhead lines, and different structure locations and configurations. Further, because the existing 115-kV circuits extend for approximately 1,465 feet across a portion of Osbornedale State Park in Derby and Ansonia, UI also considered various route and configuration options for rebuilding the lines within or avoiding the state park entirely. Osbornedale State Park is managed by the Connecticut Department of Energy and Environmental Protection ("DEEP"), with whom UI has consulted about the Project.

[1] Federal Energy Regulatory Commission's *Guidelines for the Protection of Natural, Historic, Scenic, and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities*. Federal Power Commission, Order No. 414, Appendix A, Docket No. R-365 (November 27, 1970). OSPRM at 9-23, Footnote 59.

After analyzing the various alternatives, including the Osbornedale State Park options, the Company determined that the proposed Project is preferred. The Project, including the complete rebuild of the 115-kV lines in an overhead configuration on new monopoles aligned along UI's ROW with a 60 feet expansion of the existing ROW across Osbornedale State Park,[2] represents the most cost-effective solution for achieving the objectives of the Project while minimizing environmental impacts.

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

II. DESCRIPTION OF THE PROJECT

The Project primarily consists of rebuilding the three existing 115-kV overhead transmission circuits that extend east from Derby Junction in the City of Shelton, through Indian Well Substation in the City of Derby to Ansonia Substation in the City of Ansonia,[3] specifically, replacing the aging legacy lattice steel towers with new modern steel monopole structures, along with new conductors, optical groundwire ("OPGW"), overhead shield wire ("OHSW"), and other related hardware. Overview in Support of the Motion to Reopen and Modify Docket No. 3 ("OSPRM") at 1-1. UI anticipates needing 40 new self-supporting galvanized steel monopoles, which will include 26 double-circuit monopoles, 13 single-circuit monopoles and one single-circuit H-frame structure, to

[2] In May 2022, the Company submitted an *Application for Review of Land Management Request on State-Owned Land or Water* DEEP requesting an easement expansion in Osbornedale State Park and subsequently has been actively coordinating with DEEP regarding such application.

[3] Along the 4.1-mile ROW, UI's three 115-kV lines are arranged in a double-circuit configuration. The 1560-3 Line extends along the length of the 4.1-mile ROW from Derby Junction to Ansonia Substation. The 1808-2 Line and the 1594 Line are co-located with the 1560-3 Line, with the 1808-2 Line extending for approximately 1.5 miles from Derby Junction to Indian Well Substation and the 1594 Line traversing for about 2.6 miles from Indian Well Substation to Ansonia Substation. OSPRM at 1-3.

rebuild the 115-kV lines.[4] The Company considered the accommodation of multiple angles along UI's ROW, clearance requirements, ROW topography and other constructability constraints when designing and selecting the configuration of the new monopoles. OSPRM at 2-2; Exhibit CSC 1-15-1. This resulted in a configuration that combines single-circuit and double-circuit monopoles to accommodate the previously discussed design and construction challenges, as well as to build the lines in conformance with the current NESC and UI standards. OSPRM at 2-1, 3-18.

Additionally, because the transmission lines provide critical electric service to customers in the Shelton-Ansonia area, one of the existing 115-kV lines must remain in service at all times during Project construction. OSPRM at 9-22. For this reason, at locations where the ROW is characterized by steep topography, line angles and other factors that complicate the installation of the rebuilt 115-kV structures, the Company will utilize temporary structures to avoid a dual-circuit outage and in this manner, be able to replace existing double-circuit lattice steel towers with double-circuit monopoles.[5] OSPRM at 9-22; Exhibit CSC 1-15-1. Further, to adhere to NESC blowout clearance and UI vegetation management requirements when aligning the new transmission line structures, the Company will acquire easements from property owners abutting the

[4] The Company originally anticipated that the 115-kV transmission line rebuild work would require 41 new self-supporting galvanized steel monopoles (25 double-circuit monopoles, 15 single-circuit monopoles and one single-circuit H-frame structure). OSPRM at 1-5. However, UI later determined that it was feasible to install a double-circuit monopole instead of two single-circuit monopoles at Structure 4 (in Derby), thereby, changing the monopole count. Response CSC 1-15. It should be noted that the changes to the design of Structure 4 will not result in any adverse environmental impacts, including to Electric and Magnetic Field levels. Exhibit CSC 1-15-1.

[5] At this time, UI anticipates that temporary structures will only be needed for the installation of double-circuit monopoles at Structure 4 in Derby. Response to CSC 1-15. Double-circuit monopoles, installed using temporary structures, is not practical at Structures 3, 17, 18, and 19. *Id*.

existing ROW, including DEEP, to expand the ROW width as necessary. OSPRM at 2-6 to 2-7.

The new 115-kV structures will generally be taller than the existing structures with heights in the range of 75 feet to 135 feet above ground level, except for the structures on either side of the Housatonic River at approximately 170 feet above ground level. *Id*. at 6-18. Span lengths will vary along the Project route, but typically will range from approximately 325 feet to 963 feet, depending on terrain, except between the new structures near Indian Well Substation (at approximately 153 feet - the shortest span) and the Housatonic River span (at approximately 1,742 feet - the longest span). *Id*. at 2-5.

The rebuilt 115-kV lines will be interconnected to Eversource's transmission system at Derby Junction and UI's existing Indian Well and Ansonia substations. UI does not propose any modifications at Derby Junction other than connecting the rebuilt lines and removing the existing UI 115-kV line connections. *Id*. at 2-6. At the Indian Well and Ansonia substations, UI proposes modifications within each station fence to link the rebuilt 115-kV lines to the substations; in addition, the Company will install single-circuit monopoles directly outside each substation to align the phases of the circuits to the existing line terminal switches and will modify hardware on existing line termination structures to accommodate the larger 795 kcmil conductor size, as well as the new OPGW. *Id*. at 2-6; Response to CSC 1-11.

Generally, the existing transmission line structures will be dismantled and removed after one of the rebuilt lines is placed in service. *Id*. at 3-12. After dismantlement, the existing 115-kV structures and associated hardware will be recycled, repurposed or otherwise properly disposed, as applicable. *Id*. at 3-11, 3-13.

Pending the Council's approval, UI anticipates that Project construction will commence in 2023 and that all three rebuilt 115-kV lines will be in service by the end of 2024. *Id*. at 4-1. After the installation of the new structures, 115-kV conductors, OPGW and OHSW is completed and by no later than 2025, the Company will restore, to the extent practical, the areas disturbed by construction, including the access roads and work pads along the ROW. *Id*. Construction of the Project will be in a sequential order, structured to ensure that at least one of the 115-kV lines between Derby Junction and Ansonia Substation remains energized at all times, as required to maintain critical electrical service to Indian Well and Ansonia substation and thus to customers in the Lower Naugatuck Valley area. *Id*. at 3-2. Construction activities at Derby Junction will be coordinated with Eversource, and if needed, scheduled around Eversource's Stevenson to Pootatuck transmission lines rebuild project (Petition No. 1527). Response to CSC1-4; July 28, 2022 Transcript ("Tr.") at 66, 68-69.

The Project transmission facilities are expected to have a minimum service life of approximately 40 years. OSPRM at 2-9. The estimated capital cost for the siting, design, and construction of the Project is approximately $57.2 million. OSPRM at 2-9; Response to CSC 1-16.

III. DISCUSSION

Pursuant to Conn. Gen. Stat. §§ 4-181a(b) and 16-50p(a)(3), the Council may modify the final decisions in Docket Nos. 3 and 3A and grant an amended Certificate, if it finds that there is a public need for the Project, the proposed location of the electric transmission lines would not pose an undue hazard to persons or property along the area traversed by the lines and the effects associated with the proposed modifications to the

previously approved electric transmission line facilities, including 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 when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the motion to reopen and modify the Council's January 16, 1974 and December 8, 1976 final decisions to issue the Company a Certificate.

A. There is a Public Need for the Project

The Project is needed for UI to continue to be able to deliver reliable and critical electrical service to its customers in the lower Naugatuck Valley area. The infrastructure that supports the existing 115-kV lines is almost 100 years old and starting to deteriorate. *Id*. at ES-1. In 1924, the Derby Gas and Electric Company built the lattice steel towers that support the existing lines. *Id*. at 1-3. At the time, the lines operated at 13.8 kV, but were subsequently upgraded to 69 kV in the 1930s and to 115 kV in the late 1960s. *Id*. In 1969, UI purchased the 115-kV lines from the Derby Gas and Electric Company and has been operating them ever since. *Id*. Except for some minor repairs to the structure foundation that were completed in the late 2000s and the upgrades from 69 kV to 115 kV, UI has not made any other repairs or upgrades to the lines. *Id*. Consequently, the conductors, overhead shield wire ("OSHW") and insulators on the 115-kV lines have been in service for at least 50 years, with some components having been in service for almost a century. *Id*. at 1-4.

Over the past decade, the Company has conducted asset condition studies, in which it inspected and analyzed the 115-kV lines. *Id*. at 1-5. These studies revealed that

the 115-kV lines need to be reconductored and reinsulated due to electrical insulation failures and copper conductors being at the end of their useful life. *Id*. However, because the aging and deteriorating existing transmission line structures[6] cannot support the mechanical loading associated with new conductors, new OSHW, and added OPGW, while adhering to applicable electrical standards and NESC conductor clearance requirements, UI concluded that the 115-kV must be entirely rebuilt with new structures and hardware components. *Id*. The combination of aging hardware and conductors and aging/deteriorating transmission structures could lead to structural failures that would result in extended duration power outages. *Id*. at 9-2. These outages not only would adversely affect service to UI's customers but would also put in jeopardy the integrity of the regional electrical transmission system. *Id*. 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 1-7. Additionally, construction of this Project would be 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 1-2. Therefore, based on the foregoing, the Project fulfills a clear public need, it is needed to maintain the New England region's electric

[6] "UI's detailed engineering studies, which were performed in 2020-2021, concluded that 80% (29) of the 36 transmission structures had deficiencies, such as structure foundation spalling, anchor-bolt/plate galvanic corrosion, failed concrete breakout tests, structural member failures, or inadequate shieldwire support." OSPRM at 1-5.

transmission system reliability and UI's ability to continue to provide critical electrical service to its customers in Derby, Shelton and Ansonia.

B. The Proposed Modifications to the 115-kV Lines 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 motion to reopen and supporting documents 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 Company's motion to reopen and modify the Council's final decisions in Docket Nos. 3 and 3A.

1. Public Safety and Security (including Lighting)

The Project will not present any public safety and/or security concerns. The Project has been designed in accordance with sound engineering practices and the Council's White Paper on the Security of Siting Energy Facilities, initially adopted in Docket No. 346. *Id*. at 3-18 to 3-20. In addition, the rebuilt 115-kV lines will be constructed, operated, monitored and maintained in conformance with UI standards and procedures, required industry standards and good utility practice. *Id*. at 3-18. This includes utilizing the Company's protecting relaying equipment, which is capable of automatically detecting abnormal system conditions and isolating the faulted section of

the transmission system, as well as a Supervisory Control and Data Acquisition system, to remotely control and monitor the 115-kV lines at all times. *Id.* at 3-18 to 3-19.

The lines and substations will be properly secured and/or inaccessible to the public. The rebuilt 115-kV lines will be located in a densely developed urban/suburban areas, where it will be easier to detect and deter any out of the norm activity in a timely manner. *Id*. at 3-20. Also, because the new monopoles will be taller than the existing structures, the lines will be even less accessible to unauthorized personnel than the existing transmission lines. *Id*. The Indian Well and Ansonia substations are gated and equipped with appropriate lighting for safety and security purposes. *Id*. at 3-19. The perimeter of each substation is entirely enclosed with a 14-foot high chain-link fence topped with approximately one foot of barbed wire to discourage unauthorized entry and vandalism. *Id*. UI will restrict access to the substations during Project construction and after the Project is completed, the gates will be closed to the public. *Id*.

The Company anticipates that there will some minor and short-term effects to vehicular traffic on the local roads leading to Project work sites, including some possible temporary lane/road closures and detours in certain locations. *Id*. at 6-20. To the extent practical, UI will schedule work to minimize potential impacts to traffic patterns and when needed, coordinate with municipalities and the Connecticut Department of Transportation ("CTDOT") to ensure that appropriate signage is erected, and that flaggers or police are on-site to direct traffic. *Id*. Construction and operation of the Project will not affect any existing municipal utilities. Nonetheless, UI will design the Project to avoid impacts to existing utilities and will relocate, as needed, existing infrastructure outside of construction zones. *Id*. at 6-21.

Lastly, despite not being required by the Federal Aviation Administration for this particular Project, across the Housatonic River, UI will install unlighted marker balls on the topmost OHSWs of the rebuilt 115-kV lines, thereby making the wires more conspicuous to any low flying aircraft along the river. OSPRM at 6-20, Footnote 37; Response to CSC 1-28.

2. Water Resources, Water Quality and Water Supply

The Project will not result in any adverse effects to water resources, water quality and water supply. Although UI does not propose to construct any new 115-kV structures in wetlands or watercourses, the Project will cause certain temporary and limited permanent impacts to wetlands and watercourses. OSPRM at 6-6. The installation of access roads and work pads across wetlands and streams, specifically in four wetlands and four watercourses in Shelton, will result in temporary wetland and watercourse impacts. *Id*. at 6-6 to 6-7. UI also expects permanent impacts in wetland "W4," as a result of the construction of a permanent access road. *Id*. at 6-6. The Company is planning to establish a permanent access road to Structures 355 through 357 that will require the installation of two permanent culverts to cross a small intermittent stream "WC2" and thereby, affect wetland W4. *Id*. In addition, and as further discussed in the next section, the Project will require approximately 0.01 acre of forested wetland vegetation clearing to conduct construction activities and to maintain safe distances between vegetation and transmission line conductors. *Id*. at 6-7. This proposed clearing will not result in a loss of wetland habitat but will convert the wetland vegetation from forested to scrub-shrub and emergent. *Id*.

To the extent possible, UI will utilize best management practices to avoid or minimize potential adverse effects to water resources. *Id*. at 6-7. These practices include the installation of erosion and sedimentation controls along access roads and around work pads to limit the potential for erosion and sedimentation outside designated construction work areas, the use of anti-tracking pads and dust control measures to minimize the potential for the deposition of soils disturbed by Project activities into wetlands and streams, and the implementation of petroleum product management procedures to avoid or minimize the potential for spills into water resources, among others. *Id*. at 6-7 to 6-8.

UI anticipates that groundwater will be encountered during the excavation of certain structure foundations. *Id*. at 6-9. Groundwater encountered during construction of the 115-kV lines will be dewatered in accordance with the procedures defined in the Stormwater Pollution Control Plan and Materials Management Plan, and discharged to sewers and/or surface waters, with treatment if required, disposed off-site, or managed in any other way that meets the applicable regulatory requirements. *Id*.

Lastly, the rebuilt 115-kV lines will cross FEMA-designated 100- and 500-year flood zones associated with the Housatonic River and a portion of the Naugatuck River flood area. *Id*. No new permanent access roads will be located in any 100- or 500-year floodplains. *Id*. UI proposes to replace the existing structures within the aforementioned floodplains with new monopoles, including the installation of an additional structure that will be required for the rebuilt 115-kV line entry to Indian Well Substation. *Id*. The installation of the new monopoles in the Housatonic River floodplain will result in the displacement of floodplain storage capacity. *Id*. at 6-10. The displacement though will

be insignificant compared to the total drainage area and flood storage capacity of the Housatonic River. *Id*. For this reason, the Project will not have any adverse effects on flood dynamics and will not alter the floodplains or increase the likelihood of flooding. *Id*.

3. Biological Resources

The Project will result in minor and localized effects on vegetative communities and wildlife, and it is not anticipated to affect any fishery resources. Short- and long-term impacts to the vegetative communities along the existing and expanded ROW are expected on account of vegetation clearing that is needed for construction of the Project, e.g., in access roads, work pads, conductor clearance zones, etc., and to maintain low-growth vegetative communities near the 115-kV lines, consistent with industry standards. *Id*. at 6-11. UI will coordinate any required vegetation clearing with local tree wardens, other community officials and affected landowners to the extent possible. Response to CSC 1-25. The conversion of forest to shrubland, open field or old field vegetation along the ROW will modify habitat. *Id*. at 6-12. However, this change in habitat will not necessarily be detrimental because the creation of additional shrubland will benefit many species that have been affected by the recent decline in shrubland habitat along the New England region. *Id*. Thus, the long-term impacts on vegetative communities will not be adverse. Upon completion of Project construction, the Company will continue to manage the ROW in accordance with the procedures of its established vegetation management program, which seeks to maintain safe access to the transmission facilities and promote the growth of vegetative communities along ROWs that are compatible with transmission line operation. *Id*. at 6-12; Response to CSC 1-9, CSC 1-23.

In connection with the removal of vegetation within the construction footprint, other temporary and permanent impacts to the wildlife habitat along the ROW are expected as well. However, these temporary impacts on wildlife habitat will not be significant because they will be localized and will be offset by the availability of comparable nearby undisturbed habitats. *Id*. at 6-13. Additionally, as previously discussed, the long-term management of the ROW in low-growth vegetation will benefit certain wildlife species that use shrublands by providing additional habitat for those species. *Id*. Consequently, while the wildlife species utilizing the ROW might be expected to slightly change, the ROW will continue to provide a diverse wildlife habitat. *Id*.

The Project could also temporarily displace birds and other species from portions of the ROW and nearby areas, due to noise and other construction-related disturbances to their habitats; however, UI expects that after construction is completed, avian utilization of the Project area will resume to pre-construction levels. *Id*. The Company consulted with DEEP's Natural Diversity Database ("NDDB") and U.S. Fish and Wildlife Service ("USFWS") to identify the Federally- and State-listed species that may be present in the Project vicinity. *Id*. at 5-17. Four species, two state-listed and two federally-listed species, were identified to potentially inhabiting the general Project area. *Id*. UI will implement some of the measures recommended by DEEP's NDDB[7] and any other measures identified during future agency consultations to prevent significant adverse effects to the referenced species. *Id*. at 6-14 to 6-15. To that end, consistent with DEEP's NDDB recommendations, the Company will, to the extent possible, schedule construction

[7] "The USFWS recommended that consultations regarding [the Northern Long-Eared Bat] be coordinated through CT DEEP." OSPRM at 6-15. The other identified species is the Monarch Butterfly, which at this time is a candidate species under consideration for listing but has yet to be classified a Federally-listed Species. *Id*. at 5-17. Furthermore, a critical habitat for this species has not been listed. *Id*.

activities to times of the year that will minimize or prevent disruptions and/or adverse effects to the species' roosting and nesting periods. July 28, 2022 Tr. at 25; Response to CSC 1-26; OSPRM at 6-15 to 6-16. UI is also willing to consider employing best management practices to deter bird perching and nesting on the rebuilt transmission line structures, if needed, and enhance the habitat value of the ROW through the planting of beneficial vegetative species in the ROW. Response to CSC 1-24, CSC 1-27; Department of Energy and Environmental Protection Comments, July 21, 2022; July 28, 2022 Tr. at 48-50.

The Project will not affect any fishery resources because no work is anticipated within the Housatonic River, the only waterbody containing fisheries, and none of the small streams located along the ROW support fish populations. OSPRM at 6-13. Further, because of the placement of the new conductors – well above the river - no vegetation removal or tree-trimming in the riparian areas adjacent to the river will be required. *Id*. In addition, access roads across small streams along the ROW will be designed to the extent practical to avoid or minimize direct disturbance to stream banks and substrates, and stream bank vegetation within a 25-foot wide area adjacent to watercourses will be maintained, where possible. *Id*. at 6-14.

4. Coastal Resources

Although the entire Project area in Shelton is within a designated coastal management area, the Project will not affect any coastal resources or uses. *Id*. at 5-24, 6-17. The reason being that in Shelton, the ROW extends across predominantly upland areas and the existing 115-kV lines span the freshwater portion of the Housatonic River, north of the Ousatonic Dam, which demarcates the boundary between the freshwater and

tidally-influenced segment of the river. OSPRM at 5-24; Response to CSC 1-20. Further, rebuilt Structure No. 359, near the Housatonic River in Shelton, will be located in an upland area, west of The Housatonic Railroad Company tracks. OSPRM at 6-17.

5. Land Use, Recreation and Community Facilities

The rebuilt 115-kV lines will continue to be located along UI's ROW, which has served as a linear electric transmission corridor since it was established in 1924 and pre-dates most of the adjacent land uses. *Id*. at 6-16. However, to expand the ROW to accommodate the rebuilt 115-kV wires, blowout, and vegetation removal in accordance with current electric transmission clearances, the Company must acquire additional easement. *Id*. Specifically, UI proposes to acquire 9.9 acres of new permanent easements from the owners of certain properties that abut the ROW. *Id*. The Company will coordinate with affected landowners as needed. *Id*. Additionally, UI will restrict future land uses within the expanded ROW to those compatible with overhead transmission line operation to minimize impacts and to ensure the long-established utility use of the ROW is preserved. *Id.*

The Project area will extend through a well-developed urban/suburban area that includes a variety of community facilities and recreational areas. *Id.* at 6-17. UI does not expect any permanent impacts to these buildings or areas, but the Project will traverse certain recreational areas and designated municipal open space, and during construction will temporarily affect the parking lot for the Derby/Ansonia Dog Park. *Id*. To avoid potential impacts to these locations, the Company will coordinate with the Connecticut Forest & Park Association and the municipalities to identify and implement appropriate

mitigation measures, which may include the use of temporary construction fencing as well as warning signs, among others. *Id*.

Lastly, the Project will include an expansion of the existing 1,465-foot-long ROW segment in Osbornedale State Park. *Id*. UI is coordinating with DEEP regarding the ROW expansion within the state park. The existing and proposed expanded ROW traverse an undeveloped portion of the park and, as a result, the Project will not adversely affect any of the park's designated recreational use areas. *Id*. To the contrary, the Project would remove two of the three existing 115-kV lattice steel towers (Structures 10 and 12) that presently occupy the ROW within the park. *Id*. Consequently, the rebuilt 115-kV lines will not cause distinctive changes to the existing landscape and the Project will be consistent with the long-established utility use of the ROW.

6. Visual and Aesthetic Characteristics

The Project will not result in significant adverse effects on the visual environment. Despite the fact that the heights of the proposed monopoles (on which the 115-kV lines will be rebuilt) will be taller than the existing structures, the new structures will be aligned within UI's long-established ROW between Derby Junction and Ansonia Substation. For this reason, 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 in the vicinity of the transmission lines. OSPRM at 6-18; July 28, 2022 Tr. at 21-24.

UI completed a visual assessment of the Project utilizing a combination of three-dimensional computer modeling and field evaluations, as well as viewshed analysis mapping and photo-simulations portraying scaled renderings of the proposed rebuilt 115-kV structures. OSPRM at 6-17 to 6-18. The visual assessment revealed that the

general zone of visibility associated with the 115-kV lines will not change substantially as a result of the Project, but the characteristics of several views will change, as a result of the modified structure types and heights. OSPRM at 6-18; July 28, 2022 Tr. at 23. Particularly, in areas where residences are located near the ROW and in direct line of sight to the 115-kV lines, the new structures may represent more or less prominent features on the landscape, depending on their specific locations. OSPRM at 6-18.

Lastly, the Project is not near any designated national scenic areas, National Heritage Corridors, State heritage areas or locally-designated scenic roads, thus, neither the construction nor the operation of the Project will have adverse effects on recreational uses or scenic areas. *Id*. at 5-26.

7. Cultural (Archaeological and Historic) Resources

The Project is not expected to adversely affect any known cultural (archaeological or historic) resources. The Company commissioned Heritage Consultants LLC ("Heritage") to conduct a Phase IA cultural resources assessment survey of the Project area, which encompasses a review of various data related to the Project ROW and its immediate surroundings, including historical mapping and previously identified archaeological sites and National Register of Historic Places/State Register of Historic Places (NRHP/SRHP)-listed properties. *Id*. The survey revealed that there are no previously identified archaeological sites or NRHP/SRHP properties or districts located within or in close proximity to the Project ROW. *Id*. Additionally, because of past land use developments and unfavorable topography, Heritage determined that most of the existing ROW has little to no potential for yielding undiscovered cultural deposits. However, Heritage's initial research found that the western portion of the ROW (between

Structures 350 and 356 in Shelton), could potentially yield intact cultural deposits. *Id*. At 6-19. For this reason, in this area, Heritage recommended that ground disturbances be avoided and if not possible, that UI utilize best management practices, e.g., use of timber mats to construct access roads/work pads, to minimize the potential for ground disturbances. *Id*.

To determine the actual archaeological sensitivity of the portion of the ROW between Structures 350 and 356, UI subsequently commissioned Heritage to perform a Phase 1B survey of this area. Heritage's field investigations found no cultural resource materials. The results of the Phase 1A and Phase 1B studies were provided to the State Historic Preservation Office ("SHPO") in September 2021 and April 2022, respectively. Response to CSC 1-21. SHPO reviewed the results of the Phase IA and 1B surveys and in a letter dated July 26, 2022, the office indicated that it concurs with the findings of the surveys - that no additional archeological investigations of the Project area are warranted and that the Project will have no adverse effect to historic resources. Certificate Holder's Letter from SHPO, July 26, 2022.

Based on Heritage's analyses, the long-term use of the ROW for electric transmission purposes, as well as the varied topography and urban/suburban land use development in the Project area, the Company does not expect to encounter any undocumented buried archaeological materials when grading access road or excavating structure foundations. OSPRM at 6-19. Nevertheless, in the unlikely event such buried cultural deposits are unearthed during construction, UI will include in the Project Development and Management Plan protocols for such situations. *Id*.

8. Air Quality and Noise

The Project will not result in any adverse impacts to air quality and noise. However, there will be short-term and localized effects on air quality, caused by air emissions from construction equipment and vehicles, as well as fugitive dust emissions from earth-moving and drilling activities. *Id*. at 6-21. The Company will mitigate these impacts by requiring Project contractors to properly maintain equipment and adhere to Connecticut's anti-idling regulatory requirements, install crushed stone or equivalent anti-tracking pads at construction access points to minimize tracking of dirt from construction areas onto paved roads, and will control dust emissions by applying water or equivalent approved substances to exposed soils on work sites. *Id*. Lastly, UI will develop and adhere to strict protocols for dismantling the existing steel lattice structures, including retaining an independent environmental health and safety contractor to monitor the structure removals, that will ensure any potential air emissions resulting from structure dismantling will be properly controlled. *Id*. at 3-17.

Construction activities, such as the operation of heavy equipment (jackhammers, drilling rigs, canes, etc.) and excavation work, will also result in localized, short-term increases in noise. *Id*. at 6-22. The noise impact will vary depending on the location, type of work being performed, and duration of the activities. *Id*. For this reason, lower impacts are expected in commercial and industrial zones where the sound environment is influenced by traffic and manufacturing activities, among others, in comparison to residential areas. *Id*. Nonetheless, the Project will comply with state noise standards and the applicable local noise control ordinances, and UI will keep the affected municipalities apprised of the Project schedule. OSPRM at 6-22; July 28, 2022 Tr. at 24-25. Further,

no noise-producing equipment is expected to be installed at the Indian Well or Ansonia substations. OSPRM at 6-22.

9. Electric and Magnetic Field

The potential electric and magnetic fields ("EMF") impacts of the Project will not pose an undue hazard or conflict with policies of the State and the Project design is consistent with the Council's Best Management Practices for the Construction of Electric Transmission Lines in Connecticut ("EMF BMP"). The Company retained Exponent, Inc. ("Exponent"), a company with specialized expertise in EMF evaluations, to perform an EMF analysis of the Project. Exponent measured the EMF levels associated with the operation of the existing 115-kV lines and modeled the levels associated with the operation of the rebuilt 115-kV lines, on structures consisting mainly of double-circuit monopoles that will be installed near, but offset from the centerline of the existing structures. *Id*. at 7-1. Exponent's analyses revealed that the overall EMF from the proposed lines will be similar to or lower than existing levels and a small fraction of those recommended for the general public by international health-based standards and the Council's EMF BMP. In addition, Exponent found that construction of Project will shift the location of maximum EMF levels on account of the realignment of the rebuilt monopoles. *Id*. at 7-1. Specifically, in comparison to existing levels, EMF levels for the rebuilt 115-kV lines are not expected to change significantly between Indian Well and Ansonia substations and are expected to decrease between Derby Junction and Indian Well Substation. *Id*. at 7-8. The latter because the existing 115-kV lines have greater

phase-phase spacing, lower conductor heights and suboptimal phasing compared to the proposed configuration, all of which create higher EMF levels. *Id*. at 7-4.

C. Project Alternatives Considered

As previously discussed, the Company selected the proposed Project as the preferred alternative for achieving the objectives of the Project – maintaining the New England region's electric transmission system reliability and UI's ability to continue to provide critical electrical service to its customers in Derby, Shelton and Ansonia – because it is the most cost-effective solution identified that minimizes environmental and social impacts. When designing and planning the Project, UI considered and evaluated various transmission line configurations and engineering design options, as well as route options. *Id*. at 9-1. After a preliminary design and configuration were identified, the Company conducted engineering studies to refine the design and construction methods for rebuilding the 115-kV lines that ultimately lead to the proposed alternative – the complete rebuild of the 115-kV lines in an overhead configuration on new monopoles, aligned along UI's ROW.

1. An Overhead Configuration is the Preferred Alternative

As it is customary in the design of electric transmission line projects, the Company assessed the economic and environmental viability of placing the 115-kV lines in an underground configuration, specifically, in a double-circuit configuration, using cross-linked polyethylene cable. *Id*. at 9-2. This assessment revealed that an underground configuration, in comparison to an overhead configuration, could present various environmental and economic challenges.

First, because of the Project area's characteristics, e.g., segments of rugged topography, a major river crossing, suburban residential development, etc., it would not be possible to completely align the underground cable system within the existing ROW and UI would have to align portions of the underground cable system beneath local roads. *Id*. Further, where the 115-kV lines can be installed within the existing ROW, the Company would have to obtain underground easement rights from the landowners along the route, and design and plan the construction of the system to minimize impacts to any underground utilities. *Id*.

Second, the environmental resources and land use characteristics of the Project area could present constructability challenges. For example, topographic variations and shallow soil depth to bedrock can make the excavation of a continuous trench for the cable system difficult and will require substantial earth disturbance across wetlands and streams. *Id*. at 9-3. Additionally, an underground construction might require blasting, which the proposed Project currently does not require. *Id*. The Company would also need to utilize trenchless construction techniques for the installation of a cable system beneath the Housatonic River/Housatonic Railroad and State Route 8, which will require staging areas of about one acre on either side of each crossing. *Id*. An underground crossing at this particular area poses significant technical and environmental challenges due to the steep topography and general lack of available open land, among others. *Id*.

The construction of underground transmission lines would also delay the timeline of the Project and increase Project costs. Underground transmission line construction proceeds slowly to avoid impacts to nearby structures, utilities and soil formations; in urban locales, trenching typically proceeds at less than 200 feet per day and may only

achieve 50 to 70 linear feet per day. *Id*. at 9-4. Thus, an underground cable system would take longer to construct than an overhead transmission line, and thereby, extend the construction-related disruptions to nearby landowners, e.g., due to noise, dust, traffic disruptions, etc. *Id*. In addition, as set forth in the 2017 Life-Cycle Council study, the design, construction and permitting, as well as annual operating and maintenance costs, of underground single-circuit 115-kV lines is more costly than overhead 115-kV lines.[8] *Id*.

Consequently, construction and operation of an underground transmission line could result in greater environmental impacts and will significantly increase Project costs. Based on the foregoing, UI eliminated an all underground configuration from consideration as a viable option for the 115-kV lines.

After determining that the 115-kV lines must be upgraded or rebuilt in an overhead configuration, the Company conducted a comprehensive analysis to identify and select a design that would achieve the Project's objectives. *Id*. at 9-4 to 9-5. UI considered whether to complete transmission line upgrades or full line rebuilds, as well as single- versus double-circuit rebuild configurations for the new structures. *Id*. at 9-5. The Company only considered alternatives involving the installation of the 115-kV lines within the existing ROW, because the creation of a new transmission line corridor would result in disruptive changes to the nearby community, e.g., requiring the removal of existing homes and businesses, using open space and park areas, etc. *Id*.

UI evaluated the engineering design factors, cost, schedule, and potential environmental/ real estate impacts of four overhead alternatives, including the proposed

[8] "Although the Project involves primarily double-circuit instead of single-circuit transmission lines, the cost differential between overhead and underground line construction (in either double- or single-circuit configurations) is expected to be similar." OSPRM at 9-4.

Project. *Id*. The Company ultimately rejected the partial rebuild options ("Alternative Nos. 2 and 3") because relying on the existing 115-kV structures would present higher reliability risks due to the existing lattice steel towers' deteriorating condition. *Id*. at 9-6. The remaining full rebuild option, "Alternative No. 4," would be more costly than "Alternative 1," the preferred and proposed Project alternative.

2. UI is Prepared to Move Forward with Construction at Osbornedale State Park Even if an Easement Cannot be Procured

UI's existing ROW traverses approximately 1,465 feet south-north across an undeveloped portion of the eastern part of Osbornedale State Park. *Id*. Three lattice steel towers, Structures 10, 11, and 12 are presently located along the ROW in the park. *Id*. at 9-6 to 9-7. For the Project, UI proposes to remove Structures 10 and 12 from the park and to install the new Structures 10 and 12 on properties outside the park. *Id*. at 9-7. Only Structure 11, a double-circuit monopole, would have to be rebuilt within the park. *Id*. To ensure that the proposed rebuilt lines are not at risk from falling trees and are in conformance with horizontal blowout clearance requirements, the Company proposes to expand the existing ROW by approximately 60 feet to the west, requiring the acquisition of approximately 1.82 acres of additional permanent easement in Osbornedale State Park and the removal of trees within that easement. *Id*. Given that the park is owned and managed by DEEP, UI has entered into discussions with DEEP about the requested expansion of the ROW. Although both parties envision that an acceptable accommodation will be achieved, UI evaluated and has at its disposal various Project alternatives in the event the Company fails to procure the desired easement

expansion. OSPRM at 9-7 to 9-21; Department of Energy and Environmental Protection Comments, July 21, 2022; July 28, 2022 Tr. at 36.

UI considered alternatives that would avoid the need to acquire additional permanent easement within the park, minimize the required width of the expanded easement in the park, or avoid the park entirely. OSPRM at 9-7. These alternatives were limited by topography and land use development in the vicinity of Osbornedale State Park. *Id*. In total, the Company identified and evaluated nine route/configuration options which included four different transmission line configurations using or expanding the existing ROW within the park ("Options 1A-1D");[9] two 115-kV line routes (one overhead and one underground) using, in part, the State Route 8 corridor ("Options 2A and 2B"); and three underground routes along local road ROWs ("Options 3-5"). *Id*.

Of the nine options considered, four were eliminated for different reasons. Option 1D was eliminated from consideration as a result of the unacceptable and overriding potential impacts to residential properties – the expansion of the ROW to the east would cause significant adverse effects to seven abutting residences, potentially requiring UI to purchase such properties. *Id*. at 9-15. Options 2A and 2B were eliminated due to CTDOT's opposition to co-location of transmission lines in state road ROWs when there are other routing alternatives, and constructability challenges along the Route 8 corridor. *Id*. at 9-16. And Option 3 was eliminated due to its high costs, longer time to construct and substantial environmental and land use impacts. *Id*. at 9-17.

[9] "UI evaluated four alternatives (three overhead and one underground) for aligning the rebuilt 115-kV lines across Osbornedale State Park, including within the existing UI ROW (Options 1A [underground] and 1B), by expanding the existing 50-foot-wide ROW to the west by less than the proposed 60 feet (Option 1C), or by expanding the existing ROW to the east (Option 1D)." OSPRM at 9-9.

Although the preferred, least-cost option for the Project is to rebuild the 115-kV lines overhead along UI's long-established ROW with an expansion of the existing ROW by approximately 60 feet to the west as proposed, if the easement expansion cannot be obtained, then UI would be prepared to rebuild a portion of the 115-kV lines using Options 1A, 1B, 1C, 4 or 5. *Id*. at 9-21. Each of these options have their benefits and challenges, for this reason, the Company needs to conduct additional due diligence to identify its preferred alternative. Further, UI expects that based on the nature and/or reasons for DEEP's rejection, the Company would be able to determine which of these alternatives best addresses DEEP's concerns with the requested expansion. July 28, 2022 Tr. at 37, 59. Nonetheless, UI reiterates that it is prepared to move forward with the Project and has a contingency plan in place if an expansion of the ROW in Osbornedale State Park is not granted by DEEP.

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 motion to reopen and modify the Council's January 16, 1974 and December 8, 1976 final decisions to issue a Certificate. In addition, the design proposed by UI is the most cost-effective alternative that meets the objectives of the Project. For the foregoing reasons, the Company respectfully requests that the Council approve UI's motion to

modify the final decisions in Docket Nos. 3 and 3A and thereby issue an amended Certificate for the Project.

Respectfully submitted,

The United Illuminating Company

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