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**Via e-mail**

Ms. Emily Laine  
Chair, NEPOOL Reliability Committee  
ISO New England  
1 Sullivan Road  
Holyoke, MA 01040-2841

Dear Ms. Laine,

In accordance with Schedule 12C of the ISO New England ("ISO-NE") Transmission, Markets and Services Tariff, The United Illuminating Company ("UI"), an AVANGRID company, hereby submits for approval, the attached Transmission Cost Allocation ("TCA") application reporting cost support information associated with the construction, retirement or modification to facilities 69 kV and above that qualify as regional pool transmission facilities ("PTF") for the following project:

**UI-22-TCA-03: Milvon to West River Railroad Transmission Line 115kV Rebuild Project**

If you have any questions I can be reached by telephone at (207) 530-0159, or by e-mail at zachary.logan@cmpco.com.

Sincerely,

Zachary Logan  
**AVANGRID**  
Manager – Project Development (NE)

**Attachments:**

UI-22-TCA-03\_pp4\_0\_attachment\_b\_Milvon to West River.pdf  
UI-22-TCA-03\_pp4\_0\_attachment\_e\_Milvon to West River correlation table.pdf  
UI-22-TCA-03\_Milvon to West River cost update template.pdf  
UI-22-TCA-03 – Milvon to West River 115kV Railroad Transmission Line Rebuild TCA Presentation.pdf

CC via e-mail: Megan Sullivan – AVANGRID  
Michael Drzewianowski – ISO-NE  
Shawn Crosbie - Avangrid

Bruce Jagolinzer - AVANGRID  
Chris Morin - AVANGRID



**Attachment B**  
**TCA Application Form**

1. Applicant:		Application #:	<u>UI-22-TCA-03</u>	Date:	<u>December 14, 2022</u>
Contact Name:	<u>Zachary Logan</u>				
Company Name:	<u>United Illuminating / AVANGRID</u>				
Address 1:	<u>180 Marsh Hill Rd.</u>				
Address 2:	<u></u>				
City, State, Zip	<u>Orange, CT 06477</u>	RSP Project ID # or			
Contact Phone #	<u>207-530-0159</u>	Asset Condition ID #	<u>155 thru 162</u>		
Email Address	<u><a href="mailto:zachary.logan@cmpco.com">zachary.logan@cmpco.com</a></u>	Is Project related to CIP-14			
		Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>

2. Project Description:		In Service Date: <u>January 2024 thru</u> <u>May 2028</u>	
a. <b>High Level Project Details:</b>			
Project Name ( If no formal name, then Substation Upgrade, Line Upgrade, etc. are acceptable):		<b>Milvon West River Railroad Transmission Line 115-kv Rebuild Project</b>	
Project Location (State only):	State	County:	
	<b>CT</b>	<b>New Haven</b>	
b. Summary of PTF-related work for Project:			
<p>The rebuild of UI's 115kV transmission lines between West River Substation located in New Haven, CT and Milvon Substation located in Milford, CT is being conducted based on the results of a comprehensive asset condition assessment of the aging railroad catenary structures used to support the existing 115 kV transmission lines. The Project involves rebuilding these transmission lines onto mainly double-circuit steel monopoles located predominantly on the north side of the rail corridor adjacent to the existing railroad. Some single-circuit monopoles will be installed along the south side of the rail corridor to accommodate the alignment into the 5 existing UI substations (West River, Elmwest, Allings Crossing, Woodmont and Milvon) within the Project area. All new phase conductors will be 1590 kcmil aluminum conductor, steel supported. The work will also include the removal/decommissioning of UI's existing infrastructure located on top of the CTDOT/Metro-North catenaries which includes but not limited to the bonnets, hardware and conductor.</p>			
c. Summary of Non-PTF-related work for Project:			
<p>There is no non-PTF work associated with this project.</p>			

3. Was a transmission Proposed Plan Application required for this work?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	PPA Number: <u>UI-19-T61 thru T013</u>
4. Has a transmission Proposed Plan Application been approved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A <input type="checkbox"/>
If yes, attach a copy and reference Proposed Plan Application # and approval date.		(Please check only one)			
		Approval Date: <u>January 28, 2019</u>			

**Need For Project:**

5. Need Based On (Check all Categories that apply):
- a. Reliability ☐

- |    |   |                                     |
|----|---|-------------------------------------|
| b. | Economic  | <input type="checkbox"/>            |
| c. | Service to new load   | <input type="checkbox"/>            |
| d. | New generator interconnection                                       | <input type="checkbox"/>            |
|    | Generator Proposed Plan Application Number                          | _____                               |
|    | Generator Proposed Plan Application Date                            | _____                               |
|    | (Attach copy of cover letter & Generator Proposed Plan Application) |                                     |
| e. | Public Policy Transmission Upgrade (PPTU)                           | <input type="checkbox"/>            |
| f. | Market Efficiency Transmission Upgrade (METU)                       | <input type="checkbox"/>            |
| g. | Asset Condition   | <input checked="" type="checkbox"/> |
| h. | Other (specify in line 6)   | <input type="checkbox"/>            |

6. Provide a narrative description of the need for this Project.  
(Include available documentation relative to the need for this Project. )

As presented to the PAC in June of 2018, the Milvon to West River 115kV transmission line rebuild project is a result of a comprehensive asset condition assessment of the aging railroad catenary structures used to support UI's 88005A-1, 89005B-1, 8804A, 8904B, 88003A-3, 89003B-3, 88003A-2, and 89003B-2 115 kV transmission lines, all of which are Pool Transmission Facilities. This assessment found various deficiencies on the transmission line supporting structures including structure corrosion loss, corrosion expansion, missing members and additional loads (e.g., trolley/communication frame and wires). This report determined that rebuilding these transmission lines onto new double-circuit monopoles adjacent to the existing railroad corridor rights-of-way was the preferred alternative.

In January of 2019 the Milvon West River Transmission Line 115 Railroad Project received acknowledgement from ISO-New England through its Proposed Plan Application identified as UI-19-T06 through UI-19-T13, that the Project will have no significant adverse impact upon the reliability or operating characteristics of the Transmission Owners transmission facilities, the transmission facilities of another Transmission Owner or the system of a Market Participant.

Due to the complexity and inter-dependency of these projects and the utilized rights-of-way, the in-service dates for some line segments are outside of the traditional PP5-1 five-year timeline. Pursuant to the requirements in PP5-1, included is a project schedule detailing major milestones related to the construction of these lines.

**Cost of Project:**

7. Total Project Cost (\$M) equals PTF + Non-PTF + all other Project Costs:	<u>\$345.40</u>
8. Total Proposed PTF Costs	
a. Total Proposed PTF Cost of this Project (\$M):	<u>\$345.40</u>
b. Requested Pool-Supported PTF Costs associated with this Project (\$M):	<u>\$345.40</u>
c. Breakdown of Requested Pool-Supported PTF Cost associated with this Project (\$M): (Consistent with Table 1 and Appendix D of this Procedure)	
Material	<u>\$14.90</u>
Labor & Equipment	<u>\$100.80</u>
ROW	<u>\$16.80</u>
Engineering/Permitting/Indirects	<u>\$125.40</u>
Escalation	<u>\$3.80</u>
AFUDC (or equivalent)	<u>\$59.50</u>
Contingency	<u>\$24.20</u>
d. Generator Supported PTF Costs* (\$M):	<u>\$0.00</u>
If the costs in 8.b. plus 8.d. do not equal the total proposed PTF cost (8.a) explain and indicate who is responsible for the remaining costs.	
9. Total Proposed Non-PTF Cost of this Project (\$M):	<u>\$0.00</u>
10. Proposed PTF Costs (\$M) introduced as a result of local, state or other regulatory/legislative requirements, including costs identified pursuant to Section 1.6.3 of this PP-4.	<u>\$0.00</u>
a. Description of Proposed PTF Cost introduced as a result of local, state or other regulatory/legislative requirements as defined in question 8 above.	
11. All other Project Costs not captured in PTF Costs (8) or Non-PTF Costs (9) (\$M) associated with this Project:	<u>\$0.00</u>

12. Total PTF Cost based on: (check one)

Actual Costs ☐**OR**Estimated Costs\* ☒13. Valuation Year(s) of dollar amounts submitted above: 2022

14. If applicable, explain how the cost of common facilities were allocated between PTF and Non-PTF.

N/A

15. Does this Project result in a change of existing Non-PTF facilities to PTF?

Yes  
☐No  
☒

16. Describe the major transmission alternatives, and their costs consistent with the breakdown provided in item 7 of this Application, that were considered. Provided an explanation why the preferred alternative was selected.  
(Include available documentation relative to the major transmission alternatives analysis and selection.)

Alternative 1: Install new double-circuit monopoles to support the 115-kV lines that are presently located on both the north and south catenary structure bonnets, with the new monopoles installed within, and in some areas adjacent to, the CT DOT property predominantly north of the railroad tracks. The current 115-kV lines are categorized as a double-circuit tower construction and transmission planning analyses determined that the continuation of this configuration in the rebuilt lines would satisfy all applicable reliability criteria. This is the alternative that is currently being executed.

Alternative 2: Install new single-circuit monopoles, to separately support the north and south circuits and to be located on either side of the CT DOT railroad corridor. Alternative was not chosen based on (1) cost for (a) labor, (b) materials and (c) equipment expenses, (2) amount of land/easements needed and (3) cumulative environmental impacts

Alternative 3: Rebuild one 115-kV circuit on new single-circuit monopoles, making structural modifications to the catenary structures / bonnets to allow the continued support of the other circuit.. Alternative was not chosen due to (1) cost for (a) labor, (b) materials and (c) equipment expenses, and (2) easement needs

Alternative 4: Rebuild the existing catenary structures / bonnets completely to correct all structural deficiencies to continue to support both 115-kV lines. Alternative was not chosen based on CTDOT (owner of corridor/property) not supporting due to age and design limitations on catenaries

Alternative 5: Installation of all circuits in an underground configuration. Alternative was not chosen due to CTDOT (owner of corridor/property) not supporting any longitudinal underground configuration in the corridor.

17. Has state and local siting been completed? If yes, explain the siting process and any provisions that were made during siting, provide docket or siting reference numbers. If no, then explain when siting is expected to be completed and any provisions that have been agreed to.

The Connecticut Siting Council approved UI's *Application for a Certificate of Environmental Compatibility and Public Need* on August 19, 2022. Currently UI is in the process of developing and submitting the Development & Management Plan for each of the four segments in the following order: (1) West River - Elmwest = early Q2 2023, (2) Elmwest - Allings Crossing = Q3 2023, (3) Milvon - Woodmont = Q4 2023 and (4) Woodmont - Allings Crossing = Q2 2024

\* Pool-Supported PTF costs were determined pursuant to Schedule 11 of Section II of the Tariff.

**Attachment E to Planning Procedure 4**  
Correlation Table

<u>TCA Item</u>	<u>RSP:</u> <u>Project ID #</u>	<u>Study:</u> <u>Reliability Issues Requiring Action</u>	<u>PPA No.</u>	<u>PPA Application:</u> <u>Preferred Solution Description</u>	<u>PAC/RC Meeting:</u> <u>Presentation Reference</u>	<u>TCA Application:</u> <u>PTF Estimate</u> <u>Non-PTF Estimate</u>	
<b><u>UI-22-TCA-03</u></b>	<b><u>155</u></b>	Asset condition rebuild	UI-19-06	Rebuild with double circuit monopoles and 1590 ACSS conductor.	<a href="https://smd.iso-ne.com/operations-services/ceii/pac/2018/06/a4_railroad_corridor_transmission_line_asset_condition.pdf">https://smd.iso-ne.com/operations-services/ceii/pac/2018/06/a4_railroad_corridor_transmission_line_asset_condition.pdf</a>  <a href="https://www.iso-ne.com/static-assets/documents/2022/11/a04_railroad_corridor_transmission_line_asset_condition_assessment_update.pdf">https://www.iso-ne.com/static-assets/documents/2022/11/a04_railroad_corridor_transmission_line_asset_condition_assessment_update.pdf</a>	\$ 69,080,000	\$ -
	<b><u>156</u></b>		UI-19-07	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 69,080,000	\$ -
	<b><u>157</u></b>		UI-19-08	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 51,810,000	\$ -
	<b><u>158</u></b>		UI-19-09	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 51,810,000	\$ -
	<b><u>159</u></b>		UI-19-10	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 25,905,000	\$ -
	<b><u>160</u></b>		UI-19-11	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 25,905,000	\$ -
	<b><u>161</u></b>		UI-19-12	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 25,905,000	\$ -
	<b><u>162</u></b>		UI-19-13	Rebuild with double circuit monopoles and 1590 ACSS conductor.		\$ 25,905,000	\$ -
				SUBTOTAL		\$ 345,400,000	\$ -
				SUBTOTAL		\$ -	\$ -

# PROJECT COST ESTIMATE & SCHEDULE SHEET

Transmission Owner: Avangrid RSP Project #: 155 through 162  
 Project Name: Milvon West River Transmission Line 115 kv Rebuild project Date: 11/29/2022  
 Estimate Grade: C

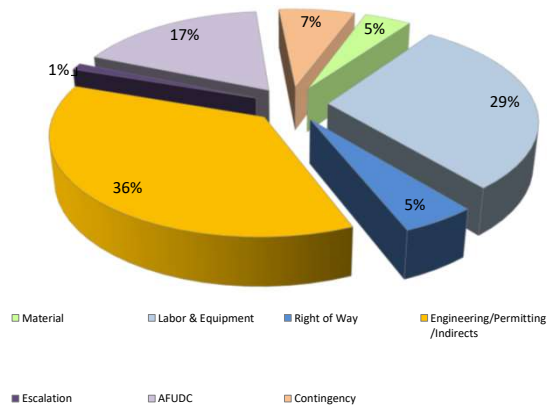
## 1. Project Scope Summary

Rebuild of UI's 115 kv transmission lines between UI's West River Substation located in New Haven, CT and UI's Milvon Substation located in Milford, CT within the CT Department of Transportation/Metro-North Railroad (CTDOT/MNR) corridor. Rebuild will consist of removal of UI's existing facilities located on bonnets on top of the CTDOT/MNR owned catenaries onto double-circuit monopoles. New 1590 ACSS conductor will be used. The monopoles will be predominantly located on the north side of the railroad corridor, however in certain locations single-circuit monopoles will be used to align with UI's existing substations on the south and north sides of the corridor. Project will be constructed in four segments within the existing five UI substations (West River - Elmwest, Elmwest-Allings Crossing, Milvon-Woodmont and Woodmont-Allings Crossing). The estimated in-service date is currently Q4 2027.

## 2. Project Cost Summary

Prior Estimated Cost:

2.1. Project Cost Summary			
	PTF	Non-PTF	Total
Material	\$ 14,900,000	\$ -	\$ 14,900,000
Labor & Equipment	\$ 100,800,000	\$ -	\$ 100,800,000
Right of Way	\$ 16,800,000	\$ -	\$ 16,800,000
Engineering/Permitting/Indirects	\$ 125,400,000	\$ -	\$ 125,400,000
Escalation	\$ 3,800,000	\$ -	\$ 3,800,000
AFUDC	\$ 59,500,000	\$ -	\$ 59,500,000
Contingency	\$ 24,200,000	\$ -	\$ 24,200,000
<b>Total Project Cost</b>	<b>\$ 345,400,000</b>	<b>\$ -</b>	<b>\$ 345,400,000</b>



2.2 Detailed Cost Summary By Project Element								
	Material	Labor & Equip.	Right of Way	Engineering/Permitting/Indirects	Escalation	AFUDC	Contingency	Total
2.2.1 Line 88005A-1	\$ 2,980,000	\$ 20,160,000	\$ 3,360,000	\$ 25,080,000	\$ 760,000	\$ 11,900,000	\$ 4,840,000	\$ 69,080,000
2.2.2 Line 89005B-1	\$ 2,980,000	\$ 20,160,000	\$ 3,360,000	\$ 25,080,000	\$ 760,000	\$ 11,900,000	\$ 4,840,000	\$ 69,080,000
2.2.3 Line 8804A	\$ 2,235,000	\$ 15,120,000	\$ 2,520,000	\$ 18,810,000	\$ 570,000	\$ 8,925,000	\$ 3,630,000	\$ 51,810,000
2.2.4 Line 8804B	\$ 2,235,000	\$ 15,120,000	\$ 2,520,000	\$ 18,810,000	\$ 570,000	\$ 8,925,000	\$ 3,630,000	\$ 51,810,000
2.2.5 Line 88003A-3	\$ 1,117,500	\$ 7,560,000	\$ 1,260,000	\$ 9,405,000	\$ 285,000	\$ 4,462,500	\$ 1,815,000	\$ 25,905,000
2.2.6 Line 88003B-3	\$ 1,117,500	\$ 7,560,000	\$ 1,260,000	\$ 9,405,000	\$ 285,000	\$ 4,462,500	\$ 1,815,000	\$ 25,905,000
2.2.7 Line 88003A-2	\$ 1,117,500	\$ 7,560,000	\$ 1,260,000	\$ 9,405,000	\$ 285,000	\$ 4,462,500	\$ 1,815,000	\$ 25,905,000
2.2.8 Line 88003B-2	\$ 1,117,500	\$ 7,560,000	\$ 1,260,000	\$ 9,405,000	\$ 285,000	\$ 4,462,500	\$ 1,815,000	\$ 25,905,000
<b>Total</b>	<b>\$ 14,900,000</b>	<b>\$ 100,800,000</b>	<b>\$ 16,800,000</b>	<b>\$ 125,400,000</b>	<b>\$ 3,800,000</b>	<b>\$ 59,500,000</b>	<b>\$ 24,200,000</b>	<b>\$ 345,400,000</b>

Note:

## 3. Project Milestone Schedule

ACTIVITY	2020	2021	2022	2023	2024	2025	2026	2027	2028
Preliminary Engineering									
Detailed Engineering									
Permitting									
Procurement									
Award POs									
<b>Elmwest - West River</b>									
Construction: Rebuild 115kV T-Lines									
New 115kV T-Lines In-Service									
Removals: Existing conductor and hardware									
ROW Restoration									
<b>Allings - Elmwest</b>									
Construction: Rebuild 115kV T-Lines									
New 115kV T-Lines In-Service									
Removals: Existing conductor and hardware									
ROW Restoration									
<b>Milvon - Woodmont</b>									
Construction: Rebuild 115kV T-Lines									
New 115kV T-Lines In-Service									
Removals: Existing conductor and hardware									
ROW Restoration									
<b>Woodmont - Allings</b>									
Construction: Rebuild 115kV T-Lines									
New 115kV T-Lines In-Service									
Removals: Existing conductor and hardware									
ROW Restoration									



## Via e-mail

Ms. Mariah Winkler  
ISO New England  
Chair NEPOOL Reliability Committee  
One Sullivan Road  
Holyoke, MA 01040-2841

Dear Ms. Winkler

In accordance with Section I.3.9 of the ISO New England Transmission, Markets and Services Tariff, we hereby submit a Transmission Facilities Proposed Plan Application (see attached PPAs) reporting the notice of intent to construct and change facilities (69 kV and above) for the following projects:

<b>UI-19-01: 8809A-2 Line Rebuild</b>	<b>UI-19-06: 88005A-1 Line Rebuild</b>	<b>UI-19-10: 88003A-3 Line Rebuild</b>
<b>UI-19-02: 8909B-2 Line Rebuild</b>	<b>UI-19-07: 89005B-1 Line Rebuild</b>	<b>UI-19-11: 89003B-3 Line Rebuild</b>
<b>UI-19-03: 1130 Line Rebuild</b>	<b>UI-19-08: 8804A Line Rebuild</b>	<b>UI-19-12: 88003A-2 Line Rebuild</b>
<b>UI-19-04: 1430 Line Rebuild</b>	<b>UI-19-09: 8904B Line Rebuild</b>	<b>UI-19-13: 89003B-2 Line Rebuild</b>
<b>UI-19-05: 91001 Line Rebuild</b>		

As presented to the PAC in June of 2018 these 115kV transmission lines rebuild projects between New Haven, CT and Fairfield, CT are the result of a comprehensive asset condition assessment of the aging railroad catenary structures used to support the existing lines. These projects involve rebuilding these transmission circuits on single or double-circuit monopoles adjacent to the existing railroad corridor right-of-ways. All new phase conductors will be 1590 kcmil aluminum conductor, steel supported (ACSS).

For a majority of the lines being rebuilt there is an increase in the normal and emergency thermal ratings of the lines; there are no cases in which the thermal ratings are reduced. Based on preliminary impedance models for each of these lines the new impedance value of each line is expected to change less than 4%. Based on the marginal increase to line impedance and the increase in many of the thermal ratings, AVANGRID believes that these projects will not have a significant adverse effect upon the stability, reliability or operating characteristics of the New England Transmission system or the system of a Market Participant.

Due to the complexity and inter-dependency of these projects and the utilized right-of-ways, the in-service dates for all projects are outside of the traditional PP5-1 five-year timeline. Pursuant to the requirements in PP5-1, included is a project schedule detailing major milestones related to the construction of these lines.

Based on these impedance and rating considerations, we request approval of the above noted PPA's under the ISO New England Planning Procedure PP5-1 as Level 1 applications.

If you have any questions I can be reached by telephone at (203) 926-5228, or by e-mail at [edward.roedel@uinet.com](mailto:edward.roedel@uinet.com).

Sincerely,

Edward Roedel  
Avangrid  
Principal Engineer – Transmission Planning (Connecticut)

CC via e-mail:	Peter Bernard – ISO-NE	Pradip Vijayan – ISO-NE	Chris Morin – Avangrid
	Marc Lyons – ISO-NE	David Bradt – Avangrid	
	<a href="mailto:ProposedPlans@iso-ne.com">ProposedPlans@iso-ne.com</a>	Christopher Malone – Avangrid	

Transmission Planning / 100 Marsh Hill Road, Orange, CT



Take care of the environment.  
Printed in black and white and only if necessary





**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 8809A-2 Line (Pequonnock – Congress) In-Service Date 1/31/2025
3. Transmission Line and/or Substations

**8809A-2 Line**

- a. From Pequonnock Substation - Bridgeport, CT To Congress Street Substation – Bridgeport, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 0.688 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-01

### Project Need

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

## Project Components

1. Rebuild the 8809A-2 Line from Pequonnock to Congress St. with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 8809A-2 Line will share these double circuit towers with the 8909B-2 Line.
2. See UI Application Identification UI-19-02 for details of the 8909B-2 Line rebuild project.

8809A-2 Line - Pequonnock to Congress Rebuild																	
Line	Type	Existing							Proposed								
		(%) on 100 MVA Base				Rating (MVA)			Conductor Type	(%) on 100 MVA Base				Rating (MVA)			
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE	
8809A-2 Line	1590 kcmil ACSR Catenary	0.033	0.349	0.059	0.3506	340	439	490	1590 kcmil ACSS DCT Monopole (North)	0.032	0.350	0.058	0.3515	428	528	586	
										% Change							
										-3.0%	+0.3%	-1.7%		+0.3%	+25.9%	+20.3%	+19.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

Application Identification No. UI-19-01

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility Rebuild 8909B-2 Line (Pegunonock – Congress) In-Service Date 1/31/2025

3. Transmission Line and/or Substations

**8909B-2 Line**a. From Pegunonock Substation - Bridgeport, CT To Congress Street Substation – Bridgeport, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)c. Distance - Overhead 0.688 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached

## 6. Reliability Studies

Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-02

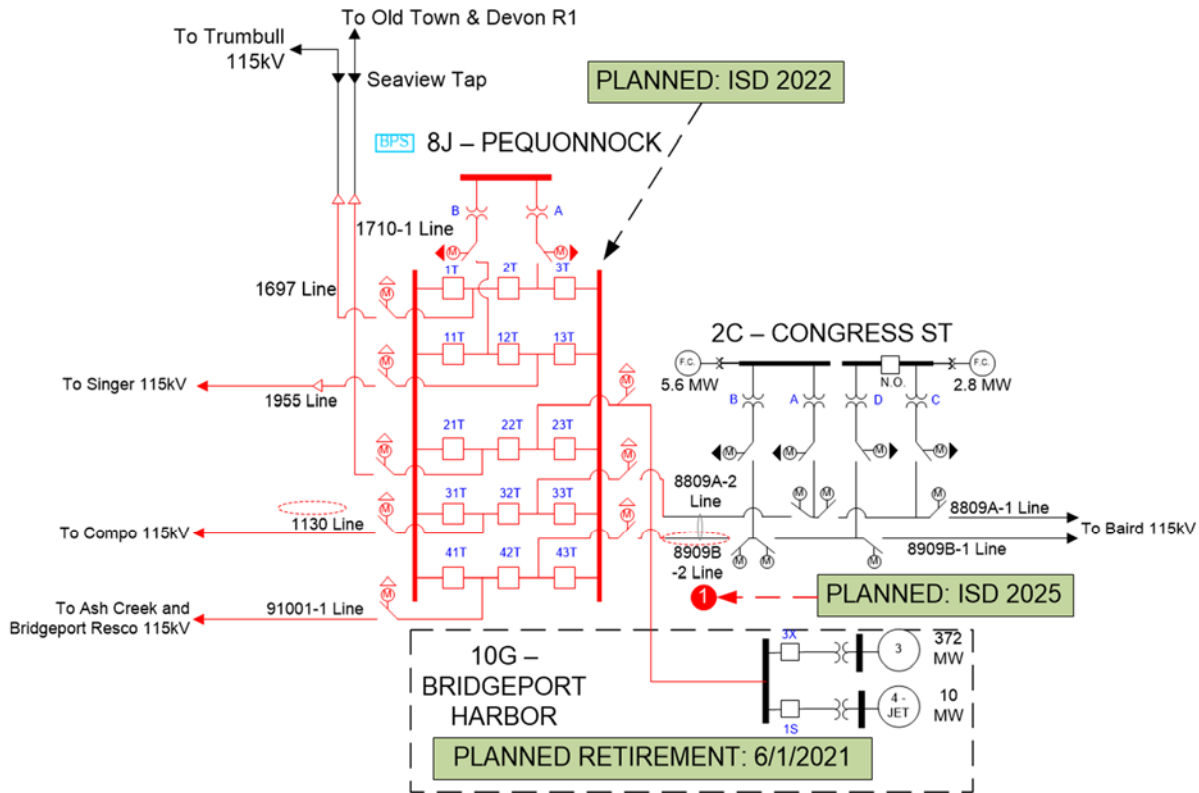


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 8909B-2 Line conductors between UI's Pequonnock and Congress St. Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 8909B-2 Line from Pequonnock to Congress St. with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 8909B-2 Line will share these double circuit towers with the 8809A-2 Line.
2. See UI Application Identification UI-19-01 for details of the 8809A-2 Line rebuild project.

8909B-2 Line - Pequonnock to Congress Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(% on 100 MVA Base)				Rating (MVA)				(% on 100 MVA Base)				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
8909B-2 Line	1590 kcmil ACSR Catenary	0.033	0.347	0.059	0.3486	340	439	490	1590 kcmil ACSS DCT Monopole (North)	0.032	0.350	0.058	0.3515	428	528	586
										% Change						
										-3.0%	+0.9%	-1.7%	+0.8%	+25.9%	+20.3%	+19.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

Application Identification No. UI-19-02

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild portion of 1130 Line (Pequonnock – UI Str. B737) In-Service Date 4/30/2028
3. Transmission Line and/or Substations

**1130 Line**

- a. From Pequonnock Substation, Bridgeport, CT To UI Structure B737 Fairfield, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 2.0 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-03



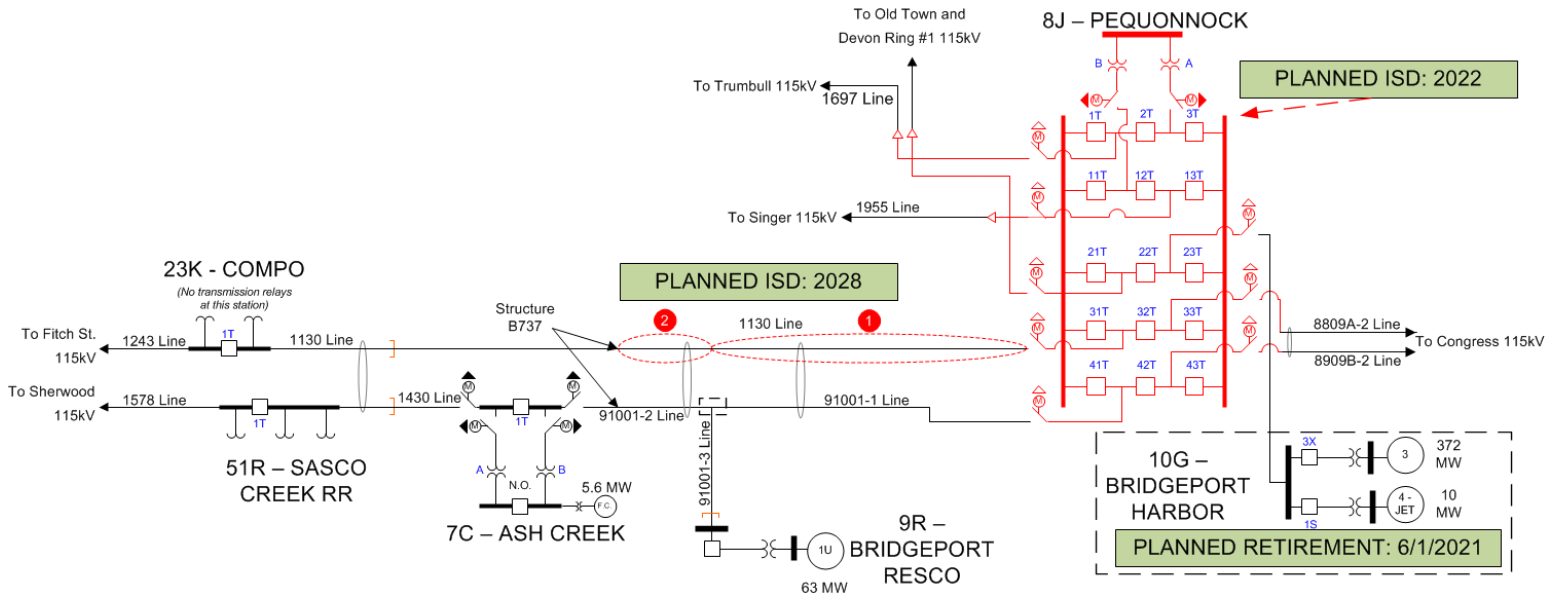


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 1130 Line conductors between UI's Pequonnock Substation and UI Structure B737. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 1130 Line from Pequonnock to Bridgeport Resco with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 1130 Line will share these double circuit towers with the 91001-1 Line.
2. Rebuild the 1130 Line from the Bridgeport Resco tap to UI Structure B737 with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 1130 Line will share these double circuit towers with the 91001-2 Line.
3. See UI Application Identification UI-19-05 for details of the 91001 Line rebuild project.

1130 Line - Pequonnock to Structure B737 Rebuild																	
Line	Section	Type	Existing							Proposed							
			(% on 100 MVA Base)				Rating (MVA)			Conductor Type	(% on 100 MVA Base)				Rating (MVA)		
			R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
1130 Line	Peq. To B737	1590 kcmil SSAC Catenary	0.077	0.846	0.144	0.8495	340	439	490	1590 kcmil ACSS DCT Monopole (North, 91001-1,-2)	0.078	0.851	0.144	0.8545	428	528	586
	B737 to Compo	1590 kcmil SSAC SCT Monopole (North)	0.240	2.596	0.480	2.6071	340	439	490	No Change							
											Total (%) on 100 MVA Base				Rating (MVA)		
											0.318	3.447	0.624	3.462	340	439	490
											% Change						
											+0.3%	+0.1%	-0.0%	+0.1%	+0.0%	+0.0%	+0.0%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

Application Identification No. UI-19-03

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility Rebuild 1430 Line (Ash Creek – ESE Str. B648) In-Service Date 4/30/2028

3. Transmission Line and/or Substations

**1430 Line**a. From Ash Creek Substation, Fairfield, CT To Eversource Structure B648 Fairfield/Westport, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)c. Distance - Overhead 4.0 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached

## 6. Reliability Studies

Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-04

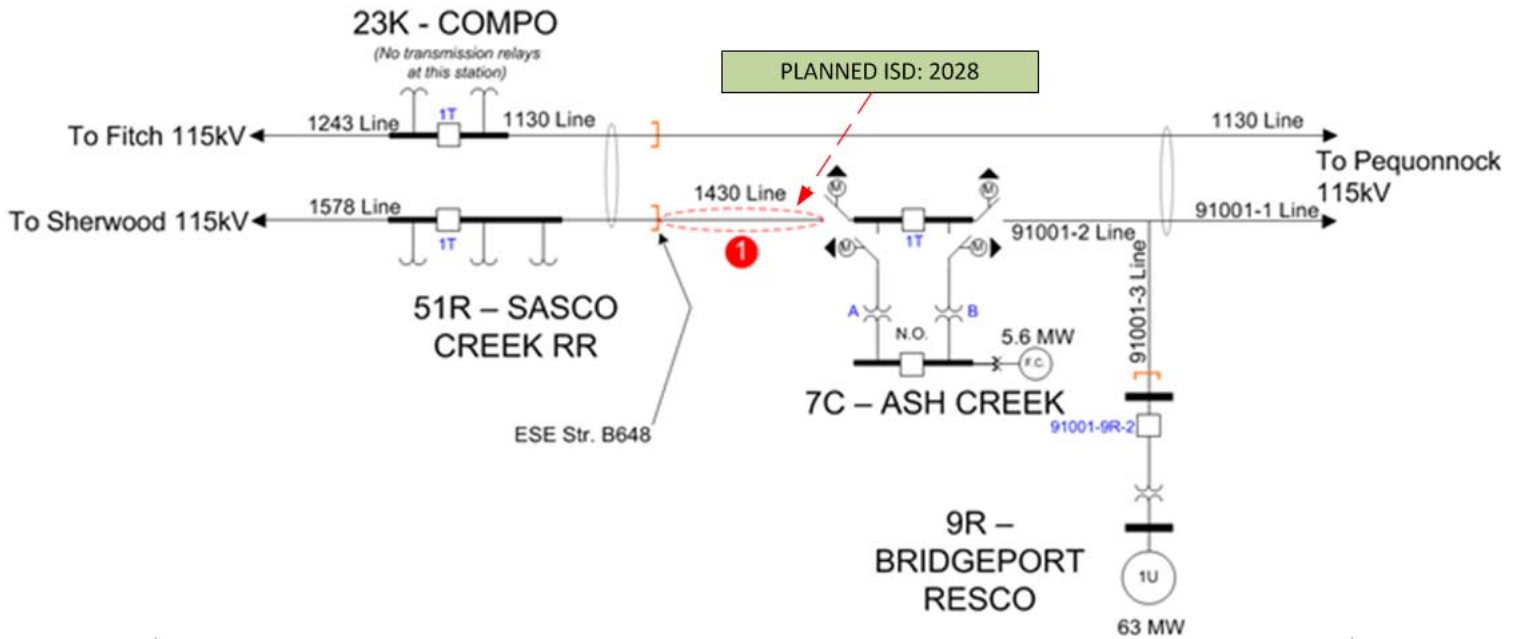


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 1430 Line conductors between Eversource Structure B648 and UI's Ash Creek Substation. Structures along these right-of-ways are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 1430 Line from Ash Creek to Eversource Structure B648 with 1590 kcmil ACSS on single circuit monopoles located to the South of the existing right-of-way.

1430 Line - Ash Creek to Eversource Structure B648 Rebuild																
Line	Existing								Proposed							
	Type	(%) on 100 MVA Base				Rating (MVA)			Type	(%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
1430 Line	1590 kcmil ACSR Catenary	0.191	2.043	0.346	2.052	340	439	490	1590 kcmil ACSS SCT Monopole (South)	0.194	2.047	0.346	2.0564	428	528	586
										% Change						
										+1.4%	+0.2%	+0.0%	+0.2%	+25.9%	+20.3%	+19.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility In-Service Date 8/31/2026Rebuild 91001-1 Line (Pegunonock – Bridgeport Resco) & 91001-2 Line (Bridgeport Resco – Ash Creek)

3. Transmission Line and/or Substations

**91001 Line**a. From Pegunonock Substation - Bridgeport, CT To Ash Creek Substation, Fairfield, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) Bridgeport Resco – Bridgeport, CT (this section unchanged)  
(Name - Location)c. Distance - Overhead 3.4 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached**6. Reliability Studies**Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-05

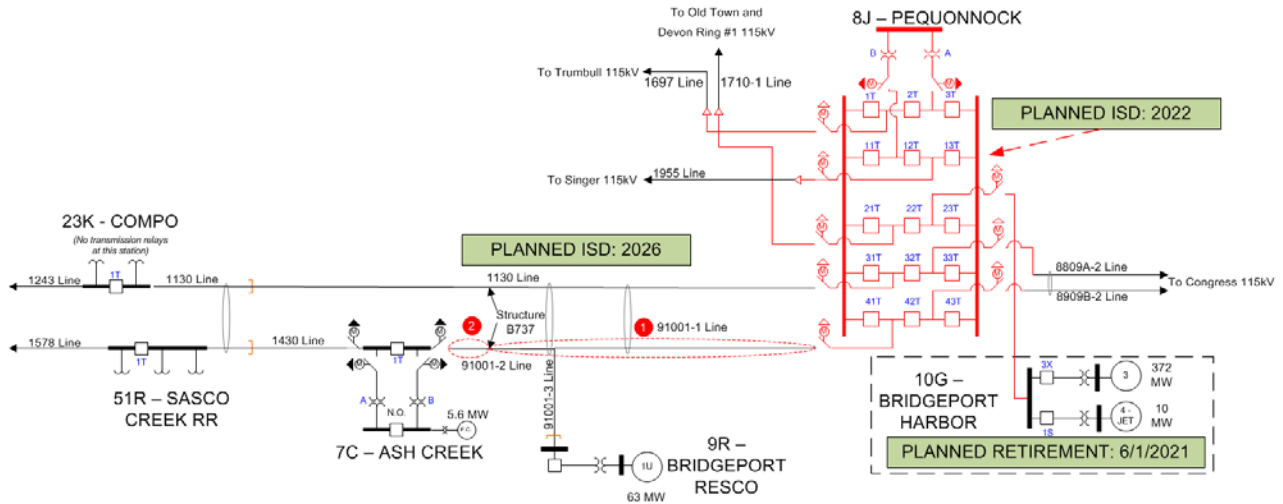


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 91001-1 and 91001-2 Line conductors between UI's Pequonnock and Ash Creek Substations. Structures along these right-of-ways are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 91001-1 Line & parts of the 91001-2 Line from Pequonnock to UI Structure B737 with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. These sections will share the double circuit towers with the 1130 Line.
2. Rebuild the balance of the 91001-2 Line from UI Structure B737 to Ash Creek Substation with 1590 kcmil ACSS on single circuit monopoles located to the South of the existing right of way.
3. See UI Application Identification UI-19-03 for details of the 1130 Line rebuild project.

91001 Line - Pequonnock - Bridgeport Resco - Ash Creek Rebuild																	
Line	Section	Type	Existing							Type	Proposed						
			(%) on 100 MVA Base				Rating (MVA)				(%) on 100 MVA Base				Rating (MVA)		
			R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
91001-1 Line	Peq. To Brdgpt Resco	1590 kcmil ACSR Catenary	0.058	0.616	0.105	0.6187	340	439	490	1590 kcmil ACSS DCT Monopole (North, 1130)	0.057	0.619	0.105	0.6218	428	528	586
91001-2 Line	Brdgpt Resco to Ash Creek	1590 kcmil ACSR Catenary	0.022	0.230	0.039	0.2310	340	439	490	1590 kcmil ACSS DCT Monopole (North, 1130)	0.021	0.231	0.039	0.2318	428	528	586
		1590 kcmil ACSR Catenary	0.074	0.790	0.135	0.7935	340	439	490	1590 kcmil ACSS SCT Monopole (South)	0.073	0.794	0.134	0.7978	428	528	586
											Total (%) on 100 MVA Base				Rating (MVA)		
											0.152	1.644	0.278	1.651	428	528	586
											% Change						
											-1.6%	+0.5%	-0.3%	+0.5%	+25.9%	+20.3%	+19.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

Application Identification No. UI-19-05

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 88005A-1 Line (Milvon – Woodmont) In-Service Date 5/31/2028
3. Transmission Line and/or Substations

**88005A-1 Line**

- a. From Milvon Substation – Milford, CT To Woodmont Substation – Milford, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 4.1 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-06

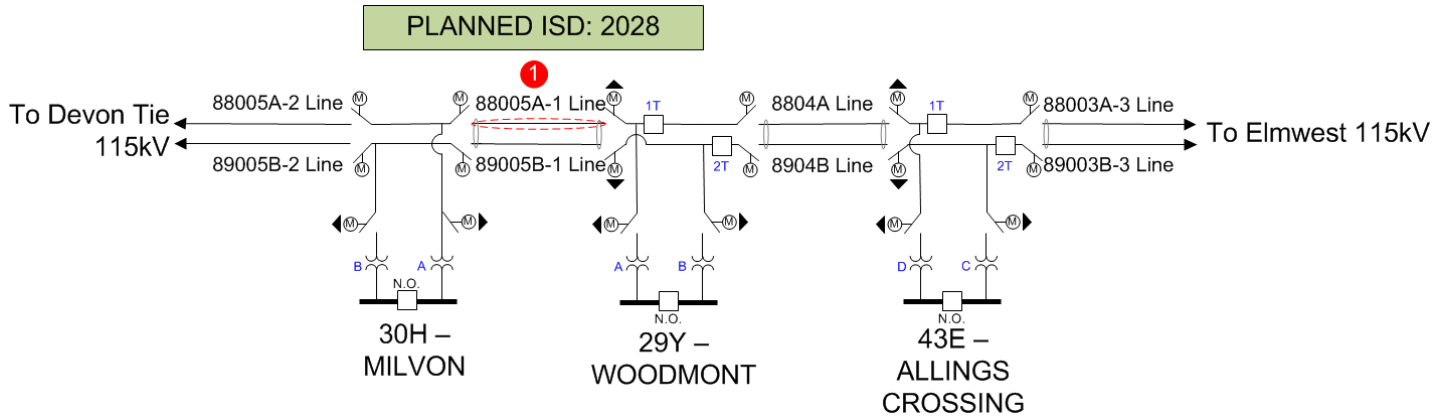


Diagram 1: System Topology

Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 88005A-1 Line conductors between UI's Milvon and Woodmont Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

Project Components

1. Rebuild the 88005A-1 Line from Milvon Substation to Woodmont Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 88005A-1 Line will share these double circuit towers with the 89005B-1 Line.
2. See UI Application Identification UI-19-07 for details of the 89005B-1 Line rebuild project.

88005A-1 Line - Milvon to Woodmont Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(%) on 100 MVA Base				Rating (MVA)				(%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
88005A-1 Line	1272 kcmil SSAC Catenary	0.224	1.958	0.356	1.9708	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.189	2.034	0.338	2.0428	428	528	586
										% Change						
										-15.6%	+3.9%	-5.1%	+3.7%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility Rebuild 89005B-1 Line (Milvon – Woodmont) In-Service Date 5/31/2028

3. Transmission Line and/or Substations

**89005B-1 Line**a. From Milvon Substation - Milford, CT To Woodmont Substation - Milford, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)c. Distance - Overhead 4.1 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached

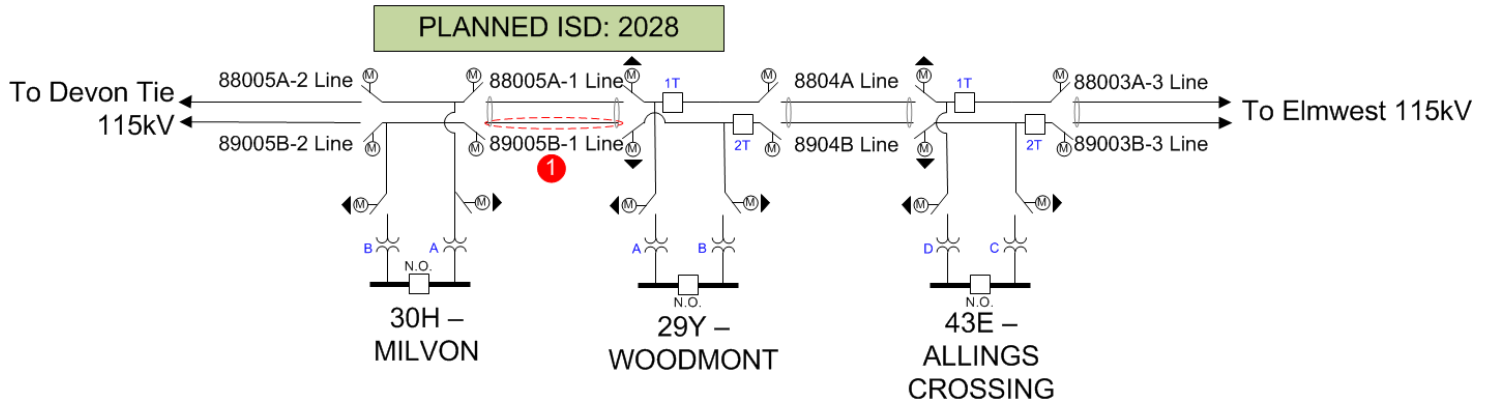
## 6. Reliability Studies

Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-07





### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 89005B-1 Line conductors between UI's Milvon and Woodmont Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 89005B-1 Line from Milvon Substation to Woodmont Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 89005B-1 Line will share these double circuit towers with the 88005A-1 Line.
2. See UI Application Identification UI-19-06 for details of the 88005A-1 Line rebuild project.

89005B-1 Line - Milvon to Woodmont Rebuild																
Line	Type	Existing (%) on 100 MVA Base				Rating (MVA)			Conductor Type	Proposed (%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
89005B-1 Line	1272 kcmil SSAC Catenary	0.224	1.958	0.356	1.9708	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.189	2.034	0.338	2.0428	428	528	586
										% Change						
										-15.6%	+3.9%	-5.1%	+3.7%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 8804A Line (Woodmont – Allings Crossing) In-Service Date 4/30/2026
3. Transmission Line and/or Substations

**8804A Line**

- a. From Woodmont Substation – Milford, CT To Allings Crossing Substation – Orange, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 2.9 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-08

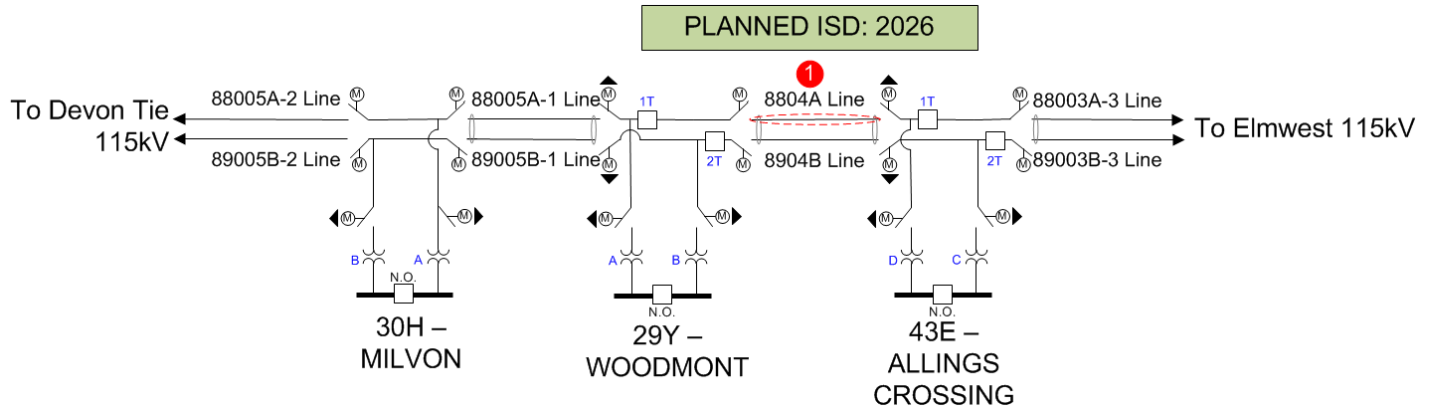


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 8804A Line conductors between UI's Woodmont and Allings Crossing Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 8804A Line from Woodmont Substation to Allings Crossing Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 8804A Line will share these double circuit towers with the 8904B Line.
2. See UI Application Identification UI-19-09 for details of the 8904B Line rebuild project.

8804A Line - Woodmont to Allings Crossing Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		R				Rating (MVA)				R				Rating (MVA)		
		S-N				S-LTE				S-N				S-LTE		
8804A Line	1272 kcmil SSAC Catenary	0.158	1.382	0.252	1.3910	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.133	1.436	0.238	1.4421	428	528	586
% Change																
		-15.8%	+3.9%	-5.6%	+3.7%	+42.2%	+36.1%	+37.6%								

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility Rebuild 8904B Line (Woodmont – Allings Crossing) In-Service Date 4/30/2026

3. Transmission Line and/or Substations

**8904B Line**a. From Woodmont Substation – Milford, CT To Allings Crossing Substation – Orange, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)c. Distance - Overhead 2.9 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached

## 6. Reliability Studies

Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-09

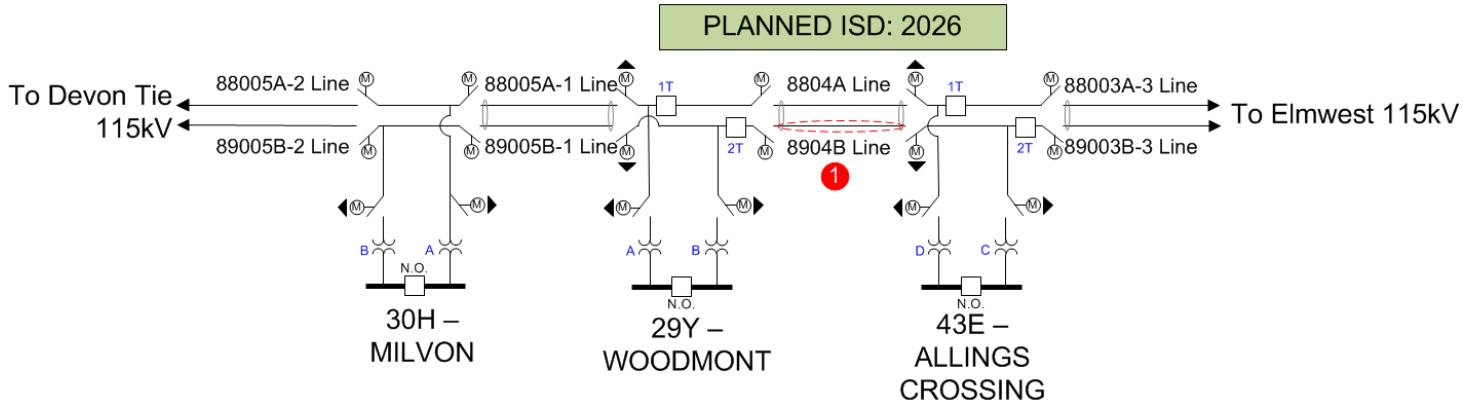


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 8904B Line conductors between UI's Woodmont and Allings Crossing Substation. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 8904B Line from Woodmont Substation to Allings Crossing Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 8904B Line will share these double circuit towers with the 8804A Line.
2. See UI Application Identification UI-19-08 for details of the 8804A Line rebuild project.

8904B Line - Woodmont to Allings Crossing Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(% on 100 MVA Base)				Rating (MVA)				(% on 100 MVA Base)				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
8904B Line	1272 kcmil SSAC Catenary	0.158	1.382	0.252	1.3910	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.133	1.436	0.238	1.4421	428	528	586
										% Change						
										-15.8%	+3.9%	-5.6%	+3.7%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**1. Applicant AVANGRID (UI) Date 1/4/20192. Type of Facility Rebuild 88003A-3 Line (Allings Crossing – Elmwest) In-Service Date 1/31/2024

3. Transmission Line and/or Substations

**88003A-3 Line**a. From Allings Crossing Substation – Orange, CT To Elmwest Substation – West Haven, CT  
(Terminal - Name - Location) (Terminal - Name - Location)b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)c. Distance - Overhead 1.3 miles Underground \_\_\_\_\_ miles Design Voltage 115 KVConductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV

d. Proposed Relaying:

Type of line relaying

Backup relaying

Stuck breaker

Special protective relaying schemes

4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV

Parameters in percent on a 100 MVA Base

Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X

5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.

Comments: See attached

## 6. Reliability Studies

Short Circuit: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Load Flow: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Stability: Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐Other \_\_\_\_\_ Completed ☐ Planned ☐ Not Needed ☒ Explanation Attached ☐7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐

If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-10

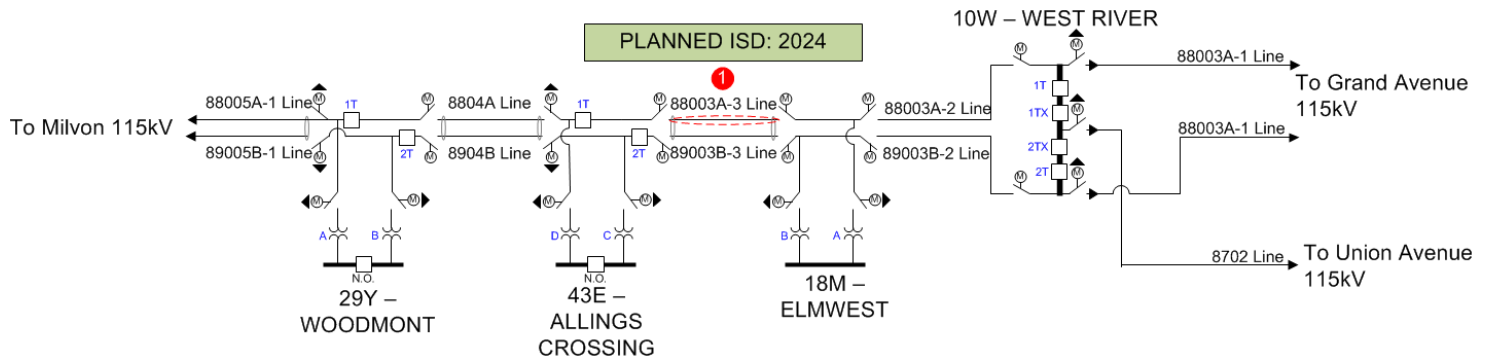


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 88003A-3 Line conductors between UI's Allings Crossing and Elmwest Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 88003A-3 Line from Allings Crossing Substation to Elmwest Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 88003A-3 Line will share these double circuit towers with the 89003B-3 Line.
2. See UI Application Identification UI-19-11 for details of the 89003B-3 Line rebuild project.

88003A-3 Line - Allings Crossing to Elmwest Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		R (%) on 100 MVA Base				Rating (MVA)				R (%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
88003A-3 Line	1272 kcmil SSAC Catenary	0.065	0.566	0.104	0.5697	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.055	0.589	0.098	0.5916	428	528	586
										% Change						
										-15.4%	+4.1%	-5.8%	+3.8%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 89003B-3 Line (Allings Crossing – Elmwest) In-Service Date 1/31/2024
3. Transmission Line and/or Substations

**89003B-3 Line**

- a. From Allings Crossing Substation - Orange, CT To Elmwest Substation – West Haven, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 1.3 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-11



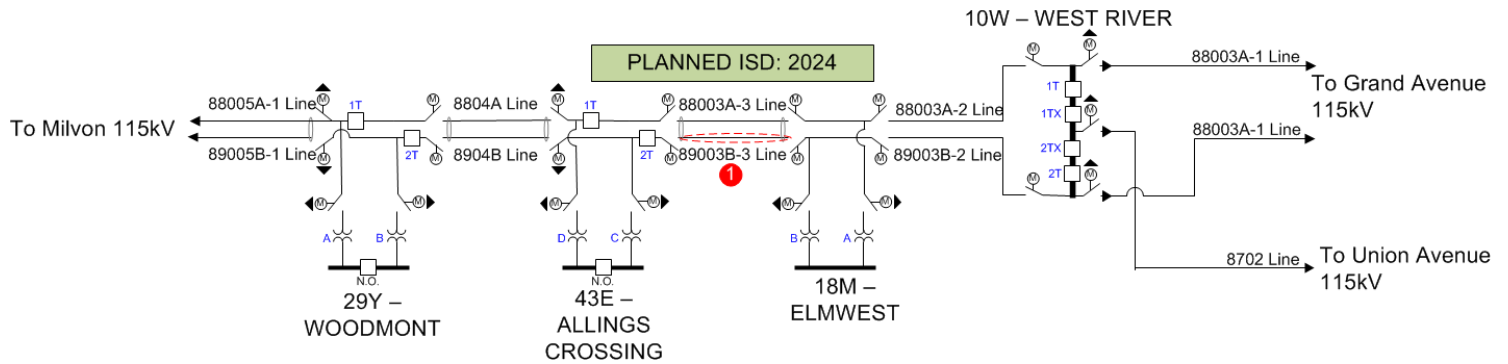


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 89003B-3 Line conductors between UI's Allings Crossing and Elmwest Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 89003B-3 Line from Allings Crossing Substation to Elmwest Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 89003B-3 Line will share these double circuit towers with the 88003A-3 Line.
2. See UI Application Identification UI-19-10 for details of the 88003A-3 Line rebuild project.

89003B-3 Line - Allings Crossing to Elmwest Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(%) on 100 MVA Base				Rating (MVA)				(%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
89003B-3 Line	1272 kcmil SSAC Catenary	0.065	0.566	0.104	0.5697	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.055	0.589	0.098	0.5916	428	528	586
										% Change						
										-15.4%	+4.1%	-5.8%	+3.8%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 88003A-2 Line (Elmwest – West River) In-Service Date 10/31/2024
3. Transmission Line and/or Substations

**88003A-2 Line**

- a. From Elmwest Substation – West Haven, CT To West River Substation – New Haven, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 1.2 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-12

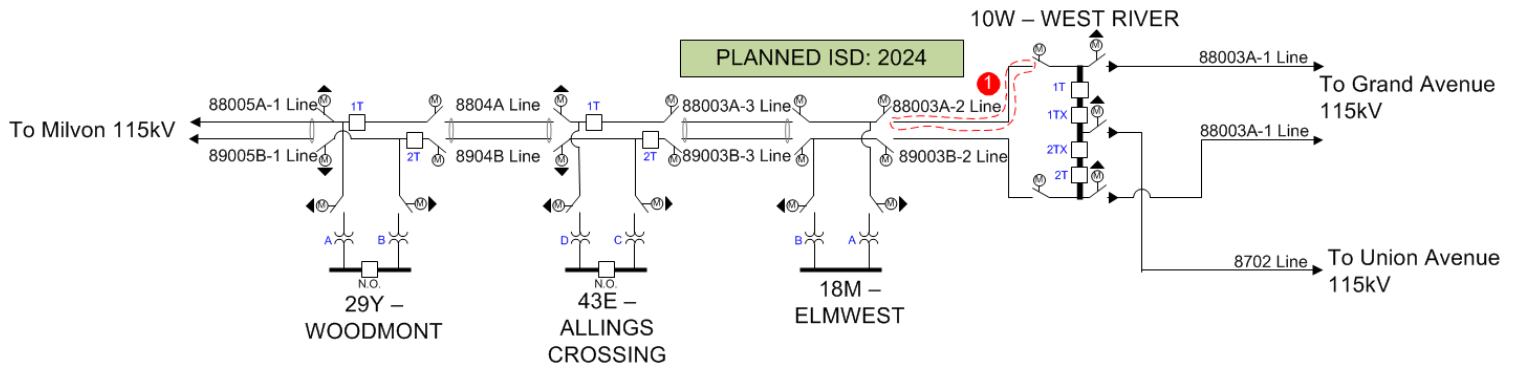


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 88003A-2 Line conductors between UI's Elmwest and West River Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 88003A-2 Line from Elmwest Substation to West River Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 88003A-2 Line will share these double circuit towers with the 89003B-2 Line.
2. See UI Application Identification UI-19-13 for details of the 89003B-2 Line rebuild project.

88003A-2 Line - Elmwest to West River Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(%) on 100 MVA Base				Rating (MVA)				(%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
88003A-2	1272 kcmil SSAC Catenary	0.068	0.596	0.107	0.5999	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.057	0.615	0.102	0.6176	428	528	586
										% Change						
										-16.2%	+3.2%	-4.7%	+3.0%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes

**TRANSMISSION FACILITIES PROPOSED PLAN APPLICATION**

1. Applicant AVANGRID (UI) Date 1/4/2019
2. Type of Facility Rebuild 89003B-2 Line (Elmwest – West River) In-Service Date 10/31/2024
3. Transmission Line and/or Substations

**89003B-2 Line**

- a. From Elmwest Substation – West Haven, CT To West River Substation – New Haven, CT  
(Terminal - Name - Location) (Terminal - Name - Location)
- b. Third Terminal or tap (if any) \_\_\_\_\_  
(Name - Location)
- c. Distance - Overhead 1.2 miles Underground \_\_\_\_\_ miles Design Voltage 115 KV  
Conductor Size 1590 kcmil ACSS (aluminum conductor, steel supported) Initial Operation \_\_\_\_\_ KV
- d. Proposed Relaying:  
Type of line relaying \_\_\_\_\_  
Backup relaying \_\_\_\_\_  
Stuck breaker \_\_\_\_\_  
Special protective relaying schemes \_\_\_\_\_
4. Transformer Rating \_\_\_\_\_ MVA HV \_\_\_\_\_ KV LV \_\_\_\_\_ KV Tertiary \_\_\_\_\_ KV  
Parameters in percent on a 100 MVA Base  
Resistance \_\_\_\_\_ -R Reactance \_\_\_\_\_ -X
5. Attach simplified one-line diagram(s) of transmission and/or substations with breaker configuration, indicating existing and proposed additions or changes on construction.  
Comments: See attached
6. Reliability Studies
- |                |                                    |                                  |  |   |
|----------------|------------------------------------|----------------------------------|--|---|
| Short Circuit: | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Load Flow:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Stability:     | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
| Other _____    | Completed <input type="checkbox"/> | Planned <input type="checkbox"/> | Not Needed <input checked="" type="checkbox"/> | Explanation Attached <input type="checkbox"/> |
7. a. If this Application is associated with a Generation Proposed Plan Application, identify the Generator Proposed Plan Application(s) and the Governance Participant(s) responsible for submitting it. N/A ☒
- b. Has the Generation Proposed Plan Application(s) been submitted? Yes ☐ No ☐  
If "No," when will the Application(s) be submitted? \_\_\_\_\_

Application Identification No. UI-19-13

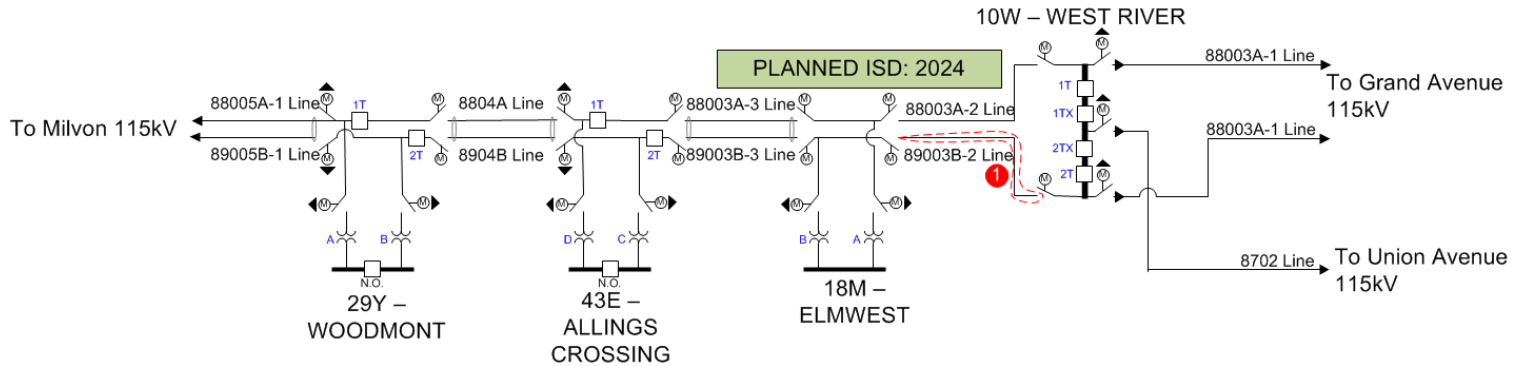


Diagram 1: System Topology

### Project Need

There are significant asset conditions issues associated with the existing railroad catenary structures used to carry the 89003B-2 Line conductors between UI's Elmwest and West River Substations. Structures along this right-of-way are showing signs of significant deterioration and material loss as well as additional unplanned mechanical wire loading.

A comprehensive condition assessment performed in 2018 confirmed the need to replace these structures.

### Project Components

1. Rebuild the 89003B-2 Line from Elmwest Substation to West River Substation with 1590 kcmil ACSS on double circuit monopoles located to the North of the existing right of way. The 89003B-2 Line will share these double circuit towers with the 88003A-2 Line.
2. See UI Application Identification UI-19-12 for details of the 88003A-2 Line rebuild project.

89003B-2 Line - Elmwest to West River Rebuild																
Line	Type	Existing							Conductor Type	Proposed						
		(%) on 100 MVA Base				Rating (MVA)				(%) on 100 MVA Base				Rating (MVA)		
		R	X	B	Z	S-N	S-LTE	S-STE		R	X	B	Z	S-N	S-LTE	S-STE
89003B-2	1272 kcmil SSAC Catenary	0.068	0.596	0.107	0.5999	301	388	426	1590 kcmil ACSS DCT Monopole (North)	0.057	0.615	0.102	0.6176	428	528	586
										% Change						
										-16.2%	+3.2%	-4.7%	+3.0%	+42.2%	+36.1%	+37.6%

Table 1: Existing and Proposed Impedance and Thermal Rating Changes