

Asset Condition Wood Structure Replacements

Planning Advisory Committee Meeting

January 19th, 2023

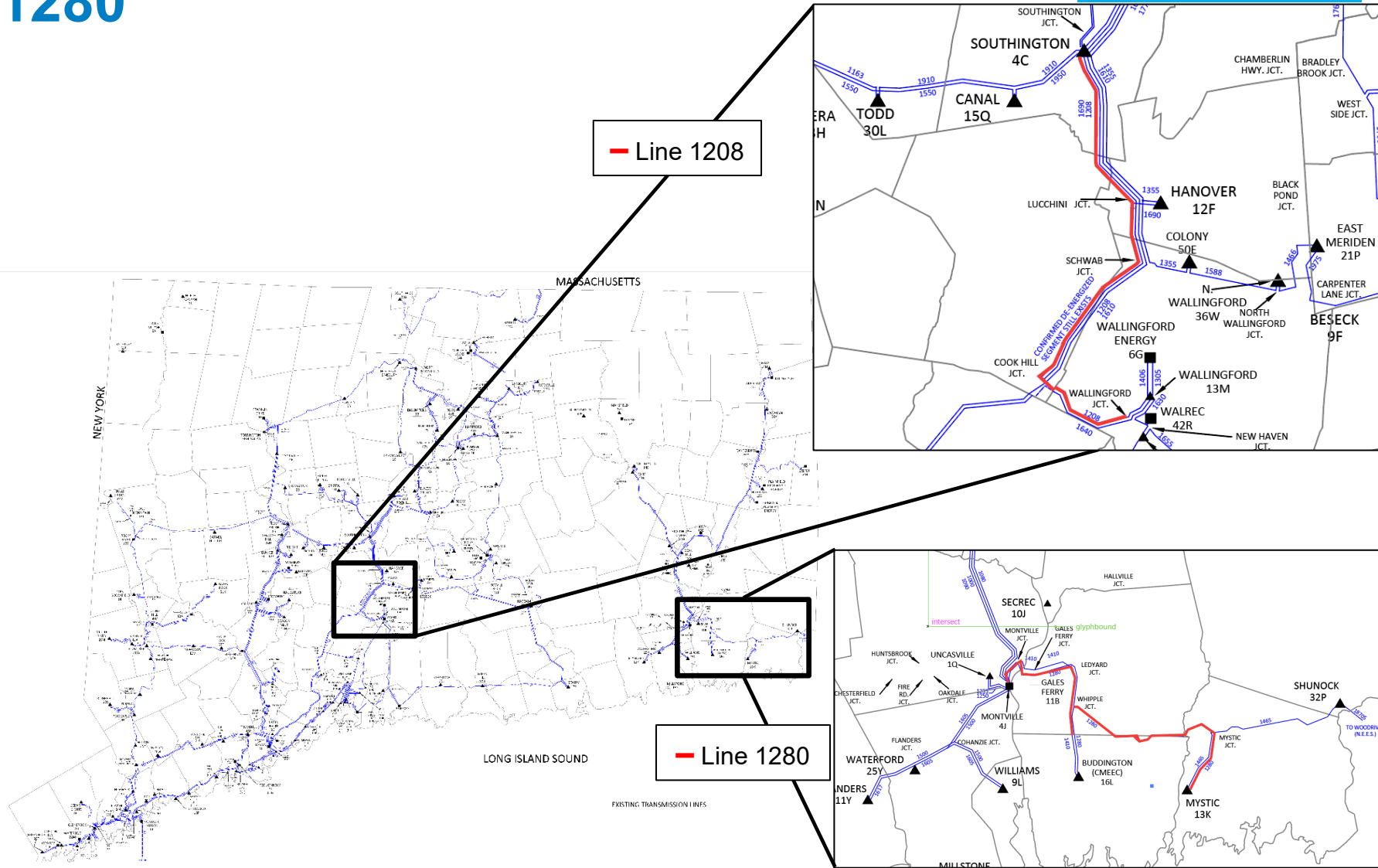
Agenda

- Project Background
- Project Locations
- Project Need
- Line 1280 Project Background & Update
- Project Scope
- Summary

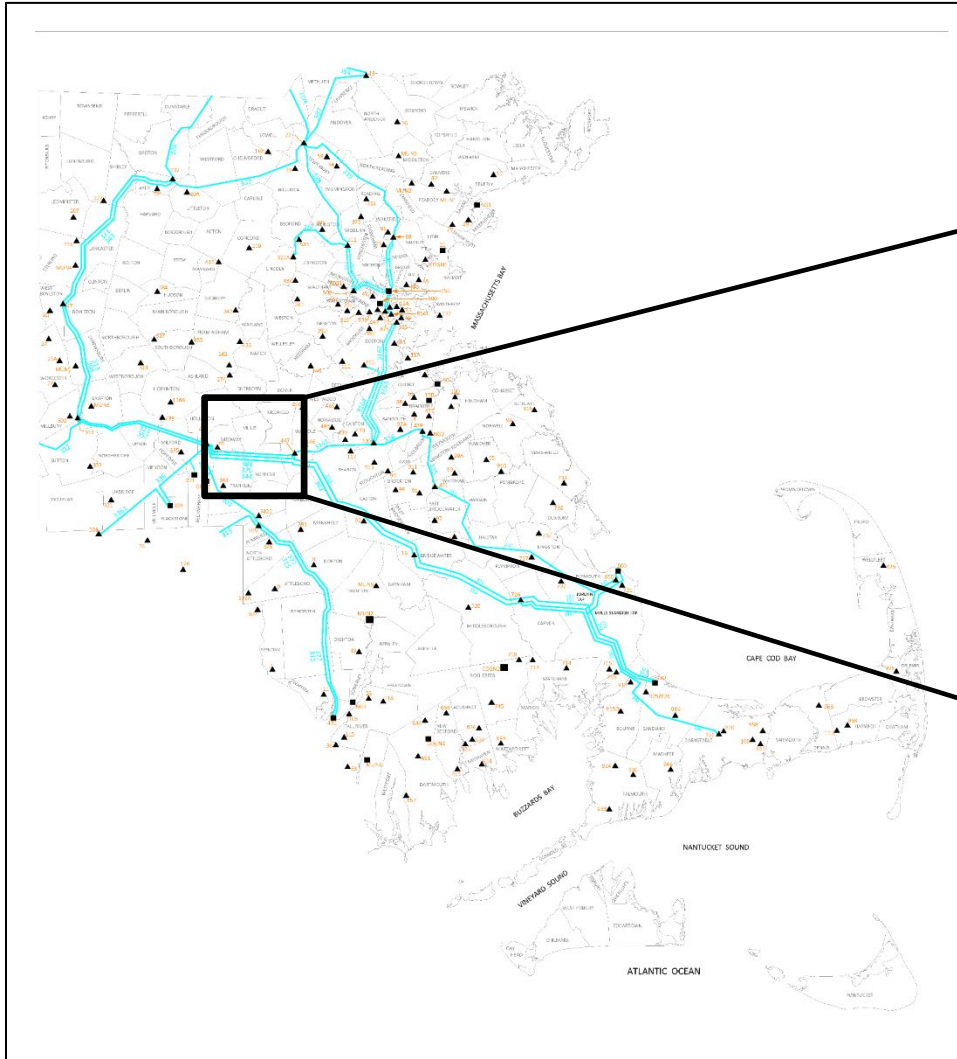
Project Background

- Eversource manages ~4,000 circuit miles of overhead transmission lines
 - Nearly 40% of all transmission in New England
- Eversource takes a proactive approach to maintain long-term structural integrity and continued reliability of its transmission infrastructure through regular inspections (walkdown ground inspections, structure ground line, flyovers, etc.)
- Structures targeted for replacement as part of this project are all wood
 - Supporting structures for lines within project scope are a combination of wood and steel
- Lines in this project scope are in Connecticut, Eastern Massachusetts, and New Hampshire

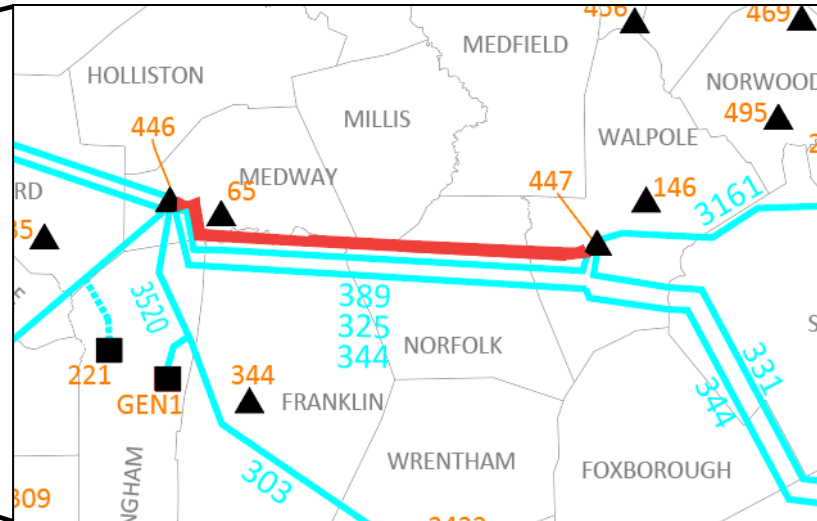
Locations – Connecticut Lines 1208 & 1280



Locations – Eastern Massachusetts Line 389

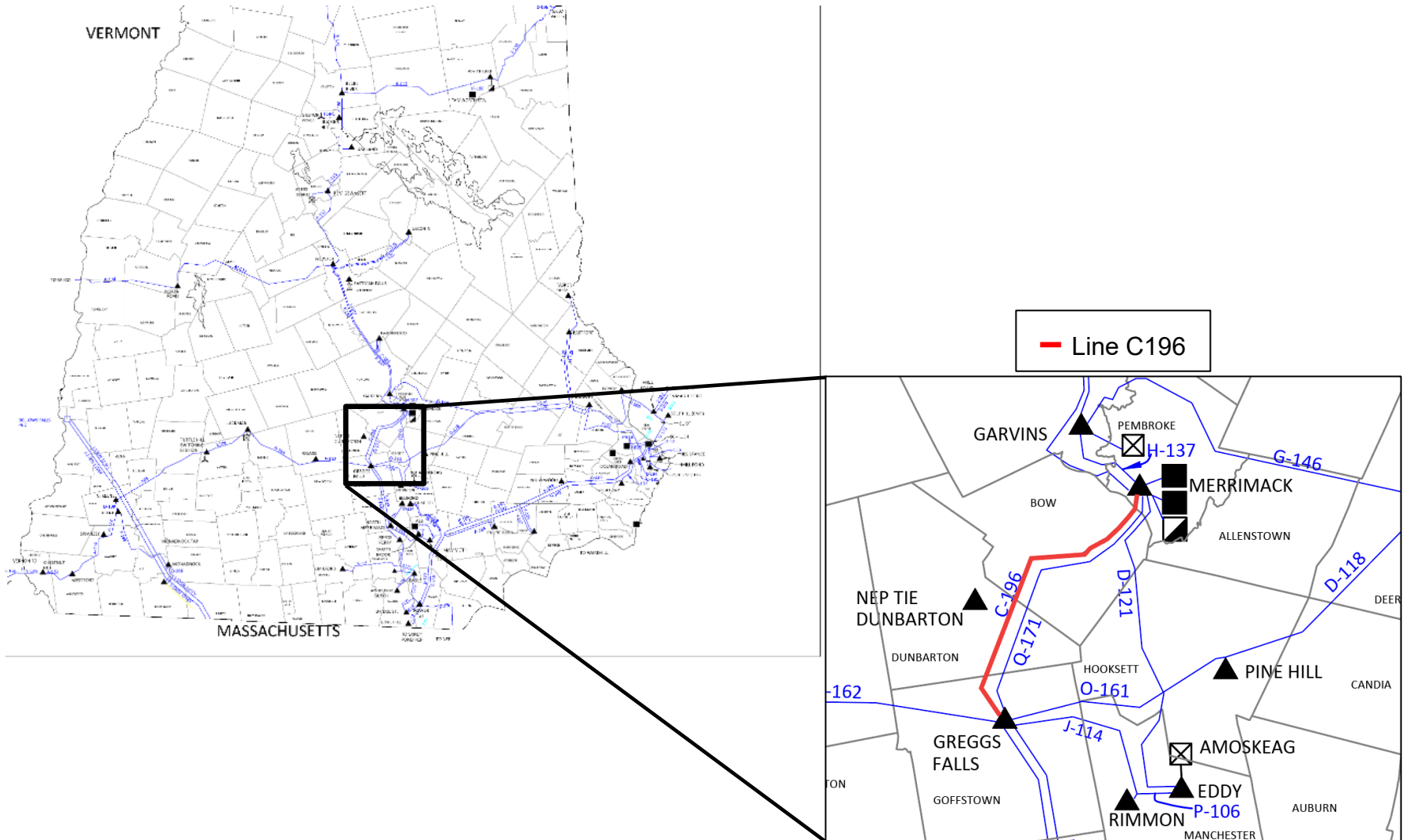


Line 389 spans between West Walpole Substation in Walpole, MA and West Medway Substation in Medway, MA



— Line 389

Locations – New Hampshire Line C196



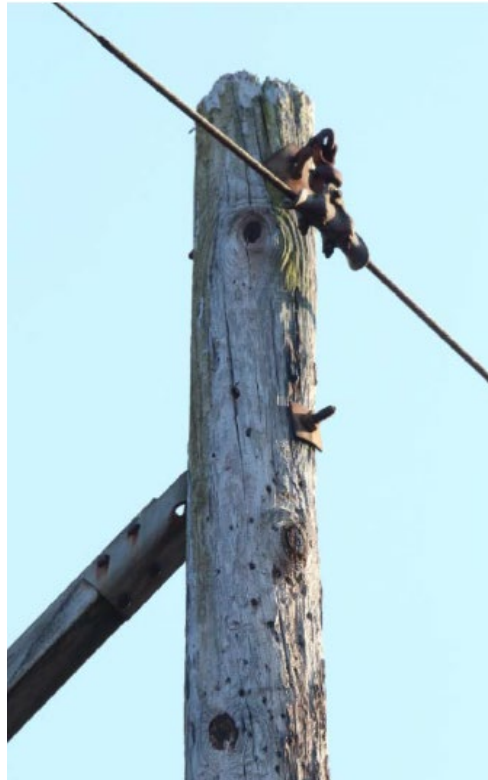
Project Need

- Recently completed inspections of these lines graded condition of all structures in accordance with Electric Power Research Institute (EPRI) guidelines:
 - *A: Nominal Defect – No Action Required*
 - *B: Minimal Defect – Monitor Degradation*
 - *C: Moderate Defect – Repair or Replace under next maintenance*
 - *D: Severe Defect – Repair, Reinforce, or Replace immediately*
- Grade C/D round wood structures showed one or more of the following age-related degradations, leading to decreased load carrying capability:
 - Woodpecker damage
 - Top rot
 - Cracking and splitting
 - Damaged insulators and deteriorated steel hardware
- Additional Grade B structures were identified and prioritized for replacement based on identified efficiencies in required permitting and approvals for replacing Grade C/D structures, as well as minimizing environmental impacts
 - If not addressed, these issues jeopardize the long-term integrity of the transmission system and its continued reliability
- Additional structures are required to be installed on Line 1208 to ensure blowout clearance is maintained to adjacent lines within the right-of-way

Project Need (Cont'd)



1208 Line – Pole Splitting
and Woodpecker Damage



Line 1280 –
Woodpecker
Damage and Rotting



389 Line – Top Pole
Splitting

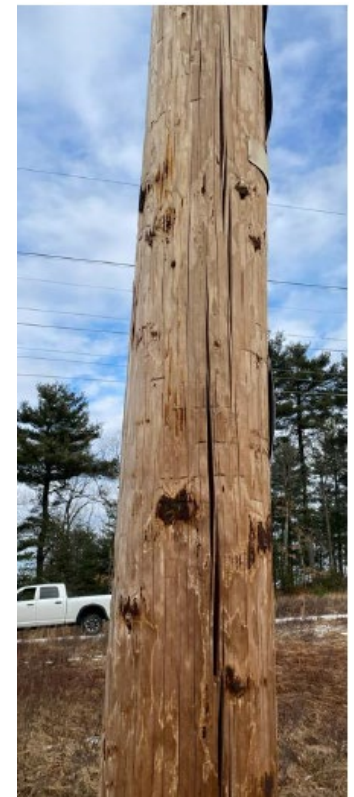
Project Need (Cont'd)



C196 Line – Top Rot and Splitting



1208 Line – Top Rot and Cracking



389 Line – Pole Splitting and Breaking

Project Need (Cont'd)



Line 389 – Pole Splitting and Breaking



Line 1280 – Woodpecker Damage and Top Rot



C196 Line – Damaged and Rusted Insulator 9

Line 1280 Project Background & Updates

- Previously presented to PAC in December 2019 as part of a package of wood pole and shield wire replacement projects
 - Additional details on need and original scope can be found here – [Link](#)
- Environmental and siting analyses identified the need to coordinate with the Eastern Connecticut (ECT) Reliability Project, extending the project duration by approximately 2 years (from Q4 2021 to Q2 2023 actual ISD)
- Pandemic-driven supply chain issues and inflation of material and labor costs have led to substantially increased lead times and costs for materials and labor
- Refined engineering design required:
 - Allowed us to decrease the number of structure replacements from 40 to 32 of 145 total structures due to additional load from new OPGW installation and asset condition-related issues
 - Required changing the design of two structures from light duty steel to engineered structures
 - Required emergent work to repair the static wire and related hardware over the Thames River

Project Scope

State	Line	kV	Length (miles)	Replacement Structures	Total Structures	Estimated Cost (-25% / +50%)	In-Service Date
CT	1208	115	13.62	12*	101	\$5.842 M	Q1 2024
CT	1280	115	16.00	Original: 40 Revised: 32**	145	Original: \$12.00 M Revised: \$19.726 M	Original: Q4 2021 Revised: Q4 2023
MA	389	345	9.57	15	113	\$6.648 M	Q3 2023
NH	C196	115	10.75	29	145	\$6.191 M	Q3 2023
Totals			49.94	88	504	\$38.407 M	-

*scope also includes the installation of 3 new 115-kV structures

**scope also includes the installation of 23.9 miles of OPGW on Line 1280 from Montville to Mystic

Summary

- Inspections have indicated significant degradation of several wood structures along the lines identified in this presentation
- Existing structures will be replaced with similar light duty weathering steel structures including:
 - Three-pole structures
 - H-frame structures
 - Monopoles
- New structures will provide a much greater life expectancy and a higher storm resiliency than wood
 - Supports long-term integrity and reliability of the Eversource transmission system
 - Resolves multiple structural issues
- Replacement structures will be designed to meet current design criteria

Questions

