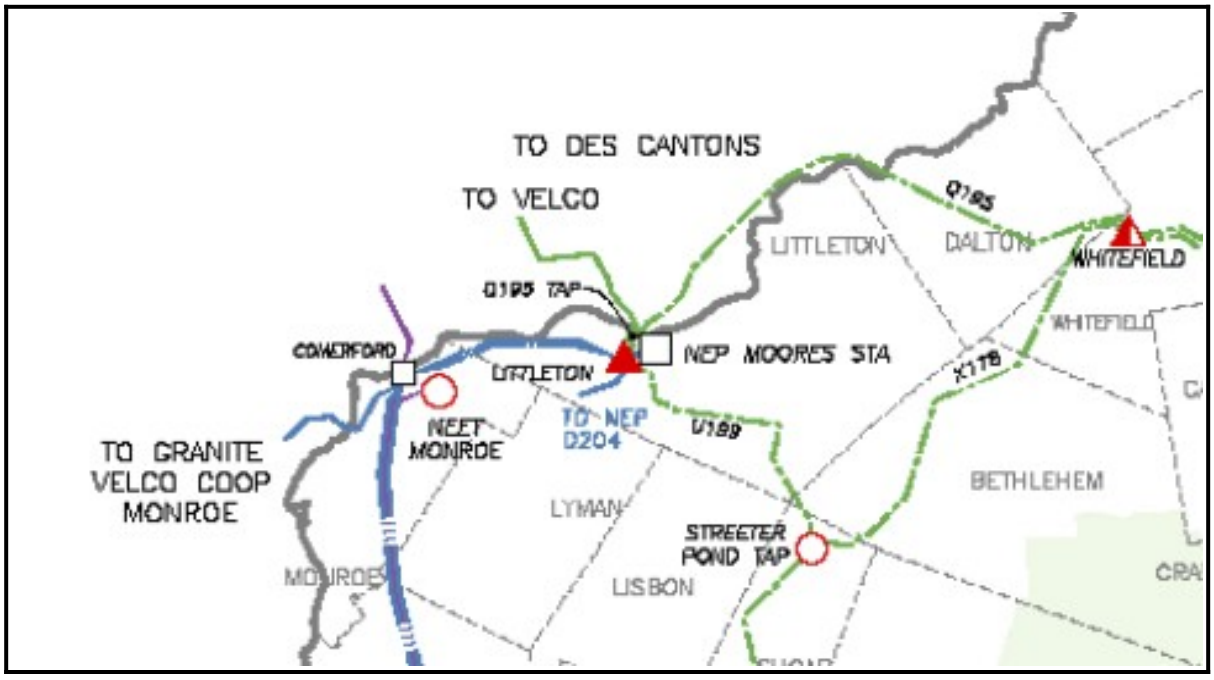
Annotated Eversource September 16, 2024 submission to SEC 2024-2

"I. BACKGROUND
The X-178 transmission line is a 115 kilovolt ("kV") line that extends 49 miles from the Beebe River Substation in Campton New Hampshire to the Whitefield Substation in Whitefield, New Hampshire. Upon completion of the replacement work, the X-178 transmission line will remain a 115 kV transmission line, located within the existing right-of-way ("ROW"), between Beebe River Substation and the Whitefield Substation."

115kV lines currently owned by Eversource in New Hampshire range from 336 ASCR/529 amp (482 lbs per 1,000') to 1590 ASCR/1790 amp (1,354 lbs per 1,000). Eversource's proposed 1272 ACSS/2,200 amp (1,633 lbs per 1,000') conductor would require taller (though not as tall as planned) structures because of its weight and sag. There are also high-performance ACCC type conductors with lower sag and lower line-losses. Eversource's implication that there are not significant differences in 115kV lines is misleading.

"The X-178 transmission line plays a critical role in meeting the energy needs of the North Country because the system does not have a redundant means of delivering energy to the North Country if there is an outage on the X-178 transmission line."



Eversource can't have it both ways. Either the X-178 is a disconnected line and its effects are looked at in isolation or the X-178 is an inseparable part of the grid (which it is) and its effects are assessed with the understanding that its proposed rebuild is connected to the ISO-NE grid

through Eversource's other asset condition projects/lines in New Hampshire, and beyond. Eversource's 70+ "Asset Condition" rebuild projects in New Hampshire have been built with standard infrastructure; the same metal poles, crossbars and insulators, roads, pull-pads, and construction pads. (Eversource's 345kV lines have larger structures and different conductor configurations.) Where the conductor was not changed to 1272 ACSS on the 115kv partial rebuilds, the new structures are able to bear its weight and be reconductored with it the future. Eversource can connect to the North Country through the U-199, Q-195 and X-178 (3) and transmission owned by other corporations.

"Timely replacement of the aging, outdated existing facilities will improve the resiliency and safety of the transmission line, and is part of Eversource's continuing efforts to maintain reliable service to its customers by replacing degraded infrastructure, enhancing the effectiveness of system operations, and bringing New Hampshire's transmission facilities up to current electric code requirements."

Premature replacement of structures is a waste of money and infrastructure. Replacing functioning outdated ASCR conductor with new outdated ACSS conductor is a waste of rate-payers' money. In its February 2024 presentation to the PAC, only 43 of the 590 structures (or is it poles?) on the X-178 were claimed (by Eversource) to be in need of replacement in the next maintenance cycle, which Eversource defined as whenever it finds it convenient. In addition, since it began providing structure ratings and recommendations Eversource has repeatedly changed the recommendations to increase the number of structure replacements, which benefits it financially. (See Asset Condition Process Guides on the ISO-NE PAC site and comments by Synapse and NH OCA on the utilities' guaranteed rate of return on investment.) After NESCOE questioned the need to completely rebuild the X-178 when only 3-7% of the structures were Category C, Eversource announced it had categorized 115 more structures as Category C and 55 more structures as subject to uplift. Eversource implies that its project as proposed is necessary for system reliability and to keep the line safe, both unsupported claims. Eversource needs to explain why the proposed X-178 rebuild, in which all the structures are proposed to be replaced with larger ones in order to be able to carry the 50% heavier conductors that double the carrying capacity of the line is not an Elective Transmission Upgrade, ineligible for TCA (Transmission Cost Allocation.)

https://www.iso-ne.com/static-assets/documents/2020/02/pp_4_rev9.pdf

"Eversource has planned the X-178 replacements in three segments to support scheduled outages in the most responsible manner for customers and as a contracting strategy that manages resources efficiently."

This is irrelevant.

“In addition, each segment has three components, consisting of (1) the replacement of aging wood poles with steel structures, (2) the replacement of the conductor, and (3) the replacement of the existing static wire with Optical Ground Wire to facilitate effective communications for a safe and reliable transmission system. The three segments include (1) Beebe River Substation to North Woodstock Substation, 14.1 miles, (2) North Woodstock Substation to the Streeter Pond Tap, 20.8 miles, and (3) the Streeter Pond Tap to Whitefield Substation, 14.1 miles. infrastructure component of the transmission system will eventually require replacement due to aging, as determined by data retrieved from periodic inspections of transmission structures, conductor, hardware, and static wire.”

Everything, including infrastructure, could be described as ‘aging’, but this word, intimately connected with human mortality, creates an emotional response that has no place in an infrastructure report. (Eversource does not identify the conductor as ‘aging ‘or in need of replacement.) This doesn’t free Eversource of the need to provide complete pole inspection reports and to replace structures in an orderly way. The Woodstock to Streeter Pond tap section of the X-178 was rebuilt in 1985 (paid for by Hydro-Quebec. Is Eversource claiming a return on investment for transmission infrastructure it didn’t pay for?) with 5’ taller and larger diameter poles The diameter of the poles, treatments, type of wood, source, and complete inspection reports from 2001 (or earlier for the X-178 (3) and X-178 1 & 2 poles that were not replaced in 1985) need to be produced by Eversource so others can accurately assess the structure strengths. The O-154 was built in 1948 and not replaced until 2022. The A-111 was 70+ (according to Eversource) when it was replaced in 2023. Age is only one piece of information to be considered when determining structure integrity.

Aging equipment is “utility-speak for equipment that is fully depreciated, and thus earning no return.”

https://www.linkedin.com/posts/paul-alvarez-9b38452_eversource-others-may-be-capitalizing-on-activity-7159246567961423872-GV_7

Why doesn’t Eversource cut off the top 1’ of the many poles it states are decayed, roof them, replace the static wire and remount the crossbars and insulators?

“The ISO New England Inc. (“ISO-NE”) Planning Advisory Committee (“PAC”) reviewed the X-178 replacement work (“X-178 Project”) on February 28, 2024, and June 20, 2024.”

The PAC has no regulatory powers over, and rarely asks more than a few questions about the “Asset Condition” projects presented to it. The X-178 was unusual in the number of questions and resistance (or show of resistance) shown at the PAC meetings, but very few of the questions asked at the meetings were answered by Eversource, several were curtailed, discussion time was deliberately limited and no changes were made to Eversource’s plan in response to comments and suggestions. See NESCOE, CANE and my submissions.
https://nhconservation.org/doku.php?id=x-178

The NH Office of the Consumer Advocate submitted no comments or questions.

February 28, 2024 Eversource presentation to the PAC: https://nhconservation.org/lib/exe/fetch.php?media=x178:x-178_presentation.pdf

February 28, 2024 PAC minutes: https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_02_28_pac_final_meeting_minutes.pdf

March 14, 2024, NESCOE Comments: https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_03_15_pac_nescoe_feedback_line_x178.pdf

March 20, 2024, Maine Public Advocate Comments: https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_03_20_pac_me_puc_comments_x_line_178.pdf

June 20, 2024 Eversource presentation to the PAC: https://nhconservation.org/lib/exe/fetch.php?media=x178:a04_line_x178_follow_up_presentation.pdf

June 20, 2024 PAC minutes: https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_06_20_pac_minutes_final.pdf

CANE (Consumer Advocates of New England) Comments:
https://nhconservation.org/lib/exe/fetch.php?media=x178:20240816_cane_letter_to_eversource_re_x_178_with_signatures_final.pdf

"The Petitioners contend that "Eversource's proposed rebuild of the X-178 line is a sizeable change per RSA 162-H." It sets forth several arguments why "a review by the S.E.C. for a required certificate is absolutely necessary and required for the public good."
The Petition indicates that "X-178 has wood H-frame structures 55' tall with 795 ASCR conductor that weighs 1,094 lbs. per 1,000' and can carry 908 amps, and two galvanized steel 7/16" ground wires that weigh 399 lbs. per 1,000'." In addition, it includes an assertion that "Eversource proposes to replace the wood H-frame structures with steel H-frame structures with an average height increase of 12', and add two OPGWs (Optical Ground Wire5) that weigh 537 lbs. per 1,000', and replace three 795 conductors with three 1272 ACSS conductor that can carry 2,200 amps (vs. 908 amps currently) and weigh 1,623 lbs. per 1,000'." The Petition concludes that the "doubling of transmission capacity does not seem to be incidental to the replacement of all the deficient structures" and that the installation of OPGW does not "seem to be incidental to the replacement of all the structures." Eversource calculates the current average structure height as 50.5 feet and confirms that the 795 (DRAKE) ASCR conductor weight is accurate. However, portions of the line also carry 795 (COOT) ASCR conductor, which is 804.7 pounds per thousand feet and 1272 (PHEASANT) ACSS, which is 1,631 pounds per thousand feet."

I suspect the section of 1272 ACSS is quite short. Eversource needs to provide the length and location of the various types of conductor on the line. Eversource states “The Petitioners assert” but never confirms these assertions as accurate or inaccurate.

“Optical Ground Wire not only replaces the lightning protection function of the existing static wire, but also provides critical communication between substations regarding the operational status of the transmission line and system, enabling better and faster response to address operational issues and maintain reliability.”

Eversource has placed OPGW, which can monitor acoustics and vibration, on almost all of its “Asset Condition” line projects, in violation of many of the easements which do not permit “intelligence”. Before it used OPGW it placed fiber (ADSS) below the conductors on some lines while also using fiber networks connected to its transmission system. It refuses to provide any details about these networks or any cost-benefit assessments of rebuilding lines to carry the heavier OPGW. In its February presentation to the PAC Eversource claimed the weight of the OPGW necessitated the replacement of 244/580 of the structures. It provided no information about whether the weight of the new conductor was considered in this calculation. It provided no lighter alternatives to its proposed two strands of 48F (fiber) 0.B48 AFL 53-81/69/464 OPGW or provide specs on it anywhere other than its exhibits for its proposed public water and land crossings. It did not provide any assessment of its communications system now compared to how it would function with the OPGW nor did it provide the alternative of placing fiber on the conductor with SkyWrap, which would also lower structure heights by around 5’. (Eversource claims that the OPGW needs to be 15’ from the conductors, compared to 10’ or less with the existing ground wire.) https://nhconservation.org/lib/exe/fetch.php?media=x178:x-178_presentation.pdf

https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_06_20_pac_minutes_final.pdf

There is far more going on with its fiber network and the OPGW than Eversouce has stated: https://nhconservation.org/lib/exe/fetch.php?media=x178:first_light_ever_source_3-31-2021.pdf

“In addition, the Petition asserts that “Eversource proposes to construct permanent 16’ wide and 9’’ deep gravel roads along the whole easement (except for in wetlands) and permanent 100’ x 100’ excavated, graveled and graded construction pads at each structure.” It also posits that removal of plants, topsoils and subsoils “would inflict sizeable damage to the ecosystem of the easement, to its water absorbing and filtering capacity, and to its appearance.” In addition, the Towns suggest “effects on wildlife of further fragmentation of 49 miles of terrain already negatively impacted by the transmission line clearing would also constitute sizeable damage.” Finally, the Petition identifies unspecified benefits to the public from SEC review and oversight. It includes a recitation of the findings required for a certificate pursuant

to RSA 162- H:16, while also asking the SEC to evaluate the necessity of the Project (which the SEC does not have authority to do), seeming to suggest that the SEC "take" jurisdiction even if the changes are not sizeable."

As the NH and Maine OCAs mention, the necessity or lack thereof for the X-178 complete rebuild is under the purview of the SEC inasmuch as its expansion of the grid, planned by Eversource for the benefit of its shareholders and without any determination of need or oversight for costs, would have negative effects on the orderly development of the towns where the line is sited as well as the rest of the state. See NESCOE, Synapse, NH OCA and CANE documents re. the "Asset Condition" problem.:

https://acadiacenter.org/crosscurrents-issue-2/ This article incorrectly states that the new conductor would leave the capacity of the X-178 unchanged. Chris Soderman claimed ignorance when asked about this during the PAC presentation, which may account for this error. Note that this document describes the X-178 and U-199 as one line.

https://nhconservation.org/lib/exe/fetch.php?media=x178:2024_03_15_pac_nescoe_feedback_line_x178.pdf

https://nhconservation.org/lib/exe/fetch.php?media=undefined:synapse_on_asset_condition_5_2023.pdf

https://nhconservation.org/lib/exe/fetch.php?media=ac:nescoe_acpg_feedback.pdf

More "Asset Condition" documents:

https://nhconservation.org/doku.php?id=asset_conditions_documents

"III. STANDARD OF REVIEW
As the Petitioners, the Towns bear the burden of proof. Site 202.19 ("The party asserting a proposition shall bear the burden of proving the proposition by a preponderance of the evidence"). That burden has not been met.
RSA 162-H:5, I provides: "No person shall commence to construct any energy facility within the state unless it has obtained a certificate" and "certificates are required for sizeable changes or additions to existing facilities." The SEC has addressed the question of whether a change or addition to an existing energy facility is sizeable in a handful of cases, all but one of which was filed by the energy facility itself. Recognizing that the determination of whether a particular change or addition is sizeable is fact-driven, the SEC has interpreted sizeable to mean "having considerable size" and in turn has interpreted considerable to mean "large in amount,

extent or degree" or "worthy of consideration, important." See Docket No. 2012-02, Granite State Gas Transmission Company, Order Granting Motion for Declaratory Ruling (July 5, 2012) at p. 4.

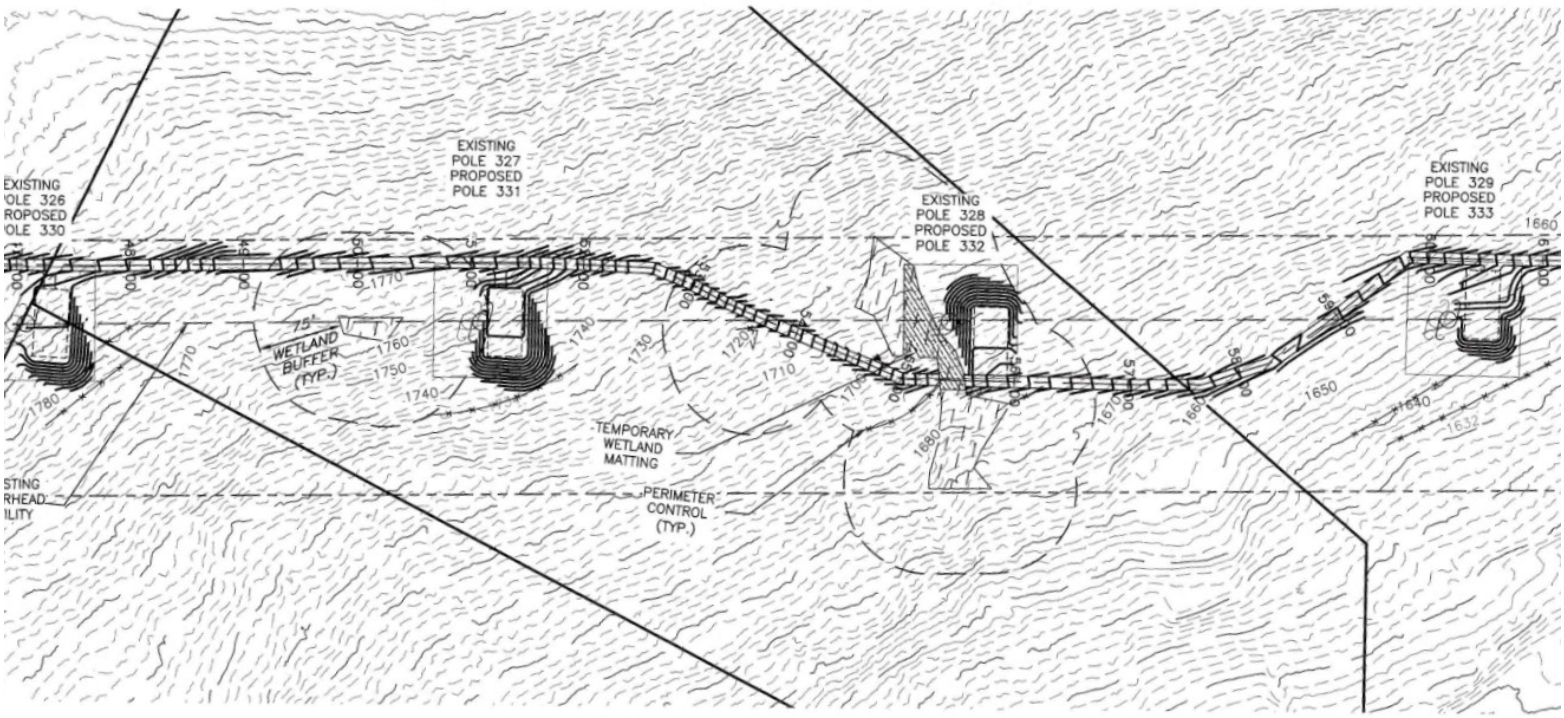
As set forth most recently in Docket No. 2021-05, New Hampshire Transmission, LLC, the SEC considers five factors when determining whether a change or addition is sizeable. First, the existing size of the energy facility and the size of the proposed change. Second, whether the project requires the acquisition of new land. Third, whether the project changes the capacity of the existing facility. Fourth, whether the proposed change is a replacement of existing components as opposed to an expansion or increase in the size of those components. Fifth, whether the proposed addition or change will cause disruption in the existing environment. See Order on Petition for an Exemption, for a Declaratory Ruling that this Project is not a Sizeable Addition (September 12, 2022) at p. 9.

The SEC conducted its most extensive analysis of whether certain changes constituted a sizeable change or addition in Docket No. 2009-01, concerning the Merrimack Station Electric Generating Facility. In that case, the Committee concluded as an initial matter that Eversource was engaged in two separate projects, one involving a turbine replacement and the other involving the installation of a wet flue gas desulfurization system or scrubber with a 445-foot high chimney. The Committee determined that neither project was sizeable.
As part of its analysis of the scrubber, the SEC began by looking at RSA 162-H:1, the Declaration of Purpose, and concluding that the majority of siting considerations under the statute, for example, maintaining an appropriate balance among potential significant impacts and benefits, avoiding undue delay, providing full and timely consideration of environmental consequences, and treating siting as a significant aspect of land use planning, supported a determination that the scrubber was not sizeable. In that context, the SEC emphasized that the 1 scrubber did not require the acquisition of new land, that it would be installed within the confines of the existing site, and that it would not increase electric production."

Eversource's proposed construction of 49 miles of new transmission line and permanent roads on 594 acres of easement is not comparable to the scrubber, except perhaps in price.

"IV.
RESPONSE
A. The Petition does not contain sufficient facts demonstrating that the replacement work is sizeable.
Assuming for the sake of argument that the facts as stated in the Petition are accurate, which Eversource does not concede [Eversource fails to show which facts it considers inaccurate and provide its correction of them], the Petitioners have failed to meet the burden of

proof that the proposed changes to the X-178 transmission line are sizeable. As noted above, the SEC defines sizeable to mean large in amount, extent or degree, or worthy of consideration, and it considers five factors when determining whether a change or addition is sizeable. The Petition essentially alleges two theories [these are not theories. A theory is "A set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena."] for why the proposed changes to the X-178 transmission line are sizeable. First, it identifies certain physical components of the line, asserting that (a) the wood H-frame structures are on average 55' tall and that they will increase in height by 12' on average, (b) the conductor will be heavier, (c) conductor amperage will increase from 908 amps to 2,200 amps, and (d) the addition of OPGW is not "incidental" to the Project.6 Second, it suggests various forms of environmental disruption from the construction of roads along the easement, including impacts to the ecosystem from the removal of plants, topsoil and subsoil, and effects on wildlife from fragmentation due to line clearing. The primary factor in determining whether a project amounts to a sizeable change focuses on the size of the existing energy facility relative to the size of the proposed changes or additions. The existing X-178 transmission line is a 115 kV line, approximately 49 miles in length, comprising 594 structures. When [if] the X-178 Project is completed [was constructed] , it will [would] consist of 591 steel structures, with three structures eliminated to avoid wetlands and other impacts. The X-178 Project is located in a long-established [acquired before environmental protections existed] and well maintained [what does this mean?] linear corridor [a small portion of which is physically] devoted to the transmission of electricity and does not require or involve the acquisition of land. Ultimately, the pivotal question is whether a 13' change in the average height of the X-178 transmission structures alone constitutes a sizeable change. [Eversource ignores the massive alteration of the existing terrain necessary for its construction of 100 acres of new heavy-equipment roads.]



These plans show the easement boundary, 225’. The present cleared area is approx. 120’. Contour lines are 2’, crane pads sides are 20-22’ high.

https://nhconservation.org/lib/exe/fetch.php?media=x178:es-x178-6-3-planset-stamped.pdf

“In light of the SEC’s decision in Docket No. 2009-01, height alone is not a determining factor but must be considered in the fuller context of the footprint of the facility, which in this case is 49 miles long, broken down into segments of 14.1, 20.8 and 14.1 miles, along a corridor that is 265 feet wide [225’ in Easton, in most areas only cleared to 120’. Sections of WMNF have no easement only a Special Use Permit] along substantially all of its length. Notably [not really], the X-178 Project will be installed within the existing ROW and existing access roads within the ROW will be utilized to the extent possible, though new in- ROW access roads will be required. Some existing access roads may need to be hardened (additional gravel) to permit the safe passage of construction vehicles. [Eversource grossly overestimates the amount of roads (are there any?) on the easements, calls dirt tracks and game trails roads and claims to be “improving” these rather than creating new roads.] Furthermore, the X-178 transmission line will continue to have a design rating of 115 kV, the measure RSA 162-H:2, IV uses to determine jurisdiction rather than the novel suggestion by the Towns that amperage triggers jurisdiction. Moreover, while the conductor installed as part of the X-178 Project has a higher amperage rating, additional substation work would be required to enable any additional power flows. Such substation work is not proposed and is not part of the scope of the X-178 Project. [The last two sentences above were written in bad faith. Substation work will be done later. In its second presentation to the PAC Eversource cited the benefits of the increased capacity of the larger conductor, which would require work on the substations, as has been done elsewhere on Eversource’s system.] Finally, the alleged [actual; 1094 to 1633 lbs per 1,000’] increased weight of the conductor is not worthy of consideration nor important in determining whether the X-178 Project constitutes sizeable change or additions because the size difference between the existing conductor and the new conductor will be negligible. [Eversource claims that the larger conductor and OPGW necessitate its proposed larger and taller structures.] The X-178 transmission line currently consists of 594 structures, of which 580 are wood and 13 are steel, with an additional wood structure, due to its poor condition, in the process of being replaced with a steel structure. When [If] the X-178 Project is complete [was constructed] , it will [would] consist of 591 steel structures, with three structures eliminated to avoid wetlands and other impacts. The X-178 Project is located in a long-established [acquired before current environmental protections existed] and well maintained linear corridor [not exclusively] devoted to the transmission of electricity and does not require or involve the acquisition of land. Consequently, the structure replacement work will not result in “further fragmentation” of the terrain. [This last sentence is false. Many studies show the negative effects of roads on animal movement.] Moreover, the type and extent of potential impacts are well understood based on routine line rebuild projects in similar environments. [Eversource provides no data on

what is understood.] In addition, the construction of access roads and temporary level work surfaces [the crane pads are permanent and the reduction in size Eversource claims will occur is merely the spreading of topsoil over part of the rip-rap and gravel area and is done "when practicable." How many crane pads have received even this level of "restoration"?] required to perform the replacement work will be limited to those areas strictly necessary to complete the X-178 Project. [The line was constructed in 1948 and rebuilt in 1969 and 1985 without permanent access roads, construction pads, or the use of most of the machinery Eversource now claims is necessary.] For all its projects, Eversource works closely with the applicable governing agencies to avoid, minimize, and mitigate any impacts. [Eversource works closely with DES which has not denied any of Eversource's permit applications, regularly granted Eversource waivers of permit requirements and accepted Alteration of Terrain and Dredge and Fill permit applications without the easement-encumbered landowner signatures required, thus cutting these landowners out of the permitting process.] As for any potential disruption, in every case where the SEC considered whether changes were sizeable, it looked to whether relevant state agencies were involved. Here, as acknowledged by the Towns, the Department of Energy, the Department of Environmental Services ("DES") and the Fish & Game Department, [neither DOE nor Fish and Game make any determinations about whether a project is sizeable] as well as the towns along the ROW, are evaluating potential environmental and other impacts. Finally, each structure replacement has been carefully reviewed with engineering to minimize the required height increases as much as possible. [This is not true. The required clearance to ground of the conductors is consistently exceeded by tens of feet. Eversource has refused to consider using ACCC type conductor or dead-end structures to reduce sag. Until a few days ago, for this docket, Eversource refused to provide the profile drawings showing the proposed conductor clearances. It has still not provided profiles of the existing line and the line with ACCC type conductor.] Height information, and the justification for height increases has been continually provided to the host communities since August 2023 after an initial presentation during two regional public information sessions hosted by Eversource. [This is not true. At the first public meeting, at the Sugar Hill Meeting House, existing and proposed structure heights were in the binders that showed the project maps. I photographed some of these. After the meeting I asked Jennifer Codispoti, project representative, for these figures for the whole of the X-178 and she refused to provide them. Months later Eversource posted them on the X-178 site with no notification to easement-encumbered landowners. Eversource has failed to provide justification for the structure heights or consider SkyWrap fiber which is placed on the conductor, eliminating the need for the OPGW which Eversource claims requires greater clearance from the conductors than the existing ground wire, thus adding 5' to the height of the proposed structures.]

"B. The replacement work is not sizeable. The X-178 Project has three purposes or components, the first being the replacement of aging [all structures are aging] wood structures (8) footnote 8: The X-178 line was originally constructed in the early 1950s, with the first

segment (from Beebe River Substation in Campton to North Woodstock Substation in Woodstock) being reconstructed in 1969 and the other two segments being reconstructed in 1985. (The section from Beebe River to the Streeter Pond Tap was rebuild in 1985 and the section from the Streeter Pond tap to Whitefield was rebuild in 1969) changing them to steel structures as part of what is commonly referred to as asset condition replacements, the second being the replacement of the existing conductor (3) and the third being the replacement of the existing static wire with OPGW (2) to improve system reliability, reduce outages, and promote grid modernization. Based on the following facts, the X- 178 Project is neither a sizeable change nor a sizeable addition to the existing facilities. A combination of factors drives the structure replacements, including asset condition where structures have been identified as needing replacement due to the degraded condition of the structures. [43 structures, **(or is it poles?)** out of 590 structures, five structures on Section 2]

Table 3 – Line X-178 – 2022 Drone Inspection – Structure Ratings

Structure Rating	Segment 1	Segment 2	Segment 3	Total
A	9	0	1	10
B	148	227	168	543
C	18	5	18	41
D	0	0	0	0

Table 4 – EPRI Visual Inspection Priority Ratings

Maintenance Priority Rating	Definition
A	Nominal defect No action required
B	Minimal defect Monitor degradation
C	Moderate defect Rehabilitation recommended as scheduled maintenance[4]
D	Severe defect Repair, reinforce, or replace as soon as possible[5]

https://nhconservation.org/lib/exe/fetch.php?media=x178:eversoruce_x178_stakeholder_feedback_memo.pdf

Additional structures have been identified as needing to be replaced because they are showing sufficient signs of age-degradation that they have decreased load carrying capability and cannot support the new conductor or OPGW or both [Eversource's February presentation only listed the increased load of the OPGW as creating a "need" for new structures. The more than doubling of capacity makes replacement of these structures an optional upgrade, not asset condition project.] Still other structures have been identified as needing to be replaced due to

uplift. [This uplift would be caused by the installation of taller structures, thus would not be due to asset condition] Structures are also proposed to be replaced due to their age and current level of degradation in order to forestall returning to the ROW in the near future to conduct their needed replacement, which would introduce additional construction period impacts, repeated environmental impacts, require reconstructing access roads, and increase project costs to remobilize. The structures identified for replacement will be replaced with weathering steel and not with wood, due to steel's resiliency and resistance to degradation. Weathering steel is preferred over galvanized steel as the material is considered visually comparable to wood [by whom and where is supporting documentation of this claim?] and is typically utilized [used: "Use means to consume from a limited supply or take something to achieve a result. Utilize means to use something beyond its intended purpose."] for structure replacements where ROWs [except for sections of WMNF, the X-178 is sited on easements not ROWs] traverse through forested lands."

Eversource provides no data supporting its assertions here. It did not compare the costs of its former (pre-2014) method of replacing, in-kind, only structures which really needed to be replaced to this complete line rebuild with permanent heavy-equipment roads and crane pads. No lifetime cost/benefit figures are given. In addition, Eversource consistently states that wood structures last around 50 years though many of its wood structures last far longer. As it replaces younger structures, this will further reduce the average replacement age.

2022 responses by Eversource to interrogatories from the Connecticut Siting Council show similar lifetime costs for wood and steel. Eversource provides no documentation supporting its statement that steel is visually comparable to wood nor does it explain why steel is used where easements "traverse through forested lands."

https://portal.ct.gov/-/media/csc/1_dockets-medialibrary/lifecycle/2022lifecycle/industrysubmissions/eversource-20220729-responsestointerrogatories.pdf

"Per the industry standard guidelines issued by the Electric Power Research Institute (EPRI) [these standards are not available to the public] structures that have been inspected and determined [by Eversource, which until this SEC docket refused to release even the incomplete structure inspection reports it has produced] to be "Priority C" rated or showing moderate defect, should be replaced. [The first of every-changing recommendations provided by Eversource for priority/category C structures is replacement at the next maintenance cycle. Of the 56 structures identified by Eversource in 2018 as needing replacement (this project, was canceled) only 13 have been replaced; none were on the X-178 (2)]

Table 1 – X-178 Structure In-Service Years

Year	X-178	Segment 1	Segment 2	Segment 3
1953[3]	28	28	0	0
1958	2	0	0	2
1969	175	0	0	175
1971	22	21	1	0
1983	83	1	79	3
1985	266	112	151	3
2002	2	0	0	2
2012	2	0	1	1
2015	1	1	0	0
2020	11	11	0	0
2023	2	1	0	1
Total	**594**	**175**	**232**	**187**

https://nhconservation.org/lib/exe/fetch.php?media=x178:eversoruce_x178_stakeholder_feedback_memo.pdf

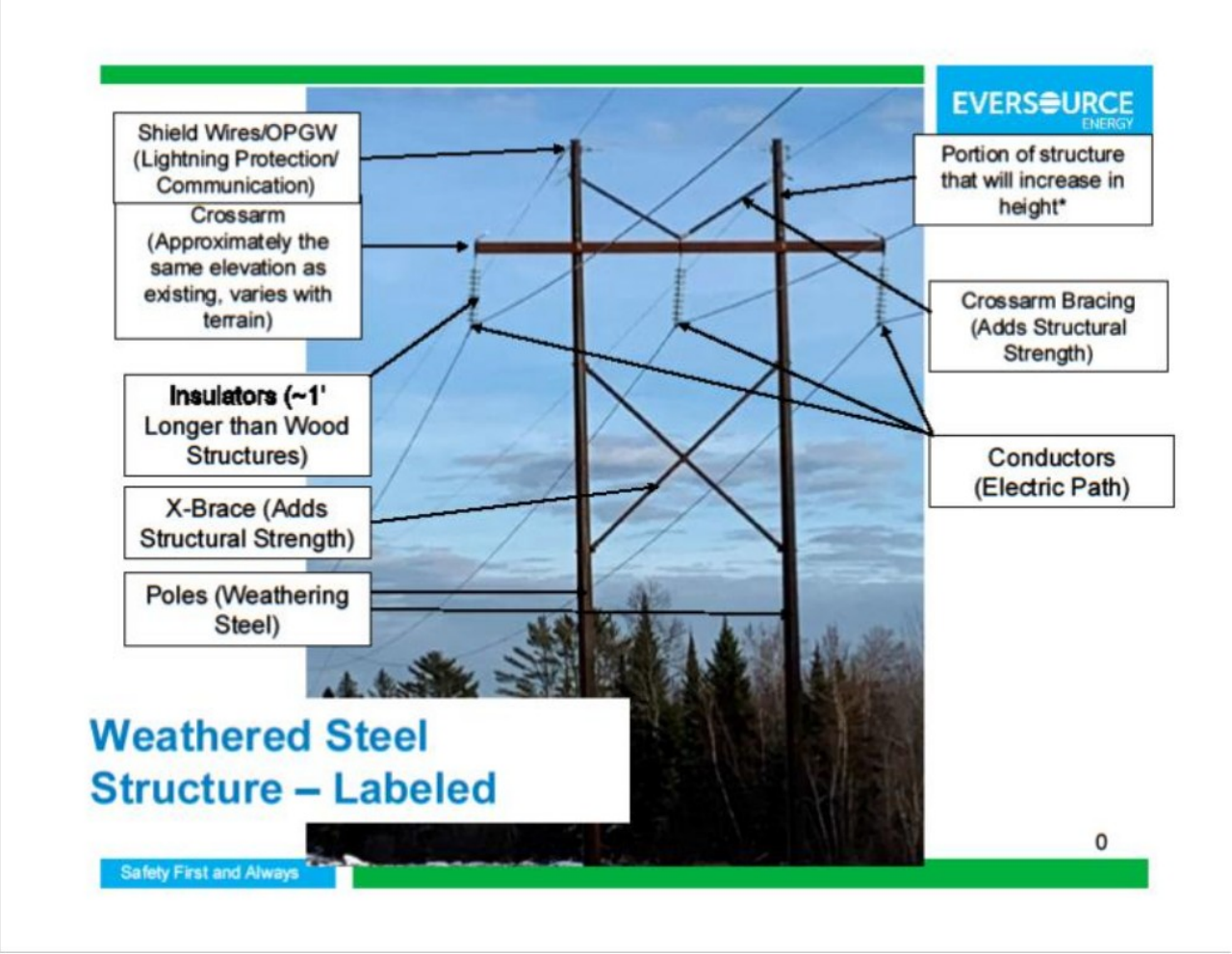
[Eversource states “Eversource utilizes Electric Power Research Institute’s (EPRI) Field Guides of visual inspections to grade the condition of structures”, so whether anything other than visual inspection was used is not clear and Eversource’s inspection ratings cannot be relied upon as meaningful or legitimate.] Priority C structures typically show age-related defects such as woodpecker damage, rot, cracking or splitting, inspect infestation and/or other signs of decay. [Eversource has provided no data showing the degree to which any of these defects affect the integrity of the poles. Does it do no structural testing?]
Uplift is an upward force, generally occurring on steeply inclined spans, where the conductor supports from ahead and back structures on a line are at different elevations. The conductors in the uphill span exert upward forces on the lower structure. Uplift at a structure can cause the conductor to pull the insulators up into the crossarm, and with pin-type insulators it might cause the conductor to pull away from the insulator and possibly pull the insulator pin out of the crossarm. Structures are designed to support conductor or “hold it up” and not to hold it down against cold and wind forces.

With respect to the OPGW installation, the replacement of existing shield wire with two 49-mile runs of fiber optic cable entails stringing the OPGW at the top of the structures, in the same location as the static wire on the existing structures. Installation methods are similar to those used for the conductor, where the OPGW is “pulled” in sections using a bucket truck and ground crews or by utilizing helicopters. The sections of OPGW are spliced together within a

canister that is affixed to the structure.

Height increases are driven by the need to comply with current National Electrical Safety Code clearance requirements [for the larger conductor, which has greater sag, and the OPGW, which Eversource claims requires a greater clearance from the conductors than the existing ground wire. Eversource stated that the existing line is not violating Code. Eversource claimed that the height increases would occur between the crossbars and the OPGW, which is contradicted by its proposed structure heights and profile drawings.]

Below, upper right corner: "Portion of structure that will increase in height"



Accordingly, the incremental changes resulting from the proposed Project benefit the public health and safety. Furthermore, the change in structure height will result in only a nominal increase in visibility of the structures within the X-178 Project area, [Eversource does not define "nomimal" nor does it mention that a series of small height increases is more likely to be approved than one large height increase] further supporting the conclusion that a 13-foot

change in the average height of structures does not constitute a sizeable change. [Averaging height increases to calculate negative effects is invalid. An average height increase of 13' does not change the impact of structures that increases 30'] Currently, the existing X-178 structures are visible from 1.5% of the town of Easton within a 3-mile radius of the existing structures. Following completion of the X-178 Project, the structures will be visible from 1.57% of the town of Easton within a 3- mile radius of the existing structures. [Again averaging is an invalid method of assessing visual impact. I asked Eversource for visual impact maps of the X-178: Their response to my request for "A visual impact map of the proposed larger and taller structures. (June 2023)" was "a. As we stated on May 24, 2023, visual simulations are not anticipated to be developed for the project"]

Similarly, in the town of Bethlehem the existing structures are visible from 0.66% of the town within a 3-mile radius of the existing structures. Following completion of the X-178 Project, the structures will be visible from 0.78% of the town within a 3-mile radius of the existing structures. These percentages do not take into consideration the fact that only a small fraction of the existing or proposed structures **may** be visible from locations within a 3-mile radius. In addition to the minimal change in overall visibility, based on a preliminary assessment there are no scenic resources within the X-178 Project area that will have visibility of any structures once constructed that do not currently have visibility of existing structures.

[Eversource fails to identify these "scenic resources" which probably do not include anyone's property.]

In Easton, there are no areas that will have views of the X-178 Project once construction is complete that did not previously have some visibility of the existing structures. [So what? Eversource assumes people become habituated to the sight and knowledge of the lines, when the opposite response also occurs.] Similarly, in Bethlehem most of the changes to visibility involve incremental [as defined by Eversource] increases in visibility in locations where the structures are already visible. C. Existing statutes and municipal ordinance provide adequate protection. [Which Eversource seeks to negate in its petition to the PUC to exempt it from Bethlehem's structure height ordinance]

As with other similar projects in New Hampshire and throughout its service territory, Eversource has prioritized early and consistent communication and engagement with host communities, including Easton and Bethlehem. Eversource introduced the X-178 Project to all the host communities in March 2023 and has continued to provide updates and information on various aspects of the Project. This initial engagement included an introductory letter, followed by offering either in-person or remote video conference meetings with each of the host communities throughout April 2023. Details regarding a designated website and hotline e-mail

and phone line were provided to the host communities. A dedicated outreach team has engaged in over 200 direct interactions with abutting landowners either through e-mail, phone, or in-person visits to answer questions and address concerns. For example, to address abutter concerns regarding potential visual or environmental impacts, where possible, some structure locations have been shifted. Since that initial outreach effort, Eversource has engaged in consistent communication with each of the host communities and abutting landowners to keep them informed of the X-178 Project details and updates. These efforts have included the dedicated outreach team engaging in over 200 direct interactions with abutting landowners either through e-mail, phone, or in-person visits to answer questions and address concerns. As part of this outreach effort, Eversource made over 73 unique construction-specific [legally binding?] commitments with property owners to minimize or mitigate construction-related impacts. Concerns raised by property owners and host communities These include the towns of Campton, Thornton, Woodstock, Lincoln, Easton, Sugar Hill, Bethlehem, Dalton and Whitefield primarily focus on the installation and/or post construction status of gravel roads and structure height increases. Eversource has responded to these concerns by utilizing construction matting in some upland areas where appropriate, instead of installing gravel roads, and considering the use of helicopters in remote areas with difficult terrain to avoid constructing additional access roads, including though the White Mountain National Forest. Eversource is also currently in discussion with Bethlehem on the future use of proposed access roads for walking paths. In addition, Eversource has consulted with state agencies and/or local departments to secure required permits and approvals. These include a site plan review, conditional use permits, and zoning variances in the town of Easton, building and driveway permits from the town of Sugar Hill, and a request for a waiver from the town of Bethlehem of its ordinance restricting structures greater than 40 feet in height. Eversource met with several of the Conservation Commissions in the host communities in 2023 and 2024 to discuss the DES Standard Dredge and Fill Wetlands Application prior to submitting the application. In addition to the local permits, Eversource is seeking an Alteration of Terrain permit and other applicable state permits for wetland impacts and for forested wetland tree clearing at Streeter Pond Tap, located in Sugar Hill, as well as a National Environmental Policy Act (NEPA) Categorical Exclusion determination from the U.S. Forest Service to undertake work in the White Mountain National Forest. [“Categorical exclusions are categories of actions that a federal agency has determined, in its NEPA procedures, normally do not have a significant effect on the human environment and for which, therefore, neither an environmental assessment nor an environmental impact statement normally is required.” So Eversource is seeking to have the X-178 line rebuild through WMNF exempt from an Environmental Assessment or an Environmental Impact Statement, severely reducing the assessment of the project by WMNF and severely limiting public input on the WMNF Permitting process.] Bethlehem has denied the waiver request and Eversource has sought relief through a petition to the New Hampshire Public Utilities Commission. See, Docket No. DE 24-087.”

Eversource's outreach has been inadequate since its first contact with selectboards, when it asked them to not speak publicly about the project. Eversource did not inform anyone of the existence of the Planning Advisory Committee (PAC) at ISO which has heard three presentations by Eversource on the X-178, during which the public could ask questions and make comments in the limited time the PAC has allotted for these presentation. Eversource did not inform anyone of the documents associations with these presentations, including comments to the PAC by CANE (Consumer Advocates of New England) and NESCOE (New England States Committee on Electricity.) Eversource refused to provide answers to many questions, including Category C structure locations, why its conductor clearances consistently exceed those required by Code, why it claimed to need permanent roads and crane pads when the line has functioned without them since 1948 and roads are not permitted in the terms of the easements, why it wouldn't use low-sag, low-line loss advanced ACCC type conductor as recommended by the US Department of Energy. It did not tell the public that it was replacing the existing conductors with heavier ones that would carry more than twice the power of the existing conductors or that it was these conductors that required taller structures to maintain clearance to ground or that clearance to ground is exceeded by tens of feet in most locations. Seeking a NEPA exclusion for work in WMNF and a waiver from municipal zoning can hardly be described as positive community engagement. After three presentation to the PAC, and extensive negative comments on the project and project need, Eversource has made no changes in its proposed structure material, conductor type, roads, crane pads, OPGW or structure heights.

"CONCLUSION
The threshold issue for determining SEC jurisdiction in this case concerns whether the replacement work on the existing X-178 transmission line rises to the level of a sizeable change or addition, which is a fact-driven determination. The Towns do not meet their burden of proof, failing to state facts which demonstrate that the X-178 Project constitutes a sizeable change or addition. Instead, they allege that incremental changes to certain physical elements of the replacement components, and various perceived environmental impacts, provide a basis for the Committee to "assume" jurisdiction."

Eversource defines incremental, which it does not have the authority to define. It fails to mention the larger diameter of the metal structures, that wider distance between the metal octagonal "poles", the industrial character of the metal "poles" and the extensive and permanent alterations to the terrain of the easements, which is also in defiance of the easement conditions. It fails to state whether the upper section of the two-section metal "poles" can be replaced with a taller one or another section added, thus enabling repeated "incremental" increased in the height of the structures, avoiding one non-incremental batch of height

increases as was proposed for the Northern Pass. Project. Eversource claims its assertions about environmental impacts are true and Easton and Bethlehems assertions about environmental impacts are “perceived”.

“SEC precedent supports a determination that the Project is not sizeable inasmuch as the changes are not considerable in relation to the existing facility and the changes will not cause disruption in the environment because the relevant state agencies exercise authority over Eversource’s activities.”

SEC precedent with the A-111 was based on inadequate and incorrect information provided by Eversource:

p. 32:

"An entire rebuild of the existing line within the existing corridor is required to maintain reliability of service.2 ...2 The project was presented to ISO New England at the December 2020 ISO Planning Advisory Committee (PAC) meeting where it was also approved by ISO at the same meeting"

ISO did not approve the A-111. It claims it has no authority to approve asset condition projects for anything other than Transmission Cost Allocation (maybe), and this is not done at the PAC meetings.

"Operating capacity will be unchanged. The line will continue to operate at 115 kV. The current functionality of the line will not change with the new conductor and Eversource is not expanding the number of customers served by the line."

The conductor was increased from 336 ASCR (529 amps) to 1272 ACSS (2,200 amps), quadrupling the carrying capacity of the line.

p. 33

"The Project will cause only temporary disruption to the existing environment."

Eversource failed to mention of the permanent alteration of the terrain by 9” deep 16’ wide permanent graveled/rip-rapped heavy equipment roads and the construction of elevated or excavated 100’ x 100’ bermed and rip-rapped crane pads. It implied that there were existing roads on the easement that were merely being improved and that the crane pads were necessary for maintenance.

https://nhconservation.org/lib/exe/fetch.php?media=a111_full_rebuild_.pdf

12/16/2020 PAC minutes state:

“Item 5.0 – Webster-Beebe River 115 kV Corridor Asset Conditions and OPGW Project: Lines A111, E115, and Z180

Mr. Chris Soderman (Eversource Energy) reviewed the Webster-Beebe River 115 kV Corridor Asset Conditions and OPGW Project for Lines A111, E115, and Z180.

Q – Will the new lines be constructed side by side to the old lines to minimized outages or will there be another method to perform the replacement work.
A - The line will be replaced with “live line” techniques and there will be limited outages as the old structures are replaced. We expect the outages will be no more than a week long with the longest outage period related to the reconductoring.

Q – Will the new conductor be large ACSR?
A – The presentation has a mistake. The conductor will be ACSS.”

https://nhconservation.org/lib/exe/fetch.php?media=a111:121620_pac_meeting_minutes_final.pdf

This was the extent of PAC/ISO-NE discussion of the A-111 complete rebuild project as documented in the minutes.

The SEC review of the A-111 complete rebuild was extremely limited and resulted in one paragraph in the SEC minutes. Whether Mr. Kassas’ question about increased load was answered is not stated.

"b. Committee continued discussion of Transmission line maintenance on the A111 line and next steps. Commissioner Scott noted there was no request from Eversource before the Committee related to the correspondence and noted that there is a venue for at least a complaint about a public utility to be lodged with the Department of Energy. Ms. Duprey shared a concern that the work on this line may have been on the line or over the line of “sizable” and expressed concern about the impacts on the property and the need for a forum for these concerns to be heard. Ms. Duprey recommended sending a letter to Eversource saying we have serious concerns about whether this triggers jurisdiction. Mr. Kassas asked if there would be an increase in the load. Ms. Duprey made a motion that the Committee send a letter to Eversource expressing concern about whether or not they reached jurisdictional requirement of sizable change. There was no second."

https://nhconservation.org/lib/exe/fetch.php?media=a111:minutes-public-meeting-072121.pdf

The SEC noted, to Eversource:

“The stated purpose of your letter is provide notice to the Committee “in an abundance of caution” and requests any further Committee inquiry occur within 60 days. Your letter also cites to multiple past proceedings of the Site Evaluation Committee, including dockets in which the Committee considered and granted petitions for declaratory rulings concerning the application of RSA 162-H:5 to various energy projects.

As I am sure you are aware, a declaratory ruling is an agency ruling as to the specific applicability of any statutory provision or of any rule or order of the agency. RSA 541-A:1, V. By law, a declaratory ruling cannot have general applicability. Accordingly, any historic declaratory ruling issued by the Site Evaluation Committee applies only to the specific petition that was the subject of that proceeding.”

https://nhconservation.org/lib/exe/fetch.php?media=a111:2021-04-16_sec_response_eversource_notice_transmission_line_maintenance_a111.pdf

DES has allowed Eversource to sign the Alteration of Terrain and Dredge and Fill permits as landowner or as “agent”, with no landowner signature, in defiance of DES regulations, cutting easement-encumbered landowners out of the DES permitting process, or even knowledge of it. DES has routinely granted Eversource waivers from various reporting requirements, for example, post-construction grading maps.

“Moreover, SEC review is neither necessary nor required for the public good because existing statutes provide adequate protection of the purposes of RSA 162-H.”

Existing statutes do not provide adequate protection. ISO-NE/the PAC do not review asset condition projects for need or prudence and claim to have no regulatory authority over them. Aside from DES, the only state permitting agency is the DOE which routinely grants crossings permits for public lands and waters with no assessment of need for the projects or the heights of the structures, which almost invariably have clearances to ground/water far in excess of those required by Code.

O154 115kV LINE STATE LAND AND PUBLIC WATERBODY CROSSING STRUCTURE TABLE

EXHIBIT 7

Eversource O154 Line Rebuild - DOE State Land and Waterbody Crossing Details								
Existing Structure #	New Structure #	Structure Type	Height Change (feet)	Span (Pole to Pole)	Span Distance (feet)	Minimum NESC Table 232-1 Clearance (ft.)	ES Vertical Design Clearance (ft.)	Complies with NESC Table 232-1 (Y/N)
268	37	56.5' steel 2 pole, T, CLH1	15	37-38	642.6	18.6	28.8	Y
267	38	65.5' steel 2 pole, T, CLH1	10					
250	55	56.7' steel 2 pole, T, CLH1	15	55-56	460.7	20.1	28	Y
249	56	61.0' steel 2 pole, TG, CLH1	20					
248	57	61.0' steel 2 pole, T, CLH1	20	56-57	498	20.1	29.4	Y
247	58	65.5' steel 3 pole, P, CLH1	20	57-58	433.1	20.1	32.0	Y
246	59	61.0' steel 2 pole, T, CLH1	10	58-59	767	20.1	32.1	Y
232	73	52.0' steel 3 pole, ADS, CLH3	5	73-74	429.8	20.1	27.4	Y
231	74	52.0' steel 2 pole, T, CLH1	10					
230	75	61.0 steel 2 pole, T, CLH1	15	74-75	445.5	20.1	28.0	Y
229	76	70.0' steel 2 pole, T, CLH1	20	75-76	507.5	20.1	33.8	Y
228	77	61.0' steel 2 pole, T, CLH1	20	76-77	635.8	20.1	30.1	Y
227	78	61.0' steel 2 pole, T, CLH1	20	77-78	488.4	20.1	29.4	Y
226	79	64.8' steel 3 pole, BP, CLH1	25	78-79	455.6	20.1	26.8	Y
225	80	56.5' steel 2 pole, T, CLH1	15	79-80	294.4	20.1	38.2	Y
224	81	52.0' steel 2 pole, T, CLH1	10	80-81	465.7	20.1	32.2	Y
223	82	52.0' steel 2 pole, T, CLH1	10	81-82	363.4	20.1	26.5	Y
222	83	52.0' steel 2 pole, T, CLH1	10	82-83	423.1	20.1	29.6	Y

https://nhconservation.org/lib/exe/fetch.php?media=petition-attachments_o-154.pdf

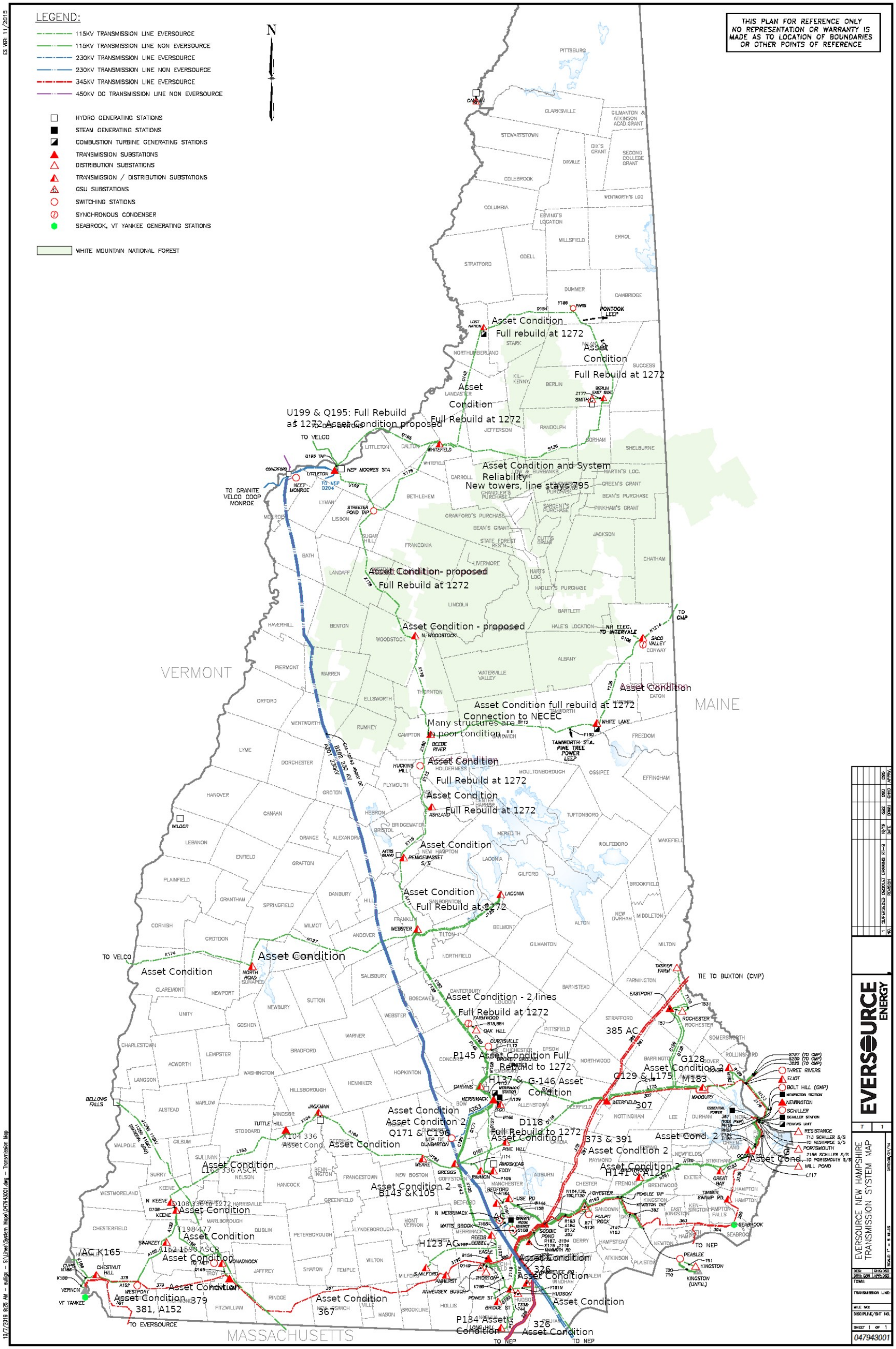
"Finally, as consistently shared with the host communities since outreach began, the construction schedule for the X-178 Project was designed to support a start date in Q3 of 2024. Eversource must engage in contract discussions with service providers imminently to maintain the construction schedule. More than a year after outreach began, and just months before the start of construction, the Petitioners' request would significantly delay construction and stall the significant progress that has been made towards improving the resiliency and safety of the X-178 transmission line, while maintaining reliable service to customers in the North Country."

There has been no determination of reliability need for the X-178 project by ISO-NE. Only 43 of the 590 structures on the X-178 are, according to Eversource which has not provided complete pole inspection reports, Category C; having "moderate defects" with repair or replacement "recommended as scheduled maintenance." Eversource's issues with contractors, if true, are not the responsibility of Easton and Bethlehem.

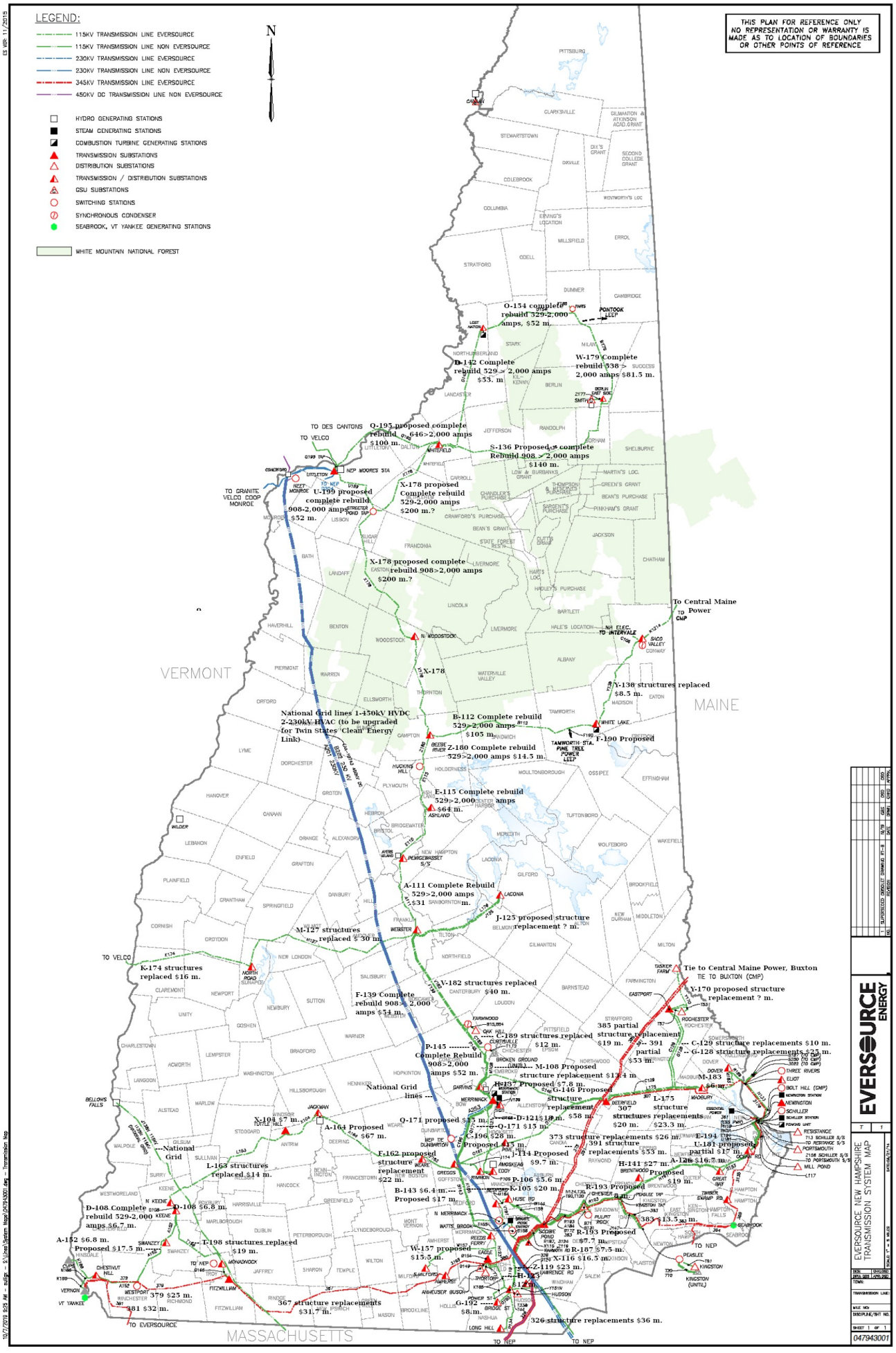
https://nhconservation.org/lib/exe/fetch.php?media=e_22018-9_115kv_pac_submissions.pdf

“Asserting SEC jurisdiction, therefore, would run counter to one of the goals of RSA 162-H by creating undue delay. WHEREFORE, Eversource respectfully asks that the Committee:
A. Deny Petitioners’ request to assume jurisdiction and oversight of the X-178 transmission line replacement work; or
B. Alternatively, determine that the X-178 Project is exempt under RSA 162-H:4, VI; and
C. Grant such additional relief as the Committee deems just and appropriate.
Respectfully submitted,
Public Service Company of New Hampshire
d/b/a Eversource Energy
By Its Attorneys,
McLANE MIDDLETON
PROFESSIONAL ASSOCIATION
Dated: September 16, 2024
By: _____
Barry Needleman, Esq. Bar No. 9446
Thomas Getz, Esq. Bar No. 923
11 South Main Street, Suite 500
Concord, NH 03301
(603) 226-0400
barry.needleman@mclane.com”

Below, “Asset Condition” projects built or “proposed” by Eversource:



LEGEND:
115KV TRANSMISSION LINE EVERSOURCE
115KV TRANSMISSION LINE NON EVERSOURCE
230KV TRANSMISSION LINE EVERSOURCE
230KV TRANSMISSION LINE NON EVERSOURCE
345KV TRANSMISSION LINE EVERSOURCE
450KV DC TRANSMISSION LINE NON EVERSOURCE
HYDRO GENERATING STATIONS
STEAM GENERATING STATIONS
COMBUSTION TURBINE GENERATING STATIONS
TRANSMISSION SUBSTATIONS
DISTRIBUTION SUBSTATIONS
TRANSMISSION / DISTRIBUTION SUBSTATIONS
GSU SUBSTATIONS
SWITCHING STATIONS
SYNCHRONOUS CONDENSER
SEABROOK, VT YANKEE GENERATING STATIONS
WHITE MOUNTAIN NATIONAL FOREST
N
THIS PLAN FOR REFERENCE ONLY NO REPRESENTATION OR WARRANTY IS MADE AS TO LOCATION OF BOUNDARIES OR OTHER POINTS OF REFERENCE
VERMONT
MAINE
MASSACHUSETTS
Asset Condition
Full rebuild at 1272
Asset Condition
Full Rebuild at 1272
Asset Condition
Full Rebuild at 1272
U199 & Q195: Full Rebuild at 1272 Asset Condition proposed
Asset Condition and System Reliability
New towers, line stays 795
Asset Condition- proposed
Full Rebuild at 1272
Asset Condition - proposed
Asset Condition
Asset Condition full rebuild at 1272
Connection to NECEC
Many structures are in poor condition
Asset Condition
Full Rebuild at 1272
Asset Condition
Full Rebuild at 1272
Asset Condition
Asset Condition
Full Rebuild at 1272
Asset Condition
Asset Condition
Asset Condition - 2 lines
Full Rebuild at 1272
385 AC
P145 Asset Condition Full Rebuild to 1272
H137 & G-146 Asset Condition
G128 Asset Condition 2
C129 & L175
M183
Asset Condition
Asset Condition 2
Q171 & C196
D118
Full Rebuild to 1272
Asset Condition
307
373 & 391
Asset Condition 2
Asset Cond. 2
Asset Condition 2
H141 & A126
Asset Cond.
X104 336
Asset Cond.
Asset Condition
Asset Condition
L163 336 ASCR
Asset Condition 2
B143 & K105
D108 336 to 1272
Asset Condition
T198 477
Asset Condition
A152 1590 ASCR
Asset Condition
/AC K165
H123 AC
Asset Condition
326
Asset Condition
Asset Condition
Asset Condition 379
381, A152
Asset Condition
367
P134 Asset Condition
326
Asset Condition
TO VELCO
TO GRANITE VELCO COOP MONROE
TO EVERSOURCE
TO NEP
TIE TO BUXTON (CMP)
EVERSOURCE ENERGY
EVERSOURCE NEW HAMPSHIRE TRANSMISSION SYSTEM MAP
047943001
10/7/2019 8:25 AM
ES VER. 11/2015


LEGEND:
115KV TRANSMISSION LINE EVERSOURCE
115KV TRANSMISSION LINE NON EVERSOURCE
230KV TRANSMISSION LINE EVERSOURCE
230KV TRANSMISSION LINE NON EVERSOURCE
345KV TRANSMISSION LINE EVERSOURCE
450KV DC TRANSMISSION LINE NON EVERSOURCE
HYDRO GENERATING STATIONS
STEAM GENERATING STATIONS
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SYNCHRONOUS CONDENSER
SEABROOK, VT YANKEE GENERATING STATIONS
WHITE MOUNTAIN NATIONAL FOREST
N
THIS PLAN FOR REFERENCE ONLY NO REPRESENTATION OR WARRANTY IS MADE AS TO LOCATION OF BOUNDARIES OR OTHER POINTS OF REFERENCE
VERMONT
MAINE
MASSACHUSETTS
O-154 complete rebuild 329-2,000 amps, $52 m.
D-142 Complete rebuild 529 -> 2,000 amps $53. m
W-179 Complete rebuild 338 -> 2,000 amps $81.5 m.
Q-195 proposed complete rebuild 646>2,000 amps $100 m.
S-136 Proposed complete Rebuild 908 -> 2,000 amps $140 m.
X-178 proposed Complete rebuild 529-2,000 amps $200 m.?
U-199 proposed complete rebuild 908-2,000 amps $52 m.
X-178 proposed complete rebuild 908>2,000 amps $200 m.?
National Grid lines 1-450kV HVDC 2-230kV HVAC (to be upgraded for Twin States "Clean" Energy Link)
B-112 Complete rebuild 529->2,000 amps $105 m.
Z-180 Complete rebuild 529->2,000 amps $14.5 m.
F-190 Proposed
Y-138 structures replaced $8.5 m.
To Central Maine Power
E-115 Complete rebuild 529->2,000 amps $64 m.
A-111 Complete Rebuild 529->2,000 amps $31 m.
J-125 proposed structure replacement ? m.
M-127 structures replaced $ 30 m.
K-174 structures replaced $16 m.
F-139 Complete rebuild 908-> 2,000 amps $54 m.
V-182 structures replaced $40 m.
Y-170 proposed structure replacement ? m.
Tie to Central Maine Power, Buxton
P-145 Complete Rebuild 908->2,000 amps $52 m.
C-189 structures replaced $12 m.
385 partial structure replacement $19 m.
391 partial $53 m.
C-129 structure replacements $10 m.
G-128 structure replacements $25 m.
M-108 Proposed structure replacement $13.4 m
H-137 Proposed $7.8 m.
G-146 Proposed structure replacement
National Grid lines ---
Q-171 proposed $15 m.
D-121 $18 m. $58 m.
Q-171 $15 m.
307 structures replacements $20 m.
L-175 structure $23.3 m.
M-183 $6 m.
X-104 $7 m.
A-164 Proposed $67 m.
C-196 $28 m.
Proposed $15 m.
373 structure replacements $26 m.
391 structure replacements $53 m.
E-194
U-181 proposed partial $17 m.
A-128 $16.7 m.
---National Grid
F-162 proposed structure replacement $22 m.
J-114 Proposed $9.7 m.
H-141 $27 m.
Proposed $19 m.
L-163 structures replaced $14 m.
P-106 $5.6 m.
K-105 $20 m.
R-193 Proposed $8 m.
B-143 $6.4 m.--- Proposed $17 m.
D-108 Complete rebuild 529-2,000 KEENE amps $6.7 m.
D-108 $6.8 m.
383 $13.5 m.
R-193 Proposed
A-152 $6.8 m. Proposed $17.5 m.
T-198 structures replaced $19 m.
W-157 proposed $15.5 m.
X-116 $16.5 m.
R-187 $7.5 m.
Z-119 $23 m.
R-123 $12 m.
379 $25 m.
381 $32 m.
367 structure replacements $31.7 m.
G-192 $8.m.
326 structure replacements $36 m.
TO DES CANTONS
TO VELCO
TO GRANITE
VELCO COOP MONROE
TO NEP
TO EVERSOURCE
VT YANKEE
TO NEP
TO NEP
EVERSOURCE ENERGY
EVERSOURCE NEW HAMPSHIRE TRANSMISSION SYSTEM MAP
047943001

Note: The S-136 Coos Loop line is now under construction as a complete rebuild with Eversource's standard 1272 conductor.

Several new asset condition projects have been added since these maps were made.

Where 2,000 amps is written in the second map he figure should be 2,200.

Asset Condition problem documents:
https://nhconservation.org/doku.php?id=eversource_asset_condition

Annotated by kris pastoriza
krispastoriza@gmail.com
October 7, 2024, updated December 15th-17th, 2024