

March 1, 2024 questions and requests for information from Eversource on X-178 line:

Diameter and average height of 1969 poles and 1985 poles.

Average clearances of proposed line: OPGW to conductor, and conductor to ground.

Percent of spans in which these clearance requirements are exceeded, with explanations.

Code required clearance of proposed OPGW to conductor and proposed conductor to ground.

Sag of proposed (1272 ACSS, 54/19, 2,200 amp.) conductor at 300', 400', 600' and 800', level spans.

Sag of existing (795 ASCR, 908 amp.) conductor at 300', 400', 600' and 800', level spans.

Sag of Southwire Cascades/TW (1351 kcmil, 2,223 amps, 1,327 lbs per 1,000') at 300', 400', 600' and 800', level spans.

Sag of Southwire Wrangell/TW (336.4 kcmil, 919 amps., 347 lbs per 1,000') at 300', 400', 600' and 800' level spans. (All sag data at 200 C. (392 F))

Average structure height requirement for the existing conductor, proposed conductor, Cascades/TW and Wrangell/TW, if clearance requirements are not exceeded.

Weight per 1,000' of proposed OPGW, existing Ground Wire (two types) and the same for three other OPGWs that would be adequate.

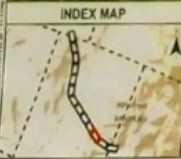
Yearly costs of the services provided by Eversource's existing (SONET) and leased (describe) services proposed to be replaced (or supplemented?) by the X-178 OPGW.

How does the probable required use of helicopters to access to the majority of WMNF change impacts, claimed "Access Opportunities," construction plans, and costs?

If Eversource is required to use helicopters in all or part of WMNF, would it build a helicopter pad as was planned for Northern Pass? If so, where would it be located, what would the specs be, and would it be permanent?

Provide the existing and proposed structure heights for the X-178 that were provided (for viewing, in binders) at the public information meetings then withheld, despite requests.

What is the status of Eversource's proposed use of the National Register listed Reel Brook Trail as a project access road?



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| <ul style="list-style-type: none"> <li>● PROPOSED STRUCTURE</li> <li>● EXISTING STRUCTURE - NO WORK</li> <li>● STRUCTURE TO BE REMOVED</li> <li>— TRANSMISSION LINE ROW</li> <li>— TRANSMISSION LINE</li> <li>— DELINEATED INTERMITTENT STREAM</li> <li>— DELINEATED PERENNIAL STREAM</li> <li>— NHD FLOWLINES</li> </ul> | <ul style="list-style-type: none"> <li>— PROPOSED ACCESS</li> <li>— OFF ROW PENDING RIGHTS</li> <li>— EXISTING ACCESS</li> <li>— VERY POORLY DRAINED SOILS</li> <li>— TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>— TEMPORARY WETLAND MATTING</li> <li>— TEMPORARY UPLAND MATTING</li> <li>— FIELD DELINEATED WETLAND</li> </ul> | <ul style="list-style-type: none"> <li>— CONFIRMED VERNAL POOL</li> <li>— NH RECREATIONAL TRAILS</li> <li>— TOWN MAINTAINED ROAD</li> <li>— NHDOT ROAD</li> <li>— FEDERAL ROAD</li> <li>— PRIVATE ROAD</li> <li>— WORK PAD</li> <li>— PULL PADS</li> <li>— TOWN BOUNDARY</li> </ul> | <ul style="list-style-type: none"> <li>— PARCEL BOUNDARY</li> <li>— OVERSOURCE OWNED PARCEL</li> <li>— STATE OWNED PARCEL</li> <li>— WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> <li>— EXTENT OF WETLAND DELINEATION</li> <li>— 2FT CONTOURS</li> <li>— EROSION CONTROL</li> <li>● CULVERT</li> <li>— GATE</li> </ul> |
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This mapping product has been created to comply with subtitle requirements to obtain certain regulatory approvals and, to such extent, there is no reliance on the information contained herein for any other purpose.		
NO.	DATE	REVISIONS



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Would these conversions of trails to roads be permanent?

Provide a map of Eversource's private OPGW / Synchronous Optical Networking (SONET) loop.

Provide documentation that Eversource outreach to the public included information about the PAC and PAC meetings as an opportunity for commenting on the X-178 (or any other "Asset Condition" project).

Provide the average monthly capacity used, on the X-178, in each flow direction, for the past 10 years.

In 2015 Eversource contractors removed many of the wood poles that were dumped on the easement in White Mountain National Forest by PSNH during its 1985 rebuild of the X-178 line. All this work was done by ground crews, with helicopter access only, per WMNF requirements. Many poles were left in wetlands to avoid unacceptable environmental impacts.

Does Eversource intend to build permanent new roads, drive on them with heavy construction vehicles, excavate/build construction areas, drill 4' diameter holes for the steel poles, in this area it deemed too sensitive to even removed wood poles from, by hand, with helicopters?

Has Eversource informed any easement-encumbered landowners that they must request that soils excavated from their easement property be left, rather than trucked away by Eversource?

"After the installation of a transmission structure is complete, soil material that was excavated to enable the structure installation will be used as backfill. The remaining excavated sub-surface soils [and topsoil?] will be removed from the site unless otherwise requested by the landowner."

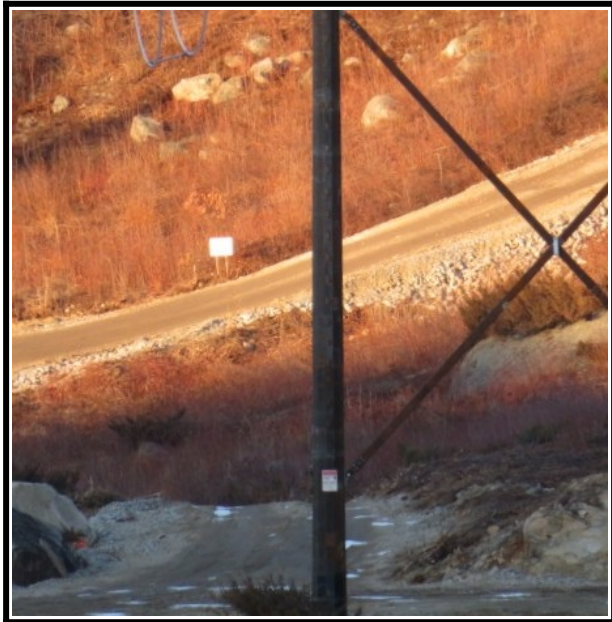
<https://www.eversource.com/content/docs/default-source/Transmission/rights-of-way-guidelines.pdf>

Provide OPGW capacity for monitoring vibration and acoustics on the line and structures and how far this extends on the easements.

How many structures (provide their structure numbers) have been replaced, and how many have been reinforced, on the Beebe River to Streeter Pond tap section of the X-178, since it was rebuilt in 1985?

On how many X-178 structures, and at what total cost, were the crossbars and insulators replaced in 2016/17?

Does Eversource consider its many miles of new 16' wide, (9" soil replaced with rip-rap and gravel and compressed) permanent roads part of its assets and road maintenance now included in future "asset condition" projects, and un-remediable by landowners?



Does Eversource consider its many new 100' x 100' (cut and fill, any existing soil replaced with rip-rap and gravel and compressed (?)), construction areas new assets, and maintenance of these areas now included in future "asset condition" projects?

Provide Eversource's forensic analysis of all poles that were cut down and replaced in its "Asset Condition" projects.

Provide the EPRI rating, number and location for each of the 56 X-178 structures proposed to be replaced in 2018 (\$11.2 m.), when they were inspected, if they have remained in the field since 2018, how many of them are among the 43 structures identified as Category C in the current X-178 PAC presentation, and the 2019 and 2022 inspection ratings of each structure that is not one of the 43.



Provide yearly line losses on the X-178 for the proposed 1272 ACSS compared to the Southwire Cascades, at various loads.

Provide yearly line losses on all Eversource's 1272 ACSS 115kV lines, compared to Southwire Cascades, at various loads.



Eversource “Asset Condition” permanent construction “pads.”

Provide figures for the increased altitude for each proposed structure on the X-178 when the height increase of the “pads” (above the former ground) is added to the planned structure height.

Provide the pay-back time for the increased expense of Southwire Cascades, compared to Eversource’s proposed “standard” 1272 ACSS, including all savings from decreased line losses.

Comment on EPRI’s 2023 statement: “The emphasis within the transmission arena has shifted from designing and building new transmission facilities to optimizing the use, performance and life of existing facilities.”

Provide 2018 and 2022 inspection reports for each Category C structure, to provide more information than “Moderate Defect.” and improve assessment of the not-included option of replacing only the Category C. structures.

Provide EPRI guidelines and recommendations, which do not appear on-line.

## 2022 inspections of this line graded condition of structures in accordance with Electric Power Research Institute (EPRI) guidelines

- *A: Nominal Defect, B: Minimal Defect, C: Moderate Defect, D: Severe Defect*
  - *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*

Provide Eversource’s maintenance cycle length, and the EPRI recommended maintenance cycle length.

Provide the statement Chris Soderman read at the 2/28/24 X-178 PAC presentation that explained the disadvantages Eversource saw, with ACCC/advanced conductors.

If this document is unavailable, provide a summary of Eversource’s assessment of the advantage and disadvantages of using ACCC and/or other advanced conductors on the X-178 rebuild and the potential for advanced conductors to allow reconductoring of the existing structures.

Provide the spread-sheet with EPRI Category ratings on all structures on the X-178.

Provide the capacity of the X-178 to transmit simultaneous HVAC/HVDC and Eversource’s position paper on this technology.