

The PUC appears to have averted its gaze from the technical details of Eversource's 61+ Asset Condition projects, thus fails to understand what Eversource has been doing for the past five years. This renders its decision not to investigate a dangerous abdication of its responsibility.

The extent of Eversource's abuse of the asset condition category and Eversource's construction methods necessitate an extensive investigation by a team of engineers and forensic accountants.

Since Eversource has developed a standard project with standard methods of presentation and infrastructure, culminating in its complete rebuild projects, four of these yet-to-be constructed projects are presented below.

These projects fail to meet the definition of Asset Condition/Management: "Asset Management refers to projects and activities that 'encompass the maintenance, repair, and replacement work done on existing transmission facilities' which 'may result in an incidental increase in transmission capacity that is not reasonably severable from the asset management project or activity, and...is [not] subject to the transmission planning requirements.'"

<https://www.federalregister.gov/documents/2022/12/30/2022-28454/transmission-planning-and-cost-management-joint-federal-state-task-force-on-electric-transmission>

These projects are not Asset Management/Condition projects because Eversource fails to provide inspection reports showing that the structures or conductors need replacement, or to provide any alternative to the complete rebuilds as proposed.

These projects are not Asset Management/Condition projects because the larger conductor, which weighs 1,633 lbs. per 1,000, is not incidental but the reason for the complete replacements of the lines and structures. The existing conductors weight 463, 656 and 1,100 lbs per 1,000'.

Even if some structure replacements are shown to be necessary, Eversource has failed to provide any data in support of its proposed construction of permanent, continuous (excluding wetlands) hardened 16' roads on the easements and permanent 100' x 100' graded, graveled and bermed construction pads. Mention of future access suggests these are being built for future projects; transmission or perhaps a natural gas pipeline.

**X-178:** Eversource plans a complete rebuild of the X-178 but has provided no estimate of the cost. Given its estimates for other rebuilds and the nature of the terrain I estimate a cost of **\$200. m. (-25% + 50%)**

The ROW easements for the X-178 were bought in 1948, generally for \$1 and other considerations. One section of the easement, in Easton, was taken by condemnation:

“In order to meet the reasonable requirements of service to the public, it is necessary for the Company to construct one or more 115KV transmission lines from Groveton, New Hampshire to North Woodstock, New Hampshire.”

(DE-2756 Public Service Company of New Hampshire v. Simon L. Ruskin and Francis M. Ruskin: petition for condemnation, pages 367-373)

The line was built in 1948 with 336 ASCR conductor. The average wood H-frame structure height is 55'. 176/577 1948 structures remain.

In 1986, shortly before PSNH went bankrupt, Hydro-Quebec paid for the X-178 line to be “upgraded” from the Beebe River Substation to the Streeter Pond Tap, with 795 ASCR conductor. This required 184 new slightly larger wood structures with an average height of 60'. In 2018 Northern Pass witness Robert D. Andrew testified: “The X178 line was constructed as a supply to the various mills located in northern New Hampshire and to connect with the hydro generation near the Moore dam facilities...The load in this area has not required the upgrade of the remaining sections of the X178.”

The X-178 ROW was part of the proposed Northern Pass overhead route. From Route 302 in Bethlehem, south, it was dropped in favor of the ill-conceived burial route because of especially fierce opposition to its route through White Mountain National Forest, over the Appalachian and Reel Brook Trails and across the rare, high altitude Bog Pond. On the overhead route, the Northern Pass rebuilt X-178 conductor was planned to remain at 795.

On March 30, 2018, the SEC denied Eversource’s Northern Pass project a certificate of site and facility.

On October 17, 2018, Eversource presented to the PAC a list of projects which included replacing 56/577 structures on the X-178 at a cost of \$11.2 m. It is reasonable to assume that most, if not all, of these 57 structures were among the 176 structures on the 1948 section of the line. Since this project was canceled, these structures were clearly not in condition D; requiring immediate repair or replacement, but presumably condition C; repair, reinforce or replace at next maintenance cycle (8-10 years.)

Eversource now plans to replace the complete X-178 line; 577 structures on 50 miles of easements, with steel H-frame structures, 15' taller, on average, than the existing wood H-frames. It proposes to replace the 336 ASCR and 795 ASCR conductors with 1272 ACSS conductor, which would more than double the capacity of the 1986 section of the line, and almost quadruple the capacity of the 1948 section of the line.

Eversource claims this is an asset condition project because the structures are “old and degraded” and “the line must be built to present-day electrical safety standards and codes, which require more robust structures” but refuses to provide documentation of the condition of the structures and conductor. It

fails to mention that “more robust structures” are only required for its proposed larger and heavier conductor, which it also fails to mention, and for which no need has been identified by ISO-NE.

Eversource has not provided any alternatives to a complete rebuild and refused to consider re-conductoring with ACCC conductor which is lighter, has less sag, and reduces line losses by 25-40%.\*

**U-199:** Eversource plans a complete rebuild of the **U-199** line at an estimated cost of **\$51.1m. (-25% / +50%)**

The U-199 was built in 1971 and runs for 9.5 miles from the Streeter Pond tap (to the X-178) in Sugar Hill to the Littleton substation, which connects via the C-203 to the Moore Hydro. Facility.

It has 104 wood H-frame structures and 795 ASCR conductor. Eversource plans to replace 104 wood and one steel structure with 105 steel structures and replace the 795 ASCR with 1272 ACSS conductor and install 19.5 mi of OPGW.

Eversource plans to build 9.5 miles of hardened 16’ wide road, and 105 - 100’ x 100’ permanent construction pads (except in wetlands.)

**Q-195:** Eversource plans a complete rebuild of the **Q-195** line at a cost of **\$100 m. (-25%+50%)**

The Q-195 line runs for 16.4 miles from the Littleton Substation (connected to the Moore hydro generating station), through Vermont, across the Connecticut River, through Dalton and Whitefield to the Whitefield substation. It was built in 1958. 14.9 miles of the conductor are 477 ASCR, 1.4 miles are 336 ASCR and 1.1 miles are 795 ASCR.

Eversource (presentation to the PAC, 5/18/2023) plans to replace the 224 wood structures with 223 new steel H-frame structures, the existing conductor with 1272 ASCC conductor and the shield wire with OPGW. Construction includes a permanent 16’ wide road and 224 -100’ x 100’ permanent graded, bermed and graveled construction pads (except in wetlands.)

At slightly less weight than the current 447 ASCR, Eversource could re-conductor the Q-195 with high-performance ACCC conductor and double its capacity while reducing line losses and likely eliminating the need for new structures, roads and construction pads.

**S-136:** Eversource plans to rebuild the **S-136** line with larger conductor and OPGW at a cost of **\$139.8 m. (-25%+50%)**. (TOPAC presentation 11/15/2023.) 214 of these structures are in White Mountain National Forest. The S-136 line was built in 1969 with 353 wood H-frame structures and runs for 27 miles, from Whitefield substation through Whitefield, Jefferson, Randolph, Gorham and Berlin, to Berlin substation. It is the southern side of the Coos Loop.

In 2019 Eversource proposed to spend \$6.2 m. on a partial rebuild (56 structures) of the S-136.

In an October 2019 presentation to the PAC, Eversource stated that its local system/asset condition replacement of 56 structures on the S-136 was under-construction at a cost \$6.2 m.

In its October 1, 2020 LSP (Local System Plan) presentation, Eversource listed the S-136 asset condition project (replacing 92 structures and installing OPGW) as in-construction, with a cost of **\$24.8 m**. This appears to have been an expansion of the project presented to the PAC in 2019. The existing 795 ASCR conductor was not replaced, but new insulators strings were placed on the steel structures. This indicates that in 2019 or earlier Eversource planned to eventually completely rebuild the S-136 with 1272 ASCC conductor.

In its November 15, 2023 TOPAC (Transmission Owners Planning Advisory Committee) presentation, Eversource proposed a rebuild of the “aging” S-136 line-and installation of OPGW. How the OPGW could be installed twice is not clear.

204 structures did not devolved into needing replacement in the four years following the first S-136 project. 513 structures did not devolve into needing replacement. in the five years since Eversource’s first X-178 proposal. Eversource has simply decided to replace poles prematurely, claiming this is in the interests of efficiency and lowered environmental impacts. Poles/structures are placed in for categories:

- 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

Eversource now replaces category C poles/structures whenever it wants, which may be well before the next maintenance (8-10 year cycle.) At the same time it replaces category B. poles/structures. Since Eversource decided to replace all wood structures with steel structures, replacing only a pole, in an H-frame for example, is now “impossible.” With the complete rebuilds, category A poles, “No Action Required” are also replaced. When Eversource presents the X-178 project to the PAC, we can see how it deals with its very recent practice of providing the number of structures in each category.

Specs:

Existing and former conductors, Eversource 115kV lines:

336 kcmil ASCR, 529 amps, 463 lbs per 1,000’

447 kcmil ASCR, 646 amps, 656 lbs per 1,000’

795 kcmil ASCR, 908 amps, 1,100 lbs per 1,000’,

Existing and former ground wire, Eversource 115kV lines:

3#6 Copperweld .348 dia. 1948 205 lbs per 1,000’ (?)

Galvanized steel .475 dia. 1986 500 lbs per 1,000’ (?)

7#8 Alumoweld shield wires 389 lbs per 1,000'

Eversource standard conductor and OPGW for rebuilt 115kV lines:

1272 kcmil ACSS, 2,000 amps, 1,633 lbs per 1,000'

.646 48 OPGW 499 lbs per 1,000',

High performance, low-sag, low-weight, low-line-loss conductor Eversource refuses to use:

Southwire Yellowstone: 636 kcmil ZZTACCR/TW/C7 -TS, 1,300 amps, 630 lbs per 1,000'

Southwire Andes: 397.5 kcmil ZTACCR/TW/C7 -TS, 950 amps, 402 lbs per 1,000'

\* <https://ctcglobal.com/accc-conductor-reduces-line-losses-everyone-care/>

