vermont electric power company

VELCO

Transmission Line Refurbishment Projects

K22, K24 and K34 Lines

Planning Advisory Committee Meeting
February 17, 2021

Contents

TLR Strategies

- Initial replacement plans are established using the following traditional inspections:
  - Comprehensive Aerial Patrol (8 year cycle)
  - Osmose (8 year cycle)
  - Aerial Patrols (4 times per year)
  - Ground Patrol (prior to finalizing work plan)
- Final replacement plans address deficient structures derived from traditional inspections and structures in the same area that are nearing their life expectancy.
- This will establish "sections" of line for replacement, minimizing the number of major equipment relocations on a line. Doing so will maximize the access and line construction efficiencies while reducing average replacement costs per structure, environmental impacts, etc.

TLR Strategies

- When possible establish replacement schedule to follow the vegetation management cycle, taking advantage of a clear ROW and minimize the timeframe landowners are impacted by the activity.
- Create efficiencies by determining the structures to be replaced at least a year in advance to allow adequate time for engineering, permitting, procurement of material and overall project planning and management.
- TLR projects revitalize and improve upon some of the base practices that worked well under the Structure Condition Improvement (SCI) program (March 22, 2016 PAC meeting, presentation link).
- The proactive work under TLR is new and separate from that performed under SCI.

K22 Line

115 kV line from Essex to Sandbar

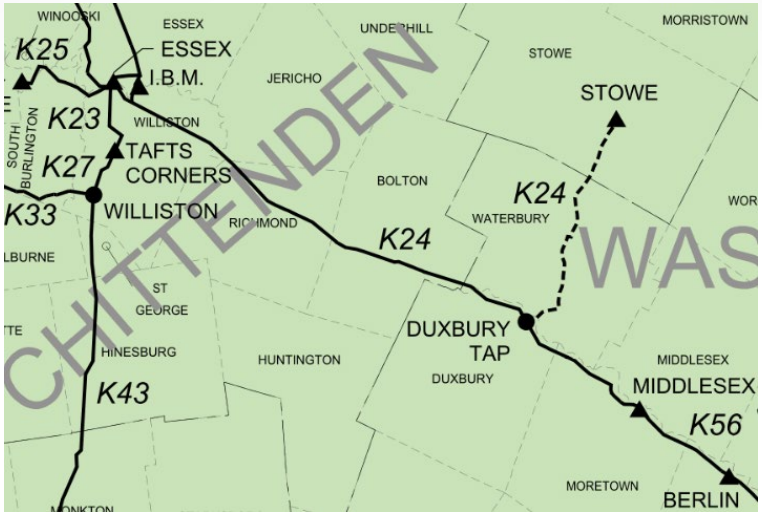
K22 Line – Essex to Sandbar
Example Inspection Results

K22 Line Rotten Crossarm

K22 Line Severely Weathered Pole

K22 Line Structure Replacement Summary

- 11.2 mile line built in 1958 from Essex to Sandbar, which was part of a larger segment connecting the Vermont 115kV grid to New York Power Authority in Plattsburg, NY
- Located in a mixture of commercial, residential and lowlands.
- Major issues being addressed include severely weathered poles and rotten pole tops
- Additional assessment findings include rotten crossarms and woodpecker damage
- Replace 69 out of 149 wood H-frame structures. Majority of replacements with be steel H-frames, especially in areas seeing woodpecker damage. Minimal wood H-frames will be installed to reduce current wood pole inventory.
- Total Estimate: $9.7 million (+/-10%)
- Completion of work projected in 2022



K24 Line

115 kV line from Essex to Middlesex

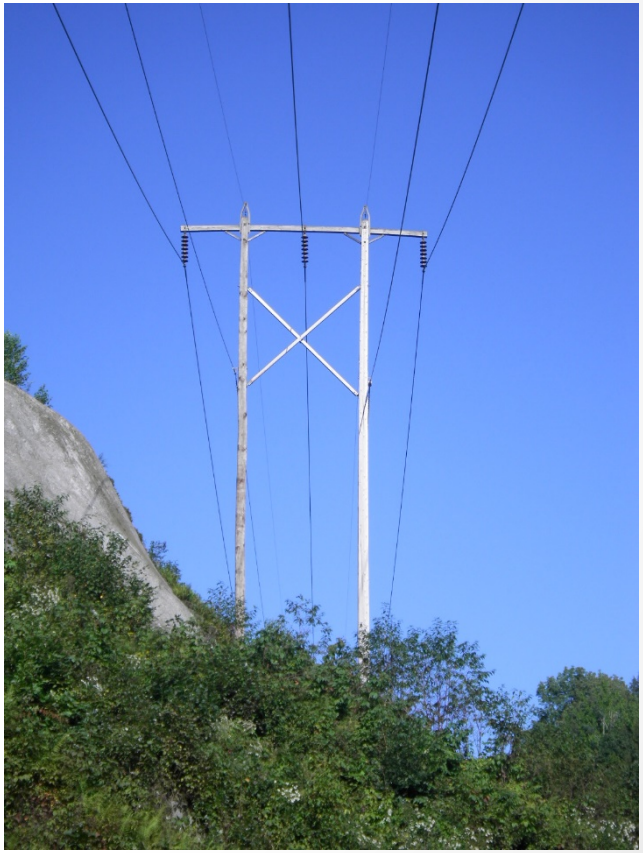
K24 Line – Essex to Middlesex
Example Inspection Results

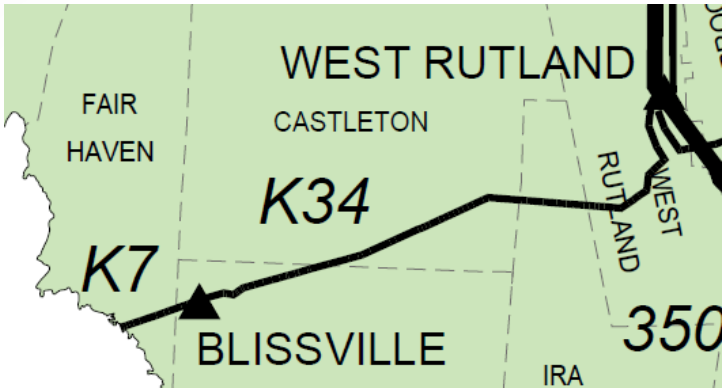
K24 Line Rotten Pole Top

K24 Line Severe Pole Check

K24 Line Structure Replacement Summary

- 26.4 mile line built in 1958 from Essex to Middlesex, which was part of a larger line from Essex to Barre, connecting the eastern Vermont and western Vermont segments of the 115kV grid
- Located in variable terrain, but primarily mountainous with difficult access and challenging side sloped right-of-way
- Major issues being addressed include severely rotten pole tops and rotten crossarms
- Additional assessment findings include leaning structures and severely checked poles
- Replace 116 out of 305 wood H-frame structures. Majority of replacements with be steel H-frames. Minimal wood H-frames will be installed to reduce current wood pole inventory.
- Total Estimate: $15.2 million (+/-10%)
- Completion of work projected in 2024





K34 Line

115 kV line from West Rutland to Blissville

K34 Line – West Rutland to Blissville Example Inspection Results

K34 Line Woodpecker Damage

K34 Line Rotten Pole Top

K34 Line Structure Replacement Summary

- 11.6 mile line built in 1959 from West Rutland to Blissville, which was part of a larger segment connecting the 115kV grid between west, central Vermont and eastern New York
- Located in variable terrain ranging from large wetlands to rugged, vast ravines
- Major issues being addressed include rotten pole tops, rotten crossarms and severe woodpecker damage
- Additional assessment findings include aging, broken hardware, insulators and severely checked poles
- Replace 54 out of 138 wood H-frame structures. Majority of replacements with be steel H-frames, especially in areas seeing woodpecker damage. Minimal wood H-frames will be installed to reduce current wood pole inventory.
- Total Estimate: $6.7 million (+/-10%)
- Completion of work projected in 2022