April 1, 2024

Sally Zeh
Director of Electricity and Gas Utilities
Maine Public Utilities Commission
18State House Station
Augusta, ME 04333-0018

RE: Versant Power Transmission Line Rebuild or Relocation Projects, 35-A M.R.S.A. §3132(3) and Minor Transmission Line Construction Projects, 35-A M.R.S.A. §3132 (3-A)

Dear Ms. Zeh:

Pursuant to 35-A M.R.S.A. § 3132(3); (3-A) and Chapters 330 § 8 and 308 § V of the Maine Public Utilities Commission Rules, enclosed is Versant Power's annual filing of its Transmission Line Rebuild or Relocation Projects (69 kV and above), and its Minor Transmission Line Construction Projects (69 kV and above) ("Chapter 330 Report"). Attached to this letter is a summary list of the projects by category (Attachment A); a map of the MPD service territory depicting the location of projects in that service region (Attachment B); data sheets with detail for all projects (Attachment C); a copy of the Company's most recent depreciation study for each service region that includes the useful lives of the poles and conductors that constitute Versant Power's existing transmission system (Attachment D).

Bangor Hydro District
Versant Power does not intend to carry out any Chapter 330 transmission line rebuild or transmission line construction projects in the Bangor Hydro District (BHD) in the next five years.

Maine Public District
Versant Power intends to carry out five Chapter 330 transmission line rebuild or relocation projects in the Maine Public District (MPD) in the next five years. The Company does not intend to carry out any new transmission line construction projects in the MPD in the next five years.

Consistent with recent years and with discussions that took place with stakeholders including the Aroostook Energy Association (AEA), this year's Ch. 330 report envisions targeted line segment rebuilds. The development of the rebuild plan is dependent on enhanced inspections including drone, resistograph, climbing, ultrasonic and thermal imaging. As discussed with those stakeholders, Versant is continuing to spread out a transmission rebuild plan over the forecasted 30 year period.

All rebuild projects listed in this Chapter 330 Report are required to address transmission line condition (i.e., end-of-life, deterioration, weather damage) issues only. There are no reasonable alternatives to these projects.

Transmission Line Rebuild or Relocation Projects (69 kV and above)
See Title 35-A M.R.S.A.§ 3132(3) [1]
In the next five years, Versant Power currently has six projects it intends to carry out under this category in its Maine Public District. A brief description of each project listed in numerical order follows:

1. **<u>Line 6905 Rebuild Phase 1 (Structure 104 to 153)</u>**
   Description: Line 6905 is a 41.5-mile-long 69kV transmission line that connects the Company's Limestone Switching Station to its Madawaska Substation. Thirty-eight miles of this line are situated within a utility-maintained right-of-way (ROW), constituting 93% of its overall length. Line 6905 is tapped twice, once to serve 1140 customers in the community of Grand Isle and again to serve Van Buren Light and Power Cooperative customers. Line 6905 can provide power from either Madawaska or Limestone, enabling it to undergo maintenance and switching activities without disrupting service to these communities. Additionally, NB Power utilizes this line as a backup pathway to supply power from Limestone to Madawaska.

   The ROW segments are primarily comprised of H-frame wood pole structures and use porcelain suspension insulators to hold 336.4 ACSR wire in space. This line was originally constructed in 1964 using southern pine wood poles treated with creosote preservative, a treatment method commonly used during the 1950s and 1960s but less effective than preservatives available today. The extent and severity of decay has increased as the cycle of rot and decay continues within this population of wooden poles. Poles are in the poorest condition from Madawaska to Grand Isle Tap and Vanburen Tap to Limestone Switching Station are the two sections of this line. According to the most recent comprehensive ground line wood pole strength and condition assessment performed in 2023, deterioration with reduced shell strength in 93% of original wood poles with 13% having internal decay at or below groundline.

[1] Title 35-A M.R.S.A.§ 3132(3) requires each transmission and distribution utility to file an annual report of the "transmission line rebuilding or relocation projects that it intends to carry out during the next five years...that will become, or remain at, 69 kilovolts or more."

The 2023 above ground line inspection indicated 21% of the poles have hollow heart decay from groundline and above. Of these poles, 73% are in advanced stages decay, requiring replacement within the next 1 to 4 years.

In addition to deteriorated wood poles, this line contains wood pole crossarms that have a history of failure throughout the MPD 69kV ROW system due to decay and lightning strikes. As these wood pole crossarms continue to age water (from rain and snow) will enter through upward facing surface cracks and become trapped inside, contributing to the internal decay process that will eventually result in their failure if not removed from service before this occurrence. The next internal condition assessment of Line 6905 wood poles in ROW, is scheduled for 2025

Phase 1 begins a longer-term effort of rehabilitating this 41-mile-long transmission line through the rebuilding of its worst six-mile segment. Starting near the Vanburen tap moving south towards Limestone, from structure 104 to 153.

Benefits afforded by this newly rebuilt segment of Line 6905 are (1) opportunity to rebuild this line segment to current Versant Design standards, (2) opportunity to add static wire to reduce lightning interruptions, (3) opportunity to increase the size of the conductor and strengthen the connection from Madawaska Substation to Limestone Switching Station.

2. **Line 6905 Rebuild Phase 2 (Structure 48 to 104)**
   Description: See description in Line 6905 Rebuild Phase 1 for Line 6905 details and condition. Continuing to rebuild with the next poorest condition 6.0-mile segment, starting at structure 104 and moving south toward limestone to structure 48.

3. **Line 6905 Rebuild Phase 3 (Structure 349 to 401)**
   Description: See description in Line 6905 Rebuild Phase 1 for Line 6905 details and condition. Continuing rebuilding with the next poorest condition 6.2-mile segment, located between Madawaska Substation and Grand Isle Tap. Beginning at structure 401 and moving south toward Grand Isle Tap to structure 349.

4. **Line 6905 Rebuild Phase 4 (Structure 296 to 349)**
   Description: See description in Line 6905 Rebuild Phase 1 for Line 6905 details and condition. Continuing rebuilding with the next poorest condition 5.0-mile segment, located between Madawaska Substation and Grand Isle Tap. Beginning at structure 349 and moving south beyond Grand Isle Tap to structure 296.

5. **Line 6950 Rebuild (Flo's Inn Substation to Mars Hill Switching Station)**
   Description: Line 6950 is in the MPD and runs alongside and operates in parallel with Line 6940. Together, these lines provide a strong and reliable 69kV backbone transmission power flow source for more than 5,000 MPD customers and the thousands more served indirectly by Eastern Maine Electric Cooperative (EMEC) and Houlton Water Company (HWC), the latter in a back-up capacity. This project

will rebuild the Line 6950 segment from the Company's Flo's Inn Substation to its Mars Hill Switching Station. This line segment is 3.4 miles long and comprised of 34 primarily H-frame wood pole structures with wood pole crossarms, porcelain suspension insulators and 336.4 ACSR wire. This line segment was originally constructed in 1964. According to recent comprehensive ground line wood pole strength and condition assessment performed in 2019, more than 50% of all original wood poles had some level of internal decay, 25% had reduced shell strength due to internal rot and 20% had shell rot. This level of internal and external decay is expected to increase as these wood poles continue to age and will be reassessed in years 2026 and 2027, along with an up-close overhead visual (drone) assessment of various line 6950 segments in 2024. This project is for 2028.

6. **Mullen Substation Rebuild**

Description: Mullen substation is a 12MVA, 69kV to 44kV step down transformer serving power through Line 4407. Line 4407 is a 46.4 mile long, radial transmission line tapped 6 times to serve 2,868 customers in the communities of Oakfield, Island Falls, Patten Sherman Mills, and the customers of Eastern Maine Electric Cooperative (EMEC) in Ludlow and Patten. This is the only transformer operating with an output of 44kV in the Maine Public District.

The Mullen Substation was initially built in 1943 as a 34.5kV substation. Since then, it has undergone several modifications, including the acquiring of new lines to extend the transmission network, accommodate increased loads, and consequently elevate the transmission voltage to 44kV to fulfill these needs.

The Mullen Transformer was manufactured in 1985 and is 38 years old. This transformer has experienced multiple line faults over the years. Faults can stress transformer winding insulation and insulating oil. Insulating oil test results indicate the transformer has experienced overheating, possibly due to failing or poor electrical connections inside the transformer as it ages. The Load Tap Changer for maintaining output voltage has experienced similar overheating issues. A smaller 7.5MVA spare, 54 years old, is located onsite for a backup if the primary transformer fails. The resulting outage to cut over to the spare would be a minimum of 6-8 hours aside from the troubleshooting and assessment time. The associated protective relaying, breakers and switches are nearing or at end-of-life through condition or availability of obsolete parts.

Presently, the company is conducting a study to assess both current requirements and future needs, aiming to identify the optimal course of action regarding the substation and converting Line 4407 to 69kV. Completion of this study is anticipated within the year, at which point further data will be accessible.

Minor Transmission Line Construction Projects (69 kV and above)
See Title 35-A M.R.S.A. § 3132(3-A)[2]
Versant Power does not currently intend to carry out any new minor transmission line construction projects in the next five years.

Notable 2024 Chapter Report Inclusions & Removals
The Company's 2023 Chapter 330 Report indicated a project to rebuild Line 63 (.35 mile) that connects the Company's Keene Road 115kV Substation to its Chester 115kV Substation was to occur in 2024. The project was moved up in the schedule from 2024 Q1 and completed in 2023 Q4. This project was moved up to address wood poles with internal and external decay, and others with significant woodpecker damage. As a result, the Line 63 rebuild project will not appear in this year's project list.

Please contact Dave Norman at (207) 973-2708, James Cole (207) 356-0206, or me at (207) 973-2819 if you have any questions about this filing.

Sincerely,

/s/Arielle Silver Karsh
Arielle Silver Karsh
Vice President, Legal and Regulatory Affairs

[2] Title 35-A M.R.S.A. § 3132(3-A), requires transmission and distribution utilities to separately report minor transmission line construction projects. A minor transmission line construction project is defined as "…a transmission line construction project, the cost of which does not exceed 25% of the utility's current annual transmission property depreciation charge." For year 2023, 25% of Versant Power's annual transmission property depreciation charge is $4,086,312.

Attachment A

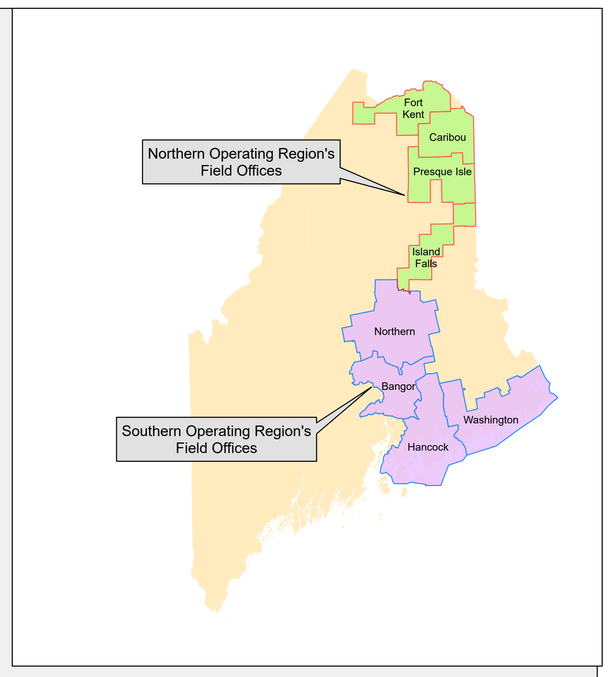
Project Progress Update from 2023 Filing

Line 6904 Rebuild (Structures 11 to 34)	(Completed, In-service)
Line 63 Rebuild	(Completed, In-service)

Transmission Line Rebuild or Relocation Projects (69 kV and above)

Line 6905 Rebuild Phase 1 (Structures 104 to 153)
Line 6905 Rebuild Phase 2 (Structures 48 to 104)
Line 6905 Rebuild Phase 3 (Structures 349 to 401)
Line 6905 Rebuild Phase 4 (Structures 396 to 349)
Line 6950 Rebuild (Flo's Inn to Mars Hill Switching Station)
Mullen Substation Rebuild

Minor Transmission Line Construction Projects (69kV and above)



Line 6905 Conceptual Phase 3

Line 6905 Conceptual Phase 4

Line 6905 Planned Phase 1

Line 6905 Planned Phase 2

Line 6904 Completed (Structures 11 to 34)

Line 6950 Conceptual

Madawaska
Frenchville
Fort Kent
Saint Agatha
Grand Isle
Van Buren
Saint John Plt
Wallagrass
New Canada
Cross Lake Twp
T17 R4 WELS
T17 R3 WELS
Saint Francis
Cyr Plt
Hamlin
Eagle Lake
T16 R6 WELS
T16 R5 WELS
T16 R4 WELS
Stockholm
Connor Twp
Caswell
Winterville Plt
T15 R6 WELS
T15 R5 WELS
Westmanland
New Sweden
LIMESTONE SUB
Limestone
T14 R5 WELS
Perham
Woodland
Caribou
Portage Lake
T13 R5 WELS
Wade
Washburn
WASHBURN SUB
Fort Fairfield
NORTH PRESQUE ISLE SUB
FLO'S INN SUB
Nashville Plt
Castle Hill
Mapleton
MAPLETON SUB
PRESQUE ISLE SS
Ashland
ASHLAND SUB
Easton
Garfield Plt
T11 R4 WELS
Chapman
WESTFIELD SUB
Westfield
Mars Hill
MARS HILL SS
T10 R6 WELS
Masardis
E Twp
Blaine
Cox Patent
Oxbow Plt
T9 R5 WELS
T9 R3 WELS
T0 R2 WELS
BRIDGEWATER SUB
Bridgewater
Monticello

Chapter 330 Project Area Status
- Planned
- Conceptual
- Completed

Substations

Existing Transmission Lines
- 19.9 KV
- 34.5 KV
- 44/46 KV
- 69 KV
- 115/138 KV
- 345 KV

Southern Operating Region

Northern Operating Region

DATA SOURCES: MAINE OFFICE OF GIS, ESRI, AND VERSANT POWER

PROJECTION: NAD 1983 UTM ZONE 19N

0 2 4 Miles

VERSANT POWER NORTHERN OPERATING REGION AND TRANSMISSION SYSTEMS PROJECTS IN CHAPTER 330 FILING

VERSANT POWER

DATE: MARCH 2024