Green Mountain Power
Interim and Rate Year Capital Projects
Transmission Distribution

Project Number and Title	Additional Information	Project Description	Project Justification
Distribution Lines Large Cap - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total = $ 9,351,150			
127390: Chester Line 1 Poles 178-231	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $384,903	The project will reconstruct and relocate a portion of Line 1 in the towns of Chester and Andover. The reconstruction will start at pole 178 and will continue to pole 23. This will be a 3 phase rebuild with 477 spacer cable and new poles along the roadside of Route 11.	The primary purpose is to update and replace aging assets that are not resilient during severe weather. Existing facilities have an average pole age of 40 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and storm hardening this line with modern construction standards will significantly add to the reliability of this line. This project will also have a secondary important benefit, it will enhance the feeder back up capability between the Londonderry and Chester substations, which are both fed by radial transmission lines. This project will also add capacity for electrification and distributed generation.
127409: Barnard Line 1 Route 12 rebuild	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $571,431	The project will reconstruct and relocate a portion of Line 1 in the town of Barnard. The reconstruction will start from pole 163 and will continue to pole 192, with a 3 phase rebuild will be crossarm construction with 477 tree wire and new poles along the roadside of Route 12.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms, along with bringing some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 62 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding covered wire and bringing poles to the road will significantly increase the reliability of this line. This upgrade will also increase the capacity for electrification and distributed generation.
127451: Chester Line 1 Poles 124-172	Project Type: Distribution Lines Large Cap In-Service Month: 3 In-Service Year: Dec 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $647,945	The project reconstructed and relocated a portion of Line 1 in the town of Chester. The reconstruction started at pole 124 and continued to pole 172. This was a 3 phase rebuild with 477 spacer cable along the roadside of Route 11. This project was completed December 2021, a listing of actual costs is included to support this project.	The primary purpose is to update and replace aged assets and bring some of the pole plant that is currently off road to the road. The bare wire on this line has seen excessive damage from storms and tree contact. Adding covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also have a secondary important benefit; it will enhance the feeder back up capability between the Londonderry and Chester substations, which are both fed by radial transmission lines. This project will also add capacity for electrification and distributed generation.
130049: Athens Line 3 - Hendrix	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,129,852	The project will reconstruct and relocate a portion of Line 3 in the town of Athens. The reconstruction will begin at pole 453 and will continue to pole 502. This will be a 3 phase rebuild with 477 spacer cable and new poles along the roadside of Route 35.	The primary purpose is to update and replace aged assets and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 89 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. This line is on the CH-G11 circuit. This circuit is on GMP's worst circuits list. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future. These new poles will also add pole space for future broadband deployment.
150103: Halifax Line V60H - Hanson Rd	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $448,476	The project will reconstruct and relocate Line V60H in the town of Halifax. The reconstruction will start at pole 1 and continue to pole 35. This will be a single phase rebuild with 1/0 tree wire, new pole and some 1/0 cable in conduit underground along Hanson Rd.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 63 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire, undergrounding, and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future and create space on the poles for broadband in this area, which is an area with unserved broadband customers. GMP is working with Deerfield Valley CUD to install conduits for fiber in the areas GMP goes underground.
151002: Line 64 - Poultney	Project Type: Distribution Lines Large Cap In-Service Month: 1 In-Service Year: Oct 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $536,679	The project reconstructed, relocated, and removed a portion of Line 64 by tying Line 66 to Line 662 in the town of Poultney. The project replaced and reconductor poles 1-8 on Line 66 and Line 662 poles 1 to 36 along the roadside on VT RT 31 and removed poles 1-20 of cross-country line on Line 64.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. The bare wire on this line has seen excessive damage from storms and tree contact. Access to the off-road poles is a challenge. Adding covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
153843: Mendon LIne 4 p 54 to 105	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $431,740	The project will rebuild and relocate portions of Line 4 in the town of Mendon. The reconstruction will start at pole 52 and continue to pole 72. This will be a 3 phase standard construction rebuild with 336 tree wire alongside Meadow Lake Dr. One small section of 1/0 cable in conduit will be installed to eliminate overhead constraints.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 80 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line and also enhance the distribution feeder back up capability between the Mendon and Pittsford Substations.
154554: Reading Line 4	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,082,356	The project will rebuild and relocate portions of Line 4 in the town of Reading. The reconstruction will start at pole 36 and continue to pole 66. This will be a 3 phase rebuild with 477 spacer cable alongside Route 106.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms. Existing facilities have an average pole age of 44 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and storm hardening to this line, along with modern construction standards will significantly add to the reliability of this line. Installing this larger wire will also allow for future feeder back up to the adjacent Cavendish substation distribution circuit and allow for space for communication/broadband providers.

Project Number and Title	Additional Information	Project Description	Project Justification
159947: Line 156 Poles 1 to 58	Project Type: Distribution Lines Large Cap In-Service Month: 1 In-Service Year: Oct 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $397,557	The project will rebuild and relocate portions of Line 51 in the town of Middlebury. The reconstruction will start at pole 1 and continue to pole 55. This will be a single phase rebuild with 1/0 tree wire alongside Case St.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road closer to the road. Existing wire facilities is small # 6 copper on average pole age of 50 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future, as well as add spacing on the poles for broadband. This project also resides on State Highway Rt. 116, storm hardening this line will result in less disruption to this state highway in severe weather events.
162088: DANBY L9804 REBUILD	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $236,846	The project will rebuild and relocate portions of Line 9804 in the town of Danby. Parts of the line will be rebuilt underground where feasible. The reconstruction will start at pole 18 and continue to pole 34. This will be a single phase rebuild with 1/0 tree wire for the overhead portions, and 1/0 cable in conduit for the underground portions.	The primary purpose is to update and replace aged, highly deteriorating facilities located in a swamp and bring the pole plant that is currently off road and in a swamp to the road. Existing facilities have an average pole age of 53 years. Poles in the off road corridor have zero life left. The bare wire on this line has seen some damage from storms and tree contact. If an outage would to occur on this section of off road line, the duration time to restore would be extended as tracked machinery would be necessary to restore it to an operable configuration. Adding a covered wire and bringing poles to the road will significantly add to operational efficiencies and reliability of this line. This project will also add capacity for electrification and distributed generation in the future and allow for future broadband deployment.
164371: Fairfield Line 2 - Phase 11	Project Type: Distribution Lines Large Cap In-Service Month: 7 In-Service Year: Apr 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $523,230	The project will rebuild and relocate portions of Line 2 in the town of Fairfield. The reconstruction will start at pole 81 and continue to pole 171. This will be a 3-phase standard construction rebuild with 1/0 tree wire alongside Route 36.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring majority of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 51 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future, as well as add additional space on the pole line for broadband providers.
166372: 69K1 & 69K2 rebuild Hendrix	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $464,196	The project will rebuild the double circuit poles along River Road from the Putney substation to Route 5 in Putney. The reconstruction will start at the Putney substation and continue to pole 19. This will be a double circuit 3-phase rebuild with 477 spacer cable alongside River Road.	The primary purpose is to update the current infrastructure to be able to convert the existing 8.3KV voltage of these double circuits. This is a prerequisite project, so the substation operations department can rebuild and convert the Putney substation to a modern 12.5 KV voltage. The Second purpose is to replace aging assets that are no longer resilient against more frequent severe storms on this double circuit line that is part of the main line feeders directly out of the Putney substation. The current configuration of the line is not in accordance to current construction standards and has caused unnecessary outages due to wire slap during wind events. Existing facilities have an average pole age of 57 years. The bare wire on this line has seen damage from storms and tree contact. Adding a covered wire and constructing the line to current voltage and configuration standards will add significant maintenance efficiencies and reliability to both Putney circuits. We have also had wire burn downs during faults that will not happen with the new construction. When this section of line goes out due to damage, it often takes all customers fed out of the Putney substation out until repairs are complete, due to the configuration of the line.
171006: Airport Sub Overhead Work	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $732,666	The project will reconstruct and upgrade the three-phase circuit on Airport Parkway to a three-phase double circuit.	The primary purpose is to create new feeder backup tie points and move some load from the Townline and Dorset Street substations. The current load constraints in this area around the Burlington International Airport forced the upgrade/relocation of the Airport substation, and subsequently providing the ability to install 2 new circuits to help offset these load constraints. This project will also add capacity for electrification and distributed generation in the future, and create further feeder back up ties.
171161: Brockways MIlls Fiber	Project Type: Distribution Lines Large Cap In-Service Month: 6 In-Service Year: Mar 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $315,113	The project will reconstruct a portion of 67G3 circuit on RT 103 In Rockingham to run a new fiber optic cable to Brockway Mills Hydro	The primary purpose extends fiber optic communication to the Brockway Mills Hydro facility to enable a relay protection scheme for line. This will allow other generation project in the area to be operated even when doing hot line work on the line. Without the fiber and the new Viper recloser, additional generation is not feasible.
174118: Goshen L4 Rebuild-Fiber	Project Type: Distribution Lines Large Cap In-Service Month: 8 In-Service Year: May 2022 Fiscal Year: FY2022 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $379,994	The project will reconstruct a portion of Line 4 to run fiber from the transmission crossing in Goshen to Silver Lake. Along with new poles for the fiber, will we be installing 1/0 tree wire for added reliability to the area.	The primary purpose is to update and replace aged replace aging assets that are no longer resilient against more frequent severe storms while rebuilding the line to install a Fiber communication attachment to these facilities for communications for safety and control of our Goshen Dam hydro facility. Existing facilities have an average pole age of 29 years. While creating spacing for the fiber, changing the existing bare wire to a covered will improve resilience in the area. The bare wire on this line has seen excessive damage from storms and tree contact.

Project Number and Title	Additional Information	Project Description	Project Justification
176503: 27G6 TO PICK UP 2H2	Project Type: Distribution Lines Large Cap In-Service Month: 9 In-Service Year: Jun 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,068,167	This project is to complete a voltage conversion and upgrade/tie the 27G3 circuit out of Mountainview substation to eliminate 2H2, 2400 Delta circuit currently fed out of a hydro facility.	The primary purpose of this project is to convert the circuit and associated facilities to current standards leading to better reliability along with more flexibility to work on our hydro generating facility. Converting the circuit, allows for uniform equipment to be installed across the service territory and serve our customers quicker and safer. This project will also add capacity for electrification and distributed generation. Replacement poles will also create space for broadband if needed in this area.
Distribution Lines Small Cap Blanket- Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total = $ 13,162,568			
176612: Small Capital Budget Only	Project Type: Distribution Lines Small Cap In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $13,162,568	Blankets are generally used for categories of spending where the anticipated level and need for the spending is known based on historical experience, but the exact location of work or the individual projects that will be required cannot always be known in advance. For the Distribution Line Blanket the Projects in these categories may include but are not limited to (1) reconstruction and rebuild projects primarily for safety, efficiency, and reliability of the distribution system; (2) customer-requested line extensions, relocations, and upgrades (3) road relocation projects (relocating T&D facilities for state- or municipality-initiated road or bridge construction); and (4) third-party reconstruction project (telephone or cable requests to upgrade and relocate joint facilities). These projects are primarily necessary to address safety and reliability. GMP continually examines our equipment and circuits to identify capital reconstruction and additions based on asset management, outage history and impact on customers, safety of employees and customers and cost. The Distribution Line Blanket amount placed in rate base is based on the 5-year historical average of capital spending adjusted for inflation or the current year budget for distribution line blanket. The amount included in this filing represents the FY2022 small distribution lines budget. This blanket is for projects that help assure system capability and reliability on the distribution system. This work includes expenditures for addressing asset management concerns, relocating and reconductoring lines, voltage conversions, feeder backup and fuse coordination. Overhead line projects typically include the installation of poles, cross arms, anchors, wire, and service conductor and associated hardware. Underground projects include pad mounts, terminating cabinets, URD cable, and terminators for underground lines.	The GMP system over 15,000 miles of Distribution line requiring the continual review of this infrastructure to proactively address asset management issues, line protection, feeder backup capability and changing system conditions pertaining to loads and distributed generation. This is essential to prevent adverse impacts to customers or employees. GMP cannot dictate the timing of many of these types of projects —like when the state or municipality decides a line must be relocated, a customer needs a service installed, a renewable energy project must be interconnected, or a car damages a pole. These very events can affect the timing of construction and in-service dates for planned GMP projects, which is precisely why it is important to keep them in the blanket. This does not make the projects not necessary or less important; it just means they cannot always be planned. The need to quickly undertake these thousands of projects, coupled with the difficulty of predicting when they will occur, given the many factors affecting their timing, requires us to have a financial mechanism to address these needs quickly and efficiency. In this way, when the projects are ready to construct, GMP can get them done for our customers.
Distribution Lines Ext. Blanket - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total = $3,173,093			
176613: Dist Line Ext	Project Type: Distribution Lines Line Extensions In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Customer Service Secondary Purpose: Regulatory compliance Total Project Spending: $3,173,093	Blankets are generally used for categories of spending where the anticipated level and need for the spending is known based on historical experience, but the exact location of work or the individual projects that will be required cannot always be known in advance, this is true for Distribution Line Extension Projects. These projects are required by our Line Extension Tariff to meet our customer needs. The Distribution Line Extension Blanket amount placed in rate base is based on the 5-year historical average of capital spending adjusted for inflation or the current year budget for distribution line blanket.	The inclusion of this project is necessary to accommodate the needs of our customers and maintain compliance within our approved tariff. The nature of customer line extensions is that they are random and continuous throughout the year.
Distribution Lines Large Cap- Rate Year (Oct. 1, 2022 - Sept. 30, 2023) total=$ 14,699,864			
130649: Peru L25 P14-43A	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $537,220	The project will reconstruct, relocate, and underground Line 25 in Peru. The reconstruction will start at pole 14 and continue to pole 43A. This will be a single phase rebuild with 1/0 tree wire and 1/0 15KV cable in conduit along Moss Brook and Mad Tom Notch Rd	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 46 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future, and add space on the poles for broadband deployment. In the underground section, conversations are taking place on whether to add a conduit for fiber deployment.
130663: Guilford Resupply Line 171	Project Type: Distribution Lines Large Cap In-Service Month: 2 In-Service Year: Nov 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $309,594	The project will reconstruct & relocate a portion of Line 171 in the town of Guilford. The reconstruction will start at pole 53 and will continue to pole 90. This will be a single phase rebuild with 1/0 tree wire and new poles along the roadside of Weatherhead Hollow Road. Weatherhead Hollow Road is fed from both the north and south on two different circuits with a gap in between. Access to the off-road poles is a challenge to maintain and restore. Adding a covered wire, bringing poles to the road, and feeding the entire road from one shorter length circuit will significantly add to reliability of this line.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 45 years. The bare wire on this line has seen excessive damage from storms and tree contact. This project will also add capacity for electrification and distributed generation in the future and create space for broadband deployment on the poles.
152969: Pittsford L51 Oxbow Rd	Project Type: Distribution Lines Large Cap In-Service Month: 9 In-Service Year: Jun 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $466,985	The project will reconstruct and relocated a portion of L51 in the town of Pittsford. The reconstruction will start at pole 36 and continue to pole 63. This will be a three phase 1/0 tree wire Oxbow Rd in Pittsford with some 1/0 cable and conduit single phase.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 40 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future in allow spacing on the poles for future broadband deployment. This line also ties to an adjacent Mendon circuit, this project will enhance that feeder back up tie.

Project Number and Title	Additional Information	Project Description	Project Justification
153588: Line 74 - Section I	Project Type: Distribution Lines Large Cap In-Service Month: 8 In-Service Year: May 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $440,166	The project will rebuild and relocate a portion of Line 74 in the town of Lincoln. The reconstruction will start at pole 1 and continue to pole 53. This will be a single phase rebuild and 4/0 underground cable along roadside of Brown and West Hill Rds.	The primary purpose is to update and replace aging, end of life assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 58 years. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This line is the beginning of line 7 on the HR-G38 circuit. This circuit/line is on GMP's worst circuits list. This project is efforts to storm harden the entire line 7 in conjunction with eight other projects in various stages, on this circuit/line. With these efforts, we can achieve greater reliability to the Lincoln, and Starksboro areas and remove the HR-G38 from the worst circuit list. This project will also add capacity for electrification and distributed generation in the future, reduce future tree trimming cost via the underground and add space for broadband deployment.
153706: Line 1, 102, & 104	Project Type: Distribution Lines Large Cap In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $370,460	The project will relocate and rebuild multiple sections of Lines 1, 102 and 104 in Mount Holly. The reconstruction will begin pole 1 on Line 1 and continue down Belmont Rd with 1/0 tree wire and new poles to remove multiple section of off road plant.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 47 years. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line, along with aiding in a quicker recovery with poles accessible by truck. This line is on the MH-G13 circuit. This circuit is on GMP's worst circuits list. This project is an effort to storm harden the entire line in conjunction with four other projects in various stages, on this circuit/line. With these efforts we can achieve greater reliability to the Mount Holly and Shrewsbury area and remove the HR-G38 from the worst circuit list.
155051: Newfane Line 6 to line 3	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,056,920	The project will rebuild and relocate portions of Line 6 & Line 3 in the towns of Newfane and Townshend. The reconstruction will start at Line 6 pole 146 and continue to Line 3 pole 871. This will be a 3 phase rebuild with 477 spacer cable alongside Route 30.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 42 years. Adding covered wire and bringing poles to the road will significantly add to reliability of this line. This line is on the DM-G6 circuit. This circuit is on GMP's worst circuits list. This project is an effort to storm harden the entire line in conjunction with three other projects in various stages, on this circuit/line. With these efforts we can achieve greater reliability to the Newfane, Townshend area and remove the DM-G6 from the worst circuit list.
158520: Sheldon Line 9 Phase III	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $525,894	The project will rebuild and relocate portions of Line 9 in the town of Sheldon. The reconstruction will start at pole 84 and continue to pole 117. This will be a 3 phase rebuild with 477 spacer cable alongside North Road.	The primary purpose is to update and replace aged assets and the pole plant that is currently off road to the road. Existing facilities have an average pole age of 42 years and are in need of replacement. Adding storm hardened covered wire and bringing poles to the road will significantly add to reliability of this line.
158947: Chesters Line 1 Poles 55 to 85	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $386,947	The project will rebuild and relocate portions of Line 1 in the town of Chester. The reconstruction will start at pole 55 and continue to pole 85. This will be a 3 phase rebuild with 477 spacer cable alongside Route 11.	The primary purpose is to update and replace aged and deteriorating facilities and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 36 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line, along with enhancing feeder backup capability between Chester and Londonderry substations. This project will also add capacity for electrification and distributed generation in the future.
159438: Line 382 rebuild poles 1 to 18	Project Type: Distribution Lines Large Cap In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $265,099	The project will rebuild and relocate portions of Line 382 in the town of Bridport. The reconstruction will start at pole 1 and continue to pole 18. This will be a single phase rebuild with 1/0 tree wire alongside Basin Harbor Road.	The primary purpose is to update and replace aged and highly deteriorating facilities and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 64 years. The pole plant and wires are off road currently and moving to the roadside will give better access during routine and emergency work and allow for easier deployment of broadband if needed. This project will also add capacity for electrification and distributed generation in the future.
161540: Danby L984 Old Otis Rd	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $325,683	The project will rebuild and relocate portions of Line 984 in the town of Danby. Parts of the line will be rebuilt underground where feasible. The reconstruction will start at pole 31 and continue to pole 68. This will be a single phase rebuild with 1/0 tree wire for the overhead portions, and 1/0 cable in conduit for the underground portions.	The primary purpose is to update and replace aged, highly deteriorating facilities and bring some of the pole plant that is currently off road and in a swamp to the road. This project is another portion of a feed to pick up this area. Existing facilities have an average pole age of 51 years. The bare wire on this line has seen some damage from storms and tree contact. If an outage would occur on this section of off-road line, the duration time to restore would be extended as tracked machinery would be necessary to restore it to an operable configuration. Adding a covered wire and bringing poles to the road will significantly add to operational efficiencies and reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
162196: Lint 4 to Line 3 Mt. Holly	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $647,803	The project will rebuild and relocate portions of Line 3 in the town of Mt Holly. The reconstruction will start at pole 3 and continue to pole 54. This will be a single phase rebuild with 1/0 tree wire alongside Shunpike Road. Approximately 800' of 1/0 cable in conduit will be installed underground.	The primary purpose is to update and replace aged and highly deteriorating facilities that are no longer reliable and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 47 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line.

Project Number and Title	Additional Information	Project Description	Project Justification
163721: Rupert L 514 P4-25	Project Type: Distribution Lines Large Cap In-Service Month: 9 In-Service Year: Jun 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $252,609	The project will rebuild Line 514 in the town of Rupert. The reconstruction will start at pole 4 and continue to pole 25. This will be a single phase rebuild with 1/0 tree wire alongside Sandgate Road.	The primary purpose is to update and replace aging assets that are no longer resilient against more frequent severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 54 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line.
163963: MIDDLETOWN L7022 REBUILD	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $270,957	The project will rebuild and relocate portions of Line 7022 in the town of Middletown Springs. Parts of the line will be rebuilt underground where feasible. The reconstruction will start at pole 10 and continue to pole 50. This will be a single phase rebuild with 1/0 tree wire for the overhead portions, and 1/0 cable in conduit for the underground portions.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 46 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line.
164360: 3 phase Tie from St. Albans to Colc	Project Type: Distribution Lines Large Cap In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $699,461	This project will construct a new three-phase line along route 7 in Colchester from St Albans district WM-G92 circuit at line 512 pole 15 to tie Colchester's Mallets Bay 34G1 circuit at pole 158 tag 7549296.	The primary purpose is to create a tie point for improved capacity and for potential feeder back up capabilities for improve reliability options for the West Milton G-92 circuit out of the St. Albans district when tied to the Mallets Bays 34G1 circuit out of Colchester. The West Milton Substation is fed by a radial feed transmission line, which is why an adjacent feeder back up capability is important.
164840: Lunenburg L63 Pond Hill Rebuild	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $753,211	The project will rebuild and relocate portions of Line 63 in the town of Lunenburg. The reconstruction will start at pole 3 and continue to pole 102. This will be a single phase rebuild with 1/0 tree wire alongside Pong Hill Road.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient in the face of severe weather with storm hardened construction and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 51 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
165332: Woodstock L1 P48-82	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $481,772	The project will reconstruct a portion of Line 1 in Woodstock. The reconstruction will start at pole 48 and continue to pole 78. This will be a 3 phase rebuild with 336 tree wire for the overhead portion and 3,200' of 4/0 3-phase underground cable along Route 12.	The primary purpose is to update and replace aged and deteriorating assets that are no longer resilient in the face of more severe storms and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 76 years. The bare wire on this line has seen excessive damage from storms and tree contact. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This line continues on to feed Barnard.
166050: Stockbridge L3 to L1	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $745,177	The project will rebuild and relocate portions of Lines 1 & 3 in the town of Stockbridge. The reconstruction will start at L3 pole 22 and continue to Line 1 pole 24. This will be a 3 phase rebuild with 477 spacer cable.	The primary purpose is to update and replace aged an deteriorating facilities and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 34 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This line is adjacent to the green mountain ridgeline and experiences severe weather, downsloping winds and more frozen precipitation due to the elevation of the area. This project will also add capacity for electrification and distributed generation in the future.
169766: Concord L43 & L432 Rebuild	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $294,270	The project will rebuild and relocate portions of Lines 43 and 432 in the town of Concord. The reconstruction will start at pole 20 and continue to pole 56. This will be a single phase rebuild with 1/0 tree wire alongside W Main Street.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 47 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line.
170685: Randolph L7 P177 to 226	Project Type: Distribution Lines Large Cap In-Service Month: 11 In-Service Year: Aug 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $451,558	The project will rebuild and relocate portions of Line 7 in the town of Randolph. The reconstruction will start at pole 177 and continue to pole 226. This will be a single phase rebuild with 1/0 tree wire brought to roadside where able to.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient against more frequent severe weather and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 50 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.

Project Number and Title	Additional Information	Project Description	Project Justification
171725: CAP-L.88 P.41X to L.881 P.19-1	Project Type: Distribution Lines Large Cap In-Service Month: 2 In-Service Year: Nov 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $160,904	The project will rebuild and relocate portions of Lines 88 & 881 in the town of Strafford. The reconstruction will start at Line 88 pole 41X and continue to Line 881 pole 19. This will be a single phase rebuild with 1/0 tree wire alongside Old City Falls Road.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient in the face of stronger storms in this area, and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 41 years. The bare wire on this line has seen excessive damage from storms and tree contact. Access to the off-road poles is a challenge to maintain and restore. Adding a covered wire, bringing poles to the road, and feeding the entire road from one closer circuit will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future, along with adding pole space for broadband deployment.
171726: CAP-L.88 P.12 to L.881 P.41X	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $120,236	The project will rebuild and relocate portions of Lines 88 and 881 in the town of Strafford. The reconstruction will start at L88 Pole 12 and continue to Line 881 pole 19-3. This will be a single phase rebuild with 1/0 tree wire alongside Old City Falls Road.	The current feed for this portion of Old City Falls Road is cross country and very old pole plant. This project will be refeeding Old City Falls from L88 P12 to P19-3. Old pole plant and wire will be retired on another project. This old bare wire has seen excessive damage from trees and the current feed is off road, and difficult to access. This project will also add capacity for electrification and distributed generation in the future, and also create space on the poles for broadband if needed.
171730: CAP-L.VH4A P.125 to L.V66 P.70-2	Project Type: Distribution Lines Large Cap In-Service Month: 10 In-Service Year: Jul 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $318,330	The project will rebuild and relocate portions of Line VH4A in the towns of Townshend and Dover. Parts of the line will be rebuilt underground where feasible. The reconstruction will start at pole 125 and continue to pole 152. This will be a single phase rebuild with 1/0 tree wire for the overhead portions, and 1/0 cable in conduit for the underground portions. A new single-phase overhead line will be built on North St to feed Jockey Hollow Rd from a new direction.	The primary purpose is to update and replace aged andoff road deteriorating facilities. Existing bare wire is on average pole age of 47 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. Feeding the circuit from along North St instead of cross country significantly increases reliability of the line. This project is fed by the East Jamaica circuit, one of the poorest performing circuits in the territory. The terrain here is high elevation side high on the east side of the green mountain ridgeline and sees some of the worst weather VT has to offer. This project will also add capacity for electrification and distributed generation in the future and allow spacing on the poles for broadband.
171732: CAP-L.51 P.61 to P.86	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $337,723	The project will rebuild and relocate portions of Line 51 in the town of Winhall. The reconstruction will start at pole 61 and continue to pole 86. This will be a single phase rebuild with 1/0 tree wire alongside Winhall Hollow Road.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient in the face of more sting storms in this area, and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 53 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
172654: Shrewsbury L4 Crown Point Rd	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $581,859	The project will rebuild and relocate portions of Line 4 in the Village of Shrewsbury. The reconstruction will start at pole 57 and continue to pole 105. This will be a single phase rebuild with 1/0 tree wire where overhead will be installed, and 1/0 cable in conduit for underground portions. Some of the new overhead and underground facilities will be built to roadside to allow for best access and reliability, as some will utilize the existing right of way.	The primary purpose is to replace aged and deteriorating facilities and bring majority of the pole plant that is currently off road to the road using an underground design. Existing facilities have an average pole age of 69 years. The bare wire on this line has seen excessive damage from storms and tree contact. Many wire splices are present. Bringing the facilities to an underground roadside configuration will significantly add to reliability of this line. This circuit/line is on GMP's worst circuits list. This project will also add capacity for electrification and distributed generation in the future.
173280: Winhall L.51 P21 to P.49	Project Type: Distribution Lines Large Cap In-Service Month: 6 In-Service Year: Mar 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $328,655	The project will rebuild and relocate portions of Line 51 in the towns of Winhall and South Londonderry. The reconstruction will start at pole 21 and continue to pole 49. This will be a single phase rebuild with 1/0 tree wire alongside Winhall Hollow Road.	The primary purpose is to update and replace aged and deteriorating facilities that are no longer resilient in severe weather and bring some of the pole plant that is currently off road to the road. Existing facilities have an average pole age of 36 years. The bare wire on this line has seen excessive damage from storms and tree contact. Access to the off-road poles is a challenge to maintain and restore. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
174778: Londonderry L13 P10-83	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $417,316	The project will reconstruct and relocate a portion of Line 13 in the town of Londonderry. This reconstruction project will start at pole 10 and will continue to pole 83. This will be a single phase rebuild with 1/0 tree wire and new poles along the roadside of Undermountain Rd.	The primary purpose is to update, replace aged plant, non-storm hardened plant and bring some of the poles that are currently off road to the road on Undermountain Rd. Existing facilities have an average pole age of 24 years. The bare wire on this line has seen excessive damage from storms and tree contact. Access to the off-road poles is a challenge to maintain and restore. Adding a covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also add capacity for electrification and distributed generation in the future.
175316: Gerogia-Milton feeder tie	Project Type: Distribution Lines Large Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Operational Efficiency Secondary Purpose: Reliability Total Project Spending: $1,792,621	The project will reconstruct the feeder backup for Georgia and W. Milton Feeders in Georgia. The reconstruction will start at L943 pole 18 and will tie into the W Milton G-91 feeder. This will be a 3 phase rebuild with 477 spacer cable and approximately 3,000' of 3-phase underground cable/conduit.	The primary purpose of the project is to provide reliable feedback backup for both the Georgia G -70 circuit and the West Milton G-91circuit. The average age of the pole plant on this line is¬¬¬ 38 years. With reconducting the 18,500' of the three-phase line with 477 Spacer Cable, this will give the opportunity to do maintenance on the substation reclosers, without interrupting any customers, as the West Milton Substation is fed from a radial feed transmission line. This will also allow the refeed of customers in the event of outages on either circuit, West Milton or Georgia. There are various crossings of VELCO transmission line and the interstate that will be buried, for increased reliability and safety.

Project Number and Title	Additional Information	Project Description	Project Justification
175348: Jamaica L5 P199 to 115	Project Type: Distribution Lines Large Cap In-Service Month: 8 In-Service Year: May 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,060,528	The project will rebuild and relocate portions of Line 5 in the towns of Jamaica and Londonderry. The reconstruction will start at pole 199 and continue to pole 115. This will be a 3 phase rebuild with 477 spacer cable alongside Route 100.	The primary purpose is to update and replace aged and deteriorating facilities and bring some of the pole plant that is currently off road to the road. Existing bare wire is on average pole age of 39 years. The bare wire on this line has seen excessive damage from storms and tree contact due to its location on the eastern slopes of the green mountains. Many wire splices are present. Adding covered wire and bringing poles to the road will significantly add to reliability of this line. This project will also have a secondary important benefit, it will enhance the feeder back up capability between the Londonderry and Rawsonville substations, with Londonderry fed by a radial transmission line. This project will also add capacity for electrification and distributed generation.
179822: Pearl St Rebuild	Project Type: Distribution Lines Large Cap In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Reliability Total Project Spending: $299,906	The project will reconstruct Line Pearl South in St. Albans City. The reconstruction will start at pole 36 and continue to pole 43. This will be a 3 phase rebuild with 477 spacer cable and eliminating standard crossarm construction along Pearl St.	The primary purpose is to update and replace aged and deteriorating facilities in a highly dense area of St Albans City. The current average pole age of the line being rebuilt is 34 years old. Currently, the construction is 3 phase on crossarms and bare wire. Installing the 3-phase spacer cable and new pole, will give better clearance to the buildings for safety and improve the reliability in the area with covered wire. This project will also add capacity for electrification and distributed generation in the future.
Distribution Lines Small Cap Blanket- Rate Year (Oct. 1, 2022 - Sept. 30, 2023) total=$19,336,818			
179507: 2023 Small Capital Blanket	Project Type: Distribution Lines Small Cap In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $19,336,818	Blankets are generally used for categories of spending where the anticipated level and need for the spending is known based on historical experience, but the exact location of work or the individual projects that will be required cannot always be known in advance. For the Distribution Line Blanket the Projects in these categories may include but are not limited to (1) reconstruction and rebuild projects primarily for safety, efficiency, and reliability of the distribution system; (2) customer-requested line extensions, relocations, and upgrades (3) road relocation projects (relocating T&D facilities for state- or municipality-initiated road or bridge construction); and (4) third-party reconstruction project (telephone or cable requests to upgrade and relocate joint facilities). These projects are primarily necessary to address safety and reliability. GMP continually examines our equipment and circuits to identify capital reconstruction and additions based on asset management, outage history and impact on customers, safety of employees and customers and cost. The Distribution Line Blanket amount placed in rate base is based on the FY 23 budget for distribution line blanket in order to incorporate additional smaller climate plan related resiliency projects that are not included in the large project category of the distribution lines budget. The difference from the 5 year average of $18.56M is to incorporate the important unforeseen resiliency projects. This blanket is for projects that help assure system capability and reliability on the distribution system. This work includes expenditures for addressing asset management concerns, relocating and reconductoring lines, voltage conversions, feeder backup and fuse coordination. Overhead line projects typically include the installation of poles, cross arms, anchors, wire, and service conductor and associated hardware. Underground projects include pad mounts, terminating cabinets, URD cable, and terminators for underground lines.	The GMP system over 15,000 miles of Distribution line requiring the continual review of this infrastructure to proactively address asset management issues, line protection, feeder backup capability and changing system conditions pertaining to loads and distributed generation. This is essential to prevent adverse impacts to customers or employees. GMP cannot dictate the timing of many of these types of projects —like when the state or municipality decides a line must be relocated, a customer needs a service installed, a renewable energy project must be interconnected, or a car damages a pole. These very events can affect the timing of construction and in-service dates for planned GMP projects, which is precisely why it is important to keep them in the blanket. This does not make the projects not necessary or less important; it just means they cannot always be planned. The need to quickly undertake these thousands of projects, coupled with the difficulty of predicting when they will occur, given the many factors affecting their timing, requires us to have a financial mechanism to address these needs quickly and efficiency. In this way, when the projects are ready to construct, GMP can get them done for our customers.
Distribution Lines Ext. Blanket- Rate Year (Oct. 1, 2022 - Sept. 30, 2023) total=$3,236,555			
179508: LIne Extension	Project Type: Distribution Lines Line Extensions In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Customer Service Secondary Purpose: Regulatory compliance Total Project Spending: $3,236,555	Blankets are generally used for categories of spending where the anticipated level and need for the spending is known based on historical experience, but the exact location of work or the individual projects that will be required cannot always be known in advance, this is true for Distribution Line Extension Projects. These projects are required by our Line Extension Tariff to meet our customer needs. The Distribution Line Extension Blanket amount placed in rate base is based on the 5-year historical average of capital spending adjusted for inflation or the current year budget for distribution line blanket.	The inclusion of this project is necessary to accommodate the needs of our customers and maintain compliance within our approved tariff. The nature of customer line extensions is that they are random and continuous throughout the year.
Meters - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total =$860,263			
176549: Meter Test Equipment	Project Type: Meters In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $40,608	A new WECO Metering test set is required for our Brattleboro district office. The WECO metering test set is used to verify the accuracy and functional integrity of GMP revenue meters.	The new test set is required because: 1.The ability to accurately test meters ensures customers are receiving correct billing. 2.Reduces chances of equipment failure and service disruptions. 3.Will allow technicians in the Brattleboro district to test meters without travel to other districts. 4.Increases efficiency by reducing testing time.
176551: Meter Replacements	Project Type: Meters In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $819,656	This blanket covers purchases for meter additions and metering instrument transformers. These purchases are necessary for proper customer service and reliability. The Distribution Meter Blanket is based on the 5-year average of capital spending.	These upgrades are required because: 1. Deteriorated and failed meters must be replaced to maintain customer service. 2. Meter additions are necessary to accommodate changes in rate design. 3. Meter CTs and VTs are necessary to support proper system operation including substation protection. This equipment is used to provide voltage information to protective equipment, and the SCADA for remote indication. 4. Meter additions and replacements are necessary to facilitate substation and circuit monitoring

Project Number and Title	Additional Information	Project Description	Project Justification
Meters - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$1,162,373			
179654: Meter Purchases	Project Type: Meters In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $1,113,089	This blanket covers purchases for meter additions and metering instrument transformers. These purchases are necessary for proper customer service and reliability. The Distribution Meter Blanket is based on the 5-year average of capital spending.	These upgrades are required because: 1. Deteriorated and failed meters must be replaced to maintain customer service. 2. Meter additions are necessary to accommodate changes in rate design. 3. Meter CTs and VTs are necessary to support proper system operation including substation protection. This equipment is used to provide voltage information to protective equipment, and the SCADA for remote indication. 4. Meter additions and replacements are necessary to facilitate substation and circuit monitoring
179655: Meter Tools	Project Type: Meters In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $49,285	A new WECO Metering test set is required for our Montpelier district office. The WECO metering test set is used to verify the accuracy and functional integrity of GMP revenue meters.	The new test set is required because: 1.The ability to accurately test meters ensures customers are receiving correct billing. 2.Reduces chances of equipment failure and service disruptions. 3.Will allow technicians in the Montpelier district to test meters without travel to other districts. 4.Increases efficiency by reducing testing time.
Regulators and Capacitors - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total= $1,176,427			
163947: Regulators	Project Type: Regulators and Capacitors In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $1,176,427	This blanket covers the purchase and installation of regulator and capacitor units, which provide voltage support to the electrical system. These units are replaced as failures are experienced or added as needed to assure adequate system performance. These purchases are necessary for proper customer service and reliability. The capital blanket is based on the 5-year average of capital spending.	Regulators and capacitors are necessary to assure adequate voltage, stays within ANSI standards, for proper system performance and operation. This equipment may be required to allow for feeder backup. They must be replaced in the event of a failure. More specifically, this equipment is necessary because: 1. Deteriorated and failed regulators and capacitors must be replaced to assure proper system operation. 2. Capacitors and regulators will be added to improve the efficiency and performance of the distribution system. 3. Proper VAR compensation provides for cost-effective power delivery and may postpone investment in system facilities. This is a requirement of the ISO Operating Practice OP17.
Regulators and Capacitors - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$1,199,956			
163947: Regulators	Project Type: Regulators and Capacitors In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $1,199,956	This blanket covers the purchase and installation of regulator and capacitor units, which provide voltage support to the electrical system. These units are replaced as failures are experienced or added as needed to assure adequate system performance. These purchases are necessary for proper customer service and reliability. The capital blanket is based on the 5-year average of capital spending.	Regulators and capacitors are necessary to assure adequate voltage, stays within ANSI standards, for proper system performance and operation. This equipment may be required to allow for feeder backup. They must be replaced in the event of a failure. More specifically, this equipment is necessary because: 1. Deteriorated and failed regulators and capacitors must be replaced to assure proper system operation. 2. Capacitors and regulators will be added to improve the efficiency and performance of the distribution system. 3. Proper VAR compensation provides for cost-effective power delivery and may postpone investment in system facilities. This is a requirement of the ISO Operating Practice OP17.
Transformers - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total=$4,889,141			
164172: Transformer	Project Type: Transformers In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $4,889,141	This blanket covers purchases and installation of pole and padmount transformers for the distribution system. These purchases are necessary for providing electric service to our customers. The Distribution transformer Blanket is based on the Fiscal Year 2022-year budget for distribution transformers given these dollars are less than the 5-year average of capital spending.	Transformers are a necessary piece of equipment in order to provide electric service to customers. Specifically, these capital blanket work order expenditures are necessary because: 1.Deteriorated and failed transformer units must be replaced to maintain customer service. 2.The installation of new transformers will be needed to serve new customer load and distributed generation projects. 3.The installation of new transformers will improve system efficiency and performance. New transformer purchases are based on a transformer purchase formula that evaluates total owning cost based on purchase price, no load loss (kW) and full load winding loss (kW) consistent with methodologies described in the Company's Integrated Resource Plan. 4.Transformer units will have to be replaced as part of voltage conversion projects due to different equipment ratings. All distribution transformers are purchased on the basis of a Transformer Loss Formula as required in the GMP Integrated Resource Plan when feasible. There may be exceptions due to extreme supply chain issues where we may purchase from the supplier with the lowest lead-time. The loss formula enables GMP to add transformers to its inventory that are the lowest life-cycle cost based on both the first cost of a given unit and the expected cost of demand and energy losses over the unit's life.

Project Number and Title	Additional Information	Project Description	Project Justification
Transformers - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$4,973,684			
164172: Transformer	Project Type: Transformers In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $4,973,684	This blanket covers purchases and installation of pole and padmount transformers for the distribution system. These purchases are necessary for providing electric service to our customers. The Distribution transformer Blanket is based on the Fiscal Year 2023-year budget for distribution transformers given these dollars are less than the 5-year average of capital spending.	Transformers are a necessary piece of equipment in order to provide electric service to customers. Specifically, these capital blanket work order expenditures are necessary because: 1.Deteriorated and failed transformer units must be replaced to maintain customer service. 2.The installation of new transformers will be needed to serve new customer load and distributed generation projects. 3.The installation of new transformers will improve system efficiency and performance. New transformer purchases are based on a transformer purchase formula that evaluates total owning cost based on purchase price, no load loss (kW) and full load winding loss (kW) consistent with methodologies described in the Company's Integrated Resource Plan. 4.Transformer units will have to be replaced as part of voltage conversion projects due to different equipment ratings. All distribution transformers are purchased on the basis of a Transformer Loss Formula as required in the GMP Integrated Resource Plan when feasible. There may be exceptions due to extreme supply chain issues where we may purchase from the supplier with the lowest lead-time. The loss formula enables GMP to add transformers to its inventory that are the lowest life-cycle cost based on both the first cost of a given unit and the expected cost of demand and energy losses over the unit's life.
Transmission Lines - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total=$4,206,811			
159729: MOAB Newbury 911 & 912	Project Type: Transmission Lines In-Service Month: 1 In-Service Year: Oct 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $423,148	The primary justification for this project is Reliability. The Newbury 911 and 912 switches are presently mounted on a two-way Gang Operated Air Break (GOAB) switch. This project replaces the existing GOAB with two SCADA-controlled Motor Operated Air breaks (MOABs) on the Newbury 911 and 912 switches. A Motor Operated Air Break (MOAB) with load break capability improves reliability and facilitates restoration by providing sectionalizing capability during contingencies. The installation would allow the line to be sectionalized under load remotely. It will allow for faster restoration in the event of a fault on the 46 KV between Ryegate and Bradford (Line 110), allowing for sectionalizing of the fault and the ability to pick up Newbury substation, therefore minimizing outage times to customers. If the fault occurred between Newbury and Bradford, the MOAB would allow the restoration of Wells River, Woodsville and Newbury substations. Installation consists of three (3) poles, two (2) Motor Operated Airbreak Switches and SCADA control equipment.	This project is part of an ongoing reliability improvement initiative with like in kind replacement of manually operated air break switches at critical sectionalizing points on the GMP subtransmission system with SCADA-controlled motor-operated load break switches. Motorizing these switches will significantly improve the operability and reliability of the system by facilitating remote fault isolation and sectionalization of the subtransmission system for disturbances and faults. Motorizing these switches increases worker safety by eliminating the need for workers to access the switch location and manually operate the switch. Presently, an outage to Newbury substation results in the loss of one distribution circuit (G12). There are no feeder backup ties to other substation circuits for this substation. This impacts over 530 customers in the towns of Bradford and Newbury. As stated above, in the event of a fault between Newbury and Bradford, the customers fed off Wells River and Woodsville would also be impacted. This project will improve reliability for the customers on these circuits.
164378: WO 32 Trans Lines & Subs	Project Type: Transmission Lines In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,937,537	The primary reason for this Project is reliability. This Capital Blanket is for expenditures to replace damaged or failed equipment in transmission substations and for transmission lines in order to ensure system capability and reliability. Typical projects in this blanket work order include, but are not limited to, replacement of equipment such as lightning arresters, batteries, breakers, transmission poles and insulators replacement of which could not be pre-planned. The Transmission WO32 Blanket is based on the Fiscal Year 2022 budget given these dollars are less than the 5 year average of capital spending. Q4.Why is the project necessary at this time? (Describe reason/s for doing the project this year)	These projects are typically driven by unforeseen deteriorated or failed equipment and are needed immediately for proper system operation.
167916: Newbury MOLB Control	Project Type: Transmission Lines In-Service Month: 7 In-Service Year: Apr 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $105,670	The primary justification for this project is Reliability. This project is for the work associated with the Newbury MOLB control that is needed for the two SCADA controlled Motor Operated Load breaks (MOLBs) installed on the Newbury 911 and 912. Both switches are presently mounted on a two-way Gang Operated Air Break (GOAB) switch. This project replaces the existing GOAB with two SCADA-controlled Motor Operated Air breaks (MOABs) on the Newbury 911 and 912 switches. A Motor Operated Air Break (MOAB) with load break capability improves reliability and facilitates restoration by providing sectionalizing capability during contingencies. The installation would allow the line to be sectionalized under load remotely. It will allow for faster restoration in the event of a fault on the 46 KV between Ryegate and Bradford (Line 110), allowing for sectionalizing of the fault and the ability to pick up Newbury substation, therefore minimizing outage times to customers. If the fault occurred between Newbury and Bradford, the MOAB would allow the restoration of Wells River, Woodsville and Newbury substations.	This project is part of an ongoing reliability improvement initiative with like in kind replacement of manually operated air break switches at critical sectionalizing points on the GMP subtransmission system with SCADA-controlled motor-operated load break switches. Motorizing these switches will significantly improve the operability and reliability of the system by facilitating remote fault isolation and sectionalization of the subtransmission system for disturbances and faults. Motorizing these switches increases worker safety by eliminating the need for workers to access the switch location and manually operate the switch. Presently, an outage to Newbury substation results in the loss of one distribution circuit (G12). There are no feeder backup ties to other substation circuits for this substation. This impacts over 530 customers in the towns of Bradford and Newbury. As stated above, in the event of a fault between Newbury and Bradford, the customers fed off Wells River and Woodsville would also be impacted. This project will improve reliability for the customers on these circuits.

Project Number and Title	Additional Information	Project Description	Project Justification
170609: B22 Reconductor	Project Type: Transmission Lines In-Service Month: 8 In-Service Year: May 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $1,740,456	The reconductoring of the B22 line will address asset management concerns, increase reliability in the area and in combination with one other line component and one substation component will help mitigate the SHEI constraint. This B22 project will reconfigure, upgrade and reconductor 1.5 miles of the 34.5 kV line between Johnson Substation and Morrisville #3 Substation. The new B22 conductor is to be installed above the existing B22 and 3319 lines The existing B22 conductor will be transferred from existing structures to new structures and become the new 3319 line conductor (336 ACSR). The existing 3319 3/0 ACSR conductor will be retired. This Project consists of the Installation of 37 pole structures and 23,760 feet of 477 ACSR wire.	A proposed Project was identified as a priority T&D capital project given the overlapping benefits it provides to customers. This Project consists of three components: 1.Rebuild of the GMP Lowell 46/34.5 kV Substation 2.Reconductoring upgrade of the 34.5 kV line between the GMP Lowell Substation and the GMP Johnson Substation ("B20 Line") 3.Reconductoring upgrade of a portion of the 34.5 kV line between the GMP Johnson Substation and the Morrisville #3 Substation ("B22 Line") The proposed Project is needed at this time to address asset management concerns for grid reliability improvements and to help mitigate some of the congestion of the Sheffield-Highgate Export Interface ("SHEI"). SHEI is a region in northern Vermont, bounded by the 115-kV loop spanning from the Sheffield to Lyndonville line ("K39 line") to the Highgate to St. Albans line ("K42 line"). The 34.5 kV B20 line is a critical subtransmission asset within the interface because it creates a parallel path back to the 115kV system creating a closed loop system.
			Power generated in northern Vermont exceeds local demand. Excess power is then transmitted to points south in the state. Under certain contingencies, this north to south transfer puts a tremendous strain on the existing aging electrical infrastructure, which could lead to voltage collapse or overloading of the transmission system. To handle these contingencies, ISO New England created the SHEI to control power flow in the region by calculating a set of power export limits for different system configurations. When the system is in a specific configuration, ISO New England institutes a limit of power that can be transferred across the interface. In many cases this results in the issuance of do-not-exceed ("DNE") orders to generators in the region to mitigate contingencies before they happen. Specifically, this means that certain generation resources inside this interface are limited in real time to ensure that system capacity is not exceeded in the event of a potential future transmission outage. This curtailment can impact the economics of these projects for customers, including loss of market value from the project's energy output, renewable energy certificates, and Production Tax Credits. This Project will cost effectively increase the SHEI capacity, thereby reducing the frequency and magnitude of interface congestion. A Certificate of Public Good (CPG) was issued May 21, 2020 under Case No. 19-4464-PET.
Transmission Lines - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$11,302,409			
148614: L105 Recond Tafts to Windsor	Project Type: Transmission Lines In-Service Month: 5 In-Service Year: Feb 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $9,029,197	This project will reconductor the 10.55 miles of transmission line from Windsor to Taftsville (Line 105) to 795 ACSR conductor. The existing line was determined to be overloaded by 124% at existing load levels, in the VELCO and ISO analysis. This line is part of a 46kV transmission loop extending across Windsor County. Studies conducted by ISO-NE and VELCO determined that upgrading an existing 115 kV line, supplemented with other component transmission and subtransmission upgrades, would be the most cost-effective solution to mitigate the identified concerns. Recent studies conducted by ISO-NE and VELCO, to comply with NERC and NPCC requirements, revealed that a variety of N-1-1 transmission contingency scenarios could result in Rutland and Central Vermont area load loss of as much as 340 MW, which violates ISO-NE transmission performance criteria. A number of subtransmission line segments were identified as needing to be reconductored to address potential overloads under certain contingency conditions, as demonstrated by the VELCO study. One of these segments is the Windsor to Taftsville line. In the 248 process, under Docket 8605, the need for this GMP line upgrade was identified in the Velco Connecticut River Valley Project (CRVP) filing. The VELCO prefiled testimony stated "Related to these improvements, GMP will replace conductors for three 46 kV line sections: the East Middlebury to Smead Road line (Project 143180 Completed in 2016), the Bethel to East Barnard line(Project 148615 FY2019) and the Windsor to Taftsville line(Project 148614 FY2020)." Installation consists of two hundred eleven (211) poles, one hundred seventy eight (178) anchors and 175,000' of 795 MCM ACSR conductor.	This reconductoring project is an integral part of the planned VELCO Connecticut River Valley (CRVP) project. The reconductoring project is appropriate at this time because of the timing of the VELCO project and the ISO-NE studies. In the 248 process, under Docket 8605, the need for this GMP line upgrade was identified in the CRVP filing. The VELCO prefiled testimony stated "Related to these improvements, GMP will replace conductors for three 46 kV line sections: the East Middlebury to Smead Road line, the Bethel to East Barnard line and the Windsor to Taftsville line." The VELCO study stated that the Windsor to Taftsville overload would cause the line to fail, which may result in the cascading failure of other 46 kV lines, and disconnect about 85 MW of load, assuming failure stops at Middlebury. The PUC approved the VELCO CRVP, in its order in Docket No. 8605 dated June 9, 2016.
164378: WO 32 Trans Lines & Subs	Project Type: Transmission Lines In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,963,343	The primary reason for this Project is reliability. This Capital Blanket is for expenditures to replace deteriorated or failed equipment in transmission substations and for transmission lines in order to ensure system capability and reliability. Typical projects in this blanket work order include, but are not limited to, replacement of equipment such as lightning arresters, batteries, breakers, transmission poles and insulators replacement of which could not be pre-planned. The Transmission WO32 Blanket is based on the Fiscal Year 2023 budget given these dollars are less than the 5 year average of capital spending.	These projects are typically driven by unforeseen deteriorated or failed equipment and are needed immediately for proper system operation.

Project Number and Title	Additional Information	Project Description	Project Justification
176576: Richmond Bypass	Project Type: Transmission Lines In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $211,250	The primary justification for this project is Reliability. This project is being completed in conjunction with a Richmond substation rebuild. The installation of this bypass line will connect the Sand Road 3334 terminal to the Bolton Falls 3334 terminal. Installation consists of three (3) poles, six (6) anchors, 2500' of 477 MCM ACSR conductor and associated hardware.	This project is necessary at this time because it is needed to maintain system reliability during the rebuild of the Richmond substation. The Project will allow for the continued networking of the 34.5 kV subtransmission system. This bypass will be temporary until the Richmond substation work is completed. It is necessary for reliability and operation flexibility for the Chittenden area network.
180126: Pleasant St TL Bypass	Project Type: Transmission Lines In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $98,620	The primary justification for this project is Reliability. This project is being completed in conjunction with the Pleasant Street substation rebuild Project #143293. The installation of this bypass line will maintain the network from the Chelsea H81 terminal to the Bethel B-46 terminal. Installation consists one (1) pole, three (3) sets of 46 kV disconnect switches, and associated hardware.	This project is necessary at this time because it is needed to maintain system reliability during the rebuild of the Pleasant Street substation. The Project will allow for the continued networking of the 46 kV subtransmission system. This bypass will be temporary until the Pleasant Street substation work is completed. It is necessary for reliability and operation flexibility for the Pleasant Street area network.
Transmission Substations - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total=$2,435,825			
165006: South St PT Upgrade	Project Type: Transmission Substations In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $82,753	The primary reason for this Project is to increase reliability in the area served by the substation, address asset management concerns and improve safety. This project will replace three existing 1977 vintage 46kV bus voltage transformers and add fuses for protection. This equipment is used to provide voltage information to protective equipment and to SCADA for remote indication. This project consists of the installation of (3) 46kV voltage transformers with associated fuses.	This project is necessary at this time to improve reliability by proactively replacing aging equipment prior to a failure. The bus voltage instrument transformers (VT) are being replaced as they have reached their limit for useful life. The design life expectancy of this style of VT is 40 years per the manufacturer. GMP has had failures of this style of VT with the earliest failure occurring after 36 years of service. Accordingly, GMP has adopted a policy of replacing units 35 years and older to maintain safety and system reliability
170949: Lafayette St Sub Upgrades	Project Type: Transmission Substations In-Service Month: 8 In-Service Year: May 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,581,384	The upgrades to the Lafayette St. Substation will increase reliability in the area and address asset management concerns. Presently, the Lafayette St. Substation contains obsolete equipment, including the B20 and B22 46 kV FK style circuit breakers which are 1955 and 1959 vintage respectively. The existing 389 circuit switcher will be replaced with a new 46kV circuit breaker to improve the overall reliability by adding advanced protective schemes. All three new 46 kV breakers will have new microprocessor based relays. The two existing line instrument transformers will be replaced with GMP standard fused instrument transformers and one will be added to the new circuit breaker that will replace the 389 circuit switcher. Additionally, five new 46kv current transformers will be installed to establish bus differential and for metering. The existing Remote Terminal Unit (RTU) will be replaced with a new microprocessor based RTU. The existing 1995 vintage relay and control panels are equipped with obsolete microprocessor technology and will be replaced with new panels with modern microprocessor based technology. The existing 125VDC battery bank is nearing the end of its useful life expectancy and will be replaced with a new battery bank. A 46kV station service transformer will be installed on the 46kV bus to provide primary station service, with an alternate station service fed from the Eversource-owned 12.47kV distribution bus. The substation will be equipped with a new security system. This project consists of the installation of (3) 46kV Circuit Breakers complete with foundations, disconnect switches and wiring, (3) 46kV Line Voltage Transformers complete with new foundations and fuses, (1) 46kV Station Service transformer, (1) 46kV Bus Voltage transformer, (4) 46kV fuses for bus voltage transformers and station service, (5) 46kV Current transformers, (1) neutral current transformer for exiting capacitor bank, (4) protection and control switchgear panels, (1) RTU, (1) 125V DC battery bank and charger, ground grid improvements and security system.	This project will improve the reliability for this substation and customers it serves by proactively addressing asset management concerns by replacing aging equipment in the Lafayette St. Substation. This includes the two 46 kV FK type circuit breakers, The two FK type Breakers are a three tank, oil circuit breaker installed in 1955 and 1959, making them over 60 years old and placing them past their useful life expectancy. This style of breaker is no longer supported from the manufacture and spare parts are difficult and expensive to come by leading to reliability concerns. The 1990's vintage line instrument transformers are being replaced with GMP's new standard fused line instrument transformer. The design life expectancy of this style of VT is 40 years per the manufacturer. GMP has had failures of this style of VT with the earliest failure occurring after 36 years of service and is proactively replacing them prior to a possible failure in the near future. The protection/control cabinets are being replaced as the 1995 vintage relays have reached their limit for useful life. GMP has experienced several failures of this style of microprocessor relay after approximately 15 years of service and is systematically replacing them. This RTU is 1980 vintage electronic technology which is no longer supported by the vendor. Furthermore, the RTU communicates with the master SCADA front end processor (FEP) located in the Systems Operations Headquarters. The FEP is a server of the same vintage as the RTU which is also no longer supported. This project is appropriate at this time to address reliability concerns associated with an RTU. This project is part of GMP's plan for an orderly replacement of 1980 vintage unsupported RTUs with few spare parts available. Failure of the SCADA FEP will result in loss of SCADA to as many as twenty facilities. The FEPs cannot be replaced until all RTUs have been upgraded. In an effort to migrate from the vintage unsupported technology, GMP is planning to replace these RTUs, allowing the migration to new technology utilizing digital communication between the master station and field devices. Reliability is being improved with replacement of like in-kind remote terminal units. The new remote terminal units are microprocessor based and interface with the modern SCADA master system. The existing battery bank is over 15 years old and nearing the end of it useful life expectancy. The DC battery system must be maintained to the highest level for reliability. Failure of a DC battery system is not tolerable and will result in critical systems not working properly, leading to reliability and safety issues. Replacement will help prevent unplanned outages and safety issues that will occur if the battery system fails.

Project Number and Title	Additional Information	Project Description	Project Justification
174246: VELCO - Irasburg H14 Breaker	Project Type: Transmission Substations In-Service Month: 10 In-Service Year: Jul 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $400,081	This project will increase reliability in the Irasburg area and address asset management concerns and. The VELCO Irasburg Substation connects to the GMP Lowell 46/34.5 kV substation. VELCO performed a substation condition assessment of the VELCO Irasburg Substation and determined improvements were required at the substation, including the 46kV Exclusive Facility assets owned by GMP. The existing 46kV oil circuit breaker (H14) will be replaced with a vacuum circuit breaker. The existing electromechanical relays will be upgraded to microprocessor relays. The existing control panels will be retrofitted to accommodate the new modern multi-function microprocessor relays and all control wiring will be replaced. The existing 46kV line voltage transformer will be replaced and fuses will be added. Additionally, the existing lightning arresters and breakers disconnect switches will be replaced. Specific to the GMP 46kV Exclusive Facility assets, the following new equipment will be installed: (1) 46kV vacuum breaker, (3) 46kV lightning arresters, (2) junction boxes, (1) duplex protection & control panel, (1) lot of conduit, (1) lot of control cable, (1) lot of structural steel, (1) lot of miscellaneous 46kV bus work, and (1) lot of Green Jacket animal protection.	This project is necessary at this time to improve reliability for this substation by proactively addressing asset management concerns by replacing aging equipment prior to a failure. VELCO has assessed seven (7) substations over the past six (6) years as part of the Substation Condition Assessment Project (SCAP), including the VELCO Irasburg Substation. VELCO established a goal of performing two substation upgrades per year, over a several year period. Various factors have influenced the schedule or timeline for the SCAP upgrades, including known deficiencies, station age and system location. VELCO completed the condition assessment of its Irasburg Substation in 2018, and began the process of seeking a CPG in 2019, all with the goal of performing the capital improvements starting in 2022. This Project addresses the majority of the substation concerns by performing in-kind replacement and modifications of the existing equipment. The existing H14 46kV circuit breaker 1981 vintage single tank, oil circuit breaker of this type has reliability concerns with due to internal faults, mainly in cold weather conditions. GMP has experienced six failures of this type of breakers in the past decade (i.e. Ascutney, West Rutland and most recent Rawsonville in November 2021), attributed to various reasons including internal tank faults, moisture ingress and bearing failures. The circuit breaker will be replaced with a vacuum type. The electromechanical relays will be replaced with microprocessor relays, improving relay protection schemes. The age of these relays makes them difficult to maintain as they now fall out of calibration more easily and spare parts are no longer available. The existing relay/protection cabinet will be retrofitted with modern multi-function microprocessor relays. The microprocessor-based relays offer greater flexibility in protection and reclosing schemes. They have the ability to provide fault distance and event reports for restoration purposes. The microprocessor-based relays are also more accurate. The 1980's vintage line instrument transformer is being replaced with GMP's standard fused line instrument transformer. The design life expectancy of the existing style of VT is 40 years per the manufacturer. GMP has had failures of this style of VT with the earliest failure occurring after 36 years of service and is proactively replacing them prior to a possible failure in the near future. On November 18, 2020 VELCO filed a petition with the PUC (Case No. 20-3506-PET) for a Certificate of Public Good (CPG) to perform improvements of the VECLO Irasburg Substation. The PUC approved VELCO's request on January 7, 2021
179739: Montpelier #3 breaker failure	Project Type: Transmission Substations In-Service Month: 8 In-Service Year: May 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $23,137	The primary reason for this Project is reliability. This Project will enhance relay protection schemes with the addition of breaker failure lockout relays and cutoff switches to provide breaker failure protection to the Montpelier substation. This substation is part of the network 34.5 kV transmission system and serves three 12.47 kV distribution circuits 3G1, 3G2 and 3G3. This project consists of the installation of (2) breaker failure lockout relays (7805D) and (2) breaker failure cutoff switches (24206B-S)	This project is necessary at this time to improve reliability with local relay protection and remote relay protection. These strategies have shown increased reliability improvements including power quality improvements. If the 3310 or 3317 breakers fail, all the breakers on the bus will be tripped to assure no equipment damage. The addition of the breaker failure relaying will greatly reduce fault clearing times, reducing the duration of the power quality event and add fault-selectivity, interrupting the least amount of customers.
180386: Middlesex Breaker Addition	Project Type: Transmission Substations In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $348,470	The primary reason for this project is to improve reliability to the Middlesex Substation by replacing the existing 33F1 fuses with a 34.5kV vacuum circuit breaker. The Middlesex #2 substation 33F1 fuses, fed off the Middlesex 34.5 kV bus and protecting the Middlesex 2.4 kV bus feeding the 2H2 distribution circuit and two hydro generators, will be replaced with a new vacuum breaker with microprocessor based relays with protection schemes that include bus differential relaying and breaker failure protection to the Middlesex substation. The battery bank will be increased in size to accommodate the new breaker and equipment. The project also replaces the existing Remote Terminal Unit (RTU) as the existing RTU is using older technology with limited functionality for newly added equipment remote monitoring and control. This Project is being done in coordination with an electrical modernization project of the Middlesex #2 Hydro station. This project consist of the installation of (1) 34.5kV circuit breaker with foundations, disconnects and wiring, (1) remote terminal unit (RTU), (1) relay and control panel, (1) AC Panel, (1) DC Panel, and (1) 125VDC battery bank, cabinet and charger.	The project is necessary at this time to improve reliability by preventing the possibility of single phasing the two hydro synchronous generators by replacing the existing 34.5kV fuses with a 34.5kV vacuum circuit breaker. GMP's standard requires three-phase switching for the protection of induction and synchronous generators. This prevents damage to the generator, as well as for the substation equipment. The new 34.5kV circuit breaker will have microprocessor-based relays that offer greater flexibility in protection and reclosing schemes. There are existing reliability concerns associated with the RTU. This project is part of GMP's plan for an orderly replacement of 1990 vintage and older unsupported RTUs with few spare parts available. The replacement of this equipment will help prevent unplanned outages due to equipment failure that might otherwise occur. This is considered a like in-kind replacement of obsolete equipment for improved reliability preventing the loss of load and hydro production.

Project Number and Title	Additional Information	Project Description	Project Justification
Transmission Substations - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$5,253,013			
170589: Richmond Breakers	Project Type: Transmission Substations In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,706,349	The primary reason for completing this project is to improve reliability. The proposed upgrades to the Richmond Substation will improve selective fault isolation on the GMP 3334 line with the upgrade of Motor Operated Load Break (MOLB) switches to circuit breakers equipped with relay protection schemes. This will improve reliability to GMP customers served out of Richmond and Bolton Substations and VEC customers fed out of Richmond and Hinesburg Substations. The upgrades to the substation will be comprised of replacing two existing 34.5kv motor operated load break switched with two 34.5kV vacuum circuit breakers complete with associated microprocessor based relaying and fused line instrument transformers, new control building to house the communication, relay and control equipment along with the new DC battery bank, DC and AC load centers, expanded yard and ground grid to encompass the new building, three 34.5kV bus voltage transformers, one 34.5kV motor operated load break switch, one 15kV load break switch to replace the existing low side gang operated air break switch and one 34.kV gang operated load break switch for a portable substation disconnect. The project also replaces the existing Remote Terminal Unit (RTU) as it is using older technology with limited functionality for newly added equipment. The existing distribution circuit recloser control units will be replaced with newer microprocessor based controls for improved relaying and fused line voltage transformers will be added to each circuit. Additionally, an animal fence, animal guards, security and oil containment systems will be installed. The Richmond Substation Agreement signed March 31, 2003 and the Richmond Substation Joint Ownership Agreement dated October 6, 2021 between GMP and VEC defines shared cost allocation between the two utilities. This Project provides the exclusive facility upgrades that are all GMP cost responsibility.	This project is necessary at this time to improve reliability to the Richmond and Hinesburg substations. The VEC Hinesburg substation is radially supplied by a 6.2 miles VEC 34.5 kV transmission line (51Y5 line) which in turn is sourced from the joint GMP - VEC Richmond 34.5 kV substation. The GMP Richmond substation, which also supplies both GMP and VEC distribution at 12.47 kV, is sourced from the GMP 34.5 kV Sand Road to Bolton Falls transmission line (3334 line). This project will replace two existing 34.5kV motor operated load breaks switches with two 34.5kV vacuum circuit breakers, on either side of the Richmond tap, for the purpose of enhancing the reliability of the transmission supply to this area. At present, a permanent fault on the 3334 line opens the breakers at Sand Road and Bolton Falls, which in turn results in outages to customers supplied by the Bolton, Richmond, and VEC Hinesburg substations. Adding breakers to the 3334 line on either side of the Richmond tap effectively sectionalizes the 3334 line thereby preventing the loss of supply to the Richmond and VEC Hinesburg customers for any permanent fault on the 3334 line. These breakers would also prevent the loss of supply to the GMP Bolton customers for a fault on the 3334 line between Sand Road and Richmond. The existing remote terminal unit (RTU) is an early vintage electronic technology which is no longer supported by the vendor and will be replaced with this project. The existing RTU communicates with the master SCADA front end processor (FEP) located in the Systems Operations Headquarters. The FEP is a server of the same vintage as the RTU, which is also no longer supported. This project is appropriate at this time to address reliability concerns associated with an RTU. This project is part of GMP's plan for an orderly replacement of unsupported RTUs with few spare parts available. Failure of the SCADA FEP will result in loss of SCADA to as many as twenty facilities. The FEPs cannot be replaced until all RTUs have been upgraded. In an effort to migrate from the vintage unsupported technology, GMP is planning to replace these RTUs, allowing the migration to new technology utilizing digital communication between the master station and field devices.
		The GMP portion of this project consists of the installation of (2) 34.5kV Circuit Breakers with foundations, disconnect switches, wiring, (2) 34.5kV line voltage transformers, foundations and fuses, (2) relay and control panels, (1) communication equipment panel, (1) RTU, (1) 15kV station service transformer, (2) 15kV recloser control units and wiring, (6) 15kV disconnect switches, (2) 15kv line voltage transformers and fuses, (1) control building with foundation, heat, cable tray and lighting, (1) 125VDC battery bank, (2) DC Panel, (1) AC Panel, (1) 34.5kV gang operated load break portable disconnect switch, (1) 34.5kV motor operated load break switch, (3) 34.5kV bus voltage transformers and fuses, (1) 15kv gang operated load break switch, (1) cable trench system, (1) expanded substation yard with fence, ground grid and yard stone, (1) animal deterrent fence system, (1) oil containment system, and (1) security system with fence intrusion detection, cameras and yard lights.	Two GMP 2006 vintage recloser controls will be replaced with newer microprocessor based controls that have advanced features that are better suited for communication based tripping and for any required communications to Distributed Energy Resources (DER's) installed on the distribution feeders. The new controls units will have the ability to provide fault distance and event reports for restoration purposes. The replacement of the existing 34.5kV gang operated air break switch on the high side of the power transformer with a new 34.5kV motor operated load break switch follows GMP's standard which will allow for remote operation of the switch to improve safety and provide load break capability to the transformer. The replacement of the existing 15kV gang operated air break switch on the low side of the power transformer will follow GMP's standard of installing a load break switch on the low side of the power transformer which will allow for separating the 34.5kV and 15kV bus under load during feeder back-up or while a portable substation is installed between the 34.5kV and 15kV Bus. The installation of a security system is being done at this time to continue safety measures in GMP substations and is part of an ongoing effort to increase substation safety. The security system is designed to notify GMP of an unauthorized person entering the substation and reduce the risk of injury or death to that person.
176557: VELCO - Florence	Project Type: Transmission Substations In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $2,336,693	The primary reason for project is reliability. The VELCO Florence Substation connects to the VELCO 115kV electric transmission network in Rutland County and feeds GMP 46 kV network north to GMP Huntington and Belden Falls, and south to Proctor substation and hydro facility. It also feeds a large industrial customer. VELCO performed a substation condition assessment of the VELCO Florence Substation and determined improvements that were required to the substation, including the 46kV Exclusive Facility assets owned by GMP. The report was completed in July 2018 with update in May 2019. The project will replace the existing 46 kV radial bus substation with a new substation arranged in a 46 kV ring bus configuration. All 46kV breakers will be vacuum type with upgraded microprocessor relays. The existing capacitor bank will be redesigned from a 5.4 MVAR to a 10 MVAR. Other equipment that will be replaced includes the control building, protection and control systems, several foundations, lightning arresters, and breakers disconnect switches Specific to the GMP Exclusive Facility assets, the following new equipment will be installed: Two (2) 46 kV breakers in the ring with three (3) 46 kV motor operated disconnects, six (6) lightning arresters, nine (9) 46 kV line voltage transformers and four (4) 46 kV gang operated disconnects.	VELCO has assessed seven (7) substations over the past six (6) years as part of the Substation Condition Assessment Project (SCAP), including the VELCO Florence Substation. VELCO established a goal of performing two substation upgrades per year, over a several year period. Various factors have influenced the schedule or timeline for the SCAP upgrades, including known deficiencies, station age and system location. VELCO completed the condition assessment of its Florence Substation in 2019 and began the process of seeking a CPG in 2021, all with the goal of performing the capital improvements starting in 2023. This Project addresses the majority of the substation concerns by performing in-kind replacement and modifications of the existing equipment. The 46 kV breakers are oil circuit breakers and will be replaced with vacuum breakers. The electromechanical relays will be replaced with microprocessor relays, improving relay protection schemes, provides breaker failure relaying, 46 kV bus differential protection and digital fault recording. The existing 5.4 MVAR capacitor bank was inoperable due to harmonic resonance causing bus faults and blown fuses when operated. This capacitor bank was redesigned and will support 46 kV area operating voltages with all lines in service and for loss of the Florence substation.

Project Number and Title	Additional Information	Project Description	Project Justification
179737: Blissvile H30 Breaker Replacement	Project Type: Transmission Substations In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $235,734	The primary reason for this breaker replacement project is reliability. At the VELCO Blissville substation, the existing 46kV H30 breaker is a single tank General Electric FKA oil circuit breaker manufactured in 1971, making it 50 years old. GMP has experienced six failures of this style breaker. At the same time, the line VTs will be relocated onto a dedicated foundation/stand and the lightening arresters relocated. The 46kV breaker will be replaced with a vacuum type breaker and all associated control cables will be replaced. This project consists of the installation of one (1) 46kV Circuit breaker, one (1) 46kV Line Voltage transformer stand and three (3) 46kV lightning arresters.	This Project addresses an asset management concern by performing in-kind replacement and modifications of the existing equipment. The 46 kV breakers were manufactured in 1971 and are of the FKA design, which has experienced six failures. GMP has experienced six failures of this type of breakers in the last decade, attributed to various reasons including internal tank faults, moisture ingress and bearing failures. Reliability concerns with the single-tank oil circuit breaker have risen over the years due to internal faults, mainly during cold weather conditions. This project will address these reliability concerns due to asset management.
179738: Berlin GT Sub Upgrades	Project Type: Transmission Substations In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $974,237	The primary reason for this project is to improve reliability in the area by addressing asset management concerns associated with aging equipment. Presently, the Berlin GT Substation contains obsolete equipment, including the 3303, 3325 and 3326 34.5 kV circuit breakers which are all 1971 vintage and will be replaced with 34.5 kV vacuum circuit breakers. The existing line voltage transformers (VT's) are 1973 vintage and will be replaced with GMP's standard pedestal mounted fused line VT's. The existing substation Remote Terminal Unit (RTU) will be replaced with a new microprocessor based RTU. Additionally, the existing ground grid will be upgraded, along with installation of security cameras. This project consists of the installation of (3) 34.5kV circuit breakers with foundations, disconnects and wiring, (3) 34.5kV line voltage transformers with fuses, foundations and wiring, (1) remote terminal unit (RTU), (2) security cameras, and (1) ground grid upgrade.	The project is necessary at this time to improve the reliability for this substation and GMP's transmission system by proactively addressing asset management concerns by replacing obsolete equipment in the Berlin GT# 5 Substation. The three existing 34.5kV circuit breakers to be replaced are over 50 years old (1971 vintage), placing them past their useful life expectancy. This style of breaker is no longer supported by the manufacturer and spare parts are difficult and expensive to obtain leading to reliability concerns. The 1970's vintage line instrument transformers are being replaced with GMP's standard pedestal mounted fused line instrument transformers. The design life expectancy of this style of VT is 40 years per the manufacturer. GMP has had failures of this style of VT with the earliest failure occurring after 36 years of service and is proactively replacing them prior to a possible failure in the near future. This existing RTU is a 2000's vintage electronic technology which is no longer supported by the vendor. Furthermore, the RTU communicates with the master SCADA front end processor (FEP) located in the Systems Operations Headquarters. The FEP is a server of the same vintage as the RTU which is also no longer supported. The replacement of the RTU is appropriate at this time to address reliability concerns and is part of GMP's plan for an orderly replacement of early vintage unsupported RTUs with few spare parts available. Failure of the SCADA FEP will result in loss of SCADA to as many as twenty facilities. The FEPs cannot be replaced until all RTUs of that vintage have been upgraded. In an effort to migrate from the older unsupported technology, GMP is planning to replace these RTUs, allowing the migration to new technology utilizing digital communication between the master station and field devices. Reliability is being improved with replacement of like in-kind remote terminal units. The new remote terminal units are microprocessor based and interface with the modern SCADA master system.
Distribution Substations - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total=$3,297,323			
164173: WO 34 Dist Subs	Project Type: Distribution Substation In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $980,389	The primary reason for this Project is reliability. The distribution substation blanket is for expenditures to replace or repair deteriorated or failed equipment in distribution substations in order to maintain system capability and reliability. Typical projects in this distribution substation blanket include, but are not limited to, the unplanned but necessary replacement of distribution substation equipment such as lightning arresters, batteries, breakers and regulators. This distribution substation blanket is based on the 5-year average of capital spending	These projects are typically driven by unforeseen failed equipment or other short term drivers for needed work that needs to be done immediately for proper system operation.

Project Number and Title	Additional Information	Project Description	Project Justification
170582: Putney Substation Upgrades	Project Type: Distribution Substation In-Service Month: 9 In-Service Year: Jun 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,690,407	The primary reason for this project is to improve the reliability and safety of the Putney Substation by addressing aging infrastructure and converting the substation from 8.32 kV to 12.47 kV, which will allow for future circuit feeder back-up. This project will utilize the existing substation transformer given it is a dual voltage unit. The upgrade will be comprised of new like 648 amp bus voltage regulators, replacing one distribution circuit recloser and adding new SEL recloser controls on all three distribution reclosers, one new 15kV load break switch, replacement of the existing remote terminal unit (RTU), one new 69kV circuit breaker, three new 69kV voltage instrument transformers and associated relaying to provide SCADA indication of the bus voltage and transmission ground fault overvoltage mitigation. This project will also include expansion of the substation yard, fence and ground grid to accommodate installation of a portable substation to facilitate the project and for future needs. In addition the new yard will include an oil containment system and security system. This will improve reliability for the three existing distribution circuits. The project requires the utilization of a portable substation to accomplish the substation upgrades. This project consists of the installation of (1) 69kV circuit breaker, (3) 69kV bus voltage transformers with fuses and steel support stand, (1) 69kV bus support structure, (1) new transformer pad foundation, (1) 15kV load break switch, (3) 648A voltage regulators and bypass switches, (1) distribution circuit recloser, (18) 15kV single blade disconnects for circuit reclosers, (3) distribution recloser control panels, (3) 15kV bus voltage transformers with fuses, (1) 15kV underground circuit getaway, (2) protection and control switchgear panels and RTU, substation yard improvements including expanded yard for portable substation location with pole mounted disconnects, new fence, ground grid, oil containment system, yard stone, security system, expanded parking area, and landscaping.	The Putney substation upgrade is necessary at this time to improve reliability and safety and address asset management by replacing aging equipment including replacing the three 668 amp bus regulators manufactured in 1993 that have experienced leaking issues. The three regulators will be replaced with the same size units but will have the voltage rating necessary to operate at 12.47kV. There are also several 1960's vintage bus insulators, current transformers, voltage transformers and disconnect switches installed to operate at 12.47kV. The conversion of the existing 8.32 kV distribution circuits increases system strength, which improves voltage performance for DG installations and motor starts and will increase Distributed Generation (DG) interconnection and load capability. The addition of three 69kV bus voltage transformers and associated relaying address transmission ground fault overvoltage (TGFOV) concerns related to interconnecting distributed generation. The three distribution circuit reclosers will have microprocessor based controls that will reduce fault-clearing times and have advanced features that are better suited for communication based tripping and for any required communications to Distributed Energy Resources (DER's) installed on the distribution feeders. Additionally, the microprocessor-based relays offer greater flexibility in protection and reclosing schemes. They have the ability to provide fault distance and event reports for restoration purposes. The existing remote terminal unit (RTU) is an early vintage electronic technology which is no longer supported by the vendor. Furthermore, the existing RTU communicates with the master SCADA front end processor (FEP) located in the Systems Operations Headquarters. The FEP is a server of the same vintage as the RTU, which is also no longer supported. This project is appropriate at this time to address reliability concerns associated with an RTU. This project is part of GMP's plan for an orderly replacement of unsupported RTUs with few spare parts available. Failure of the SCADA FEP will result in loss of SCADA to as many as twenty facilities. The FEPs cannot be replaced until all RTUs have been upgraded. In an effort to migrate from the vintage unsupported technology, GMP is planning to replace these RTUs, allowing the migration to new technology utilizing digital communication between the master station and field devices. The existing 150 PM high side fuses will be replaced with a 69 kV high side circuit breaker to comply with the current GMP standard practice to require a high side breaker for transformers 10 MVA and larger. This high side breaker will utilize microprocessor based relays to provide better and faster protection to the existing distribution power transformer. The new high side circuit breaker will also have SCADA capability, allowing for real time information and remote engineering access.
170588: Castleton Breaker Replacement	Project Type: Distribution Substation In-Service Month: 5 In-Service Year: Feb 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $626,527	The primary reason for completing this project is to improve reliability and safety and address asset management and to provide feeder backup to other area substations by installing larger voltage regulators. The upgrades to the Castleton Substation will include replacing a 1967 vintage vacuum circuit breaker with a new 15 kV vacuum circuit breaker, replacing the existing voltage regulators with larger circuit voltage regulators, replacing an existing 46kV gang operated air break switch with a 46kV motor operated load break switch and replacing the existing battery bank with a larger bank to accommodate the additional DC loads. The breaker replacement will improve reliability to the Castleton G37 distribution circuit. Other improvements at the substation will be a new fence to address aging infrastructure, improve safely with increased height and facilitate the installation of a fence intrusion detection system, new ground grid to meet current IEEE standard, addition of an oil containment system and a security system for improved safety. This project requires the installation of a portable substation to serve customer load during construction. This project consists of the installation of (1) 46kV motor operated load break switch, (1) 15kV Vacuum circuit breaker with new foundation and wiring, (6) single blade disconnect switches, (1) 15kV line voltage transformer and fuse, (3) 328A voltage regulators, (1) 48VDC Battery Bank, substation yard improvements including new fence, ground grid, oil containment system, yard stone and security system.	The primary reason for completing the Project at this time is to improve reliability and safety and address asset management issues by replacing aging equipment to improve substation safety and reliability and improving circuit feeder back-up for the Castleton area. The Castleton G37 breaker is a 1967 vintage 15 kV vacuum circuit breaker. There have been ongoing issues with this type of breaker not reclosing properly. Spare parts to repair these breakers are not readily available and expensive with long lead times. This Project includes the in-kind replacement of a fifty four year old breaker to be replaced with a new 15 kV breaker. The Castleton circuit regulators have limited capacity for backing up other local substations. The Castleton G-37 circuit will have circuit regulation (3 regulators in total) upgraded from 219 amp regulators to 328 amp regulators to enhance feeder backup capability. The Castleton G-37 circuit has ties that can accommodate feeder backup with other area substations including Hydeville G-24 and Poultney G-27. The larger 328 amp circuit regulators match the substation transformer capability and will thereby provide greater area operating flexibility and improve reliability for the Castleton area. As part of an ongoing effort to increase substation safety, security will also be installed at the substation to improve safety with remote indication and recording of unauthorized entry into the substation. In addition, the existing #227 46kV gang operated air break switch will be upgraded to a 46kV Motor Operated Load Break switch, which will improve the safety and reliability of the system by facilitating remote fault isolation. A problem within the Castleton substation could be isolated, allowing the continued network of the 46 kV line between Blissville and West Rutland. In 248 Process Case No. 21-3966-PET.

Project Number and Title	Additional Information	Project Description	Project Justification
Distribution Substations - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$9,112,290			
143293: Pleasant St Rly/RTU/Bkr UPGRD	Project Type: Distribution Substation In-Service Month: 7 In-Service Year: Apr 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $3,721,799	The upgrades to the Pleasant Street substation will be comprised of increasing the size of the voltage regulators to 438 amps for all three circuits to improve feeder back-up for other circuits in the Randolph area, replacing the existing distribution steel structures to accommodate the larger voltage regulators, installing underground getaways for all three circuits, replacing the existing 1970 vintage distribution circuit breakers and electro-mechanical based relays with new RMAG circuit breaker and microprocessor based relays, replacing the existing 1974 vintage 10/14 MVA 46 kV to 12.47 kV transformer with a new transformer of the same size, installation of a new high side circuit breaker for transformer protection, replacing the existing 1974 46kv transmission motor operated air break switches and 2010 motor operated load break switches with GMP's new standard 46kV load break switch and replacing the existing 1988 capacitor switching device. This project will also include expansion of the substation yard, fence and ground grid to enclose the separate transmission and distribution yards together to accommodate installation of a portable substation for future needs. In addition the new yard will include an oil containment system and security system. This project consists of the installation of (3) 46kV motor operated load break switches, (1) 46kV Gang operated load break switch, (1) 46kV Capacitor Bank Switching device and fuses, (1) 46kV bus voltage transformer and fuse, (12) 46kV in-line disconnect switches, (3) transmission line fault indicators, (1) 46kV circuit breaker and disconnect switches, (1) 46/12.47 kV 10/14 MVA transformer, (1) 15kV load break switch, (3) 15kV circuit breakers with foundations and disconnect switches, (9) 438A voltage regulators, (3) 15kV line voltage transformers, (3) 15kv bus voltage transformers, (1) 4 bay 15kv steel structure with associated foundations, (1) communication cabinet, (2) protection and control cabinets, (1) 125VDC battery bank and cabinet, (1) security system and new expanded substation yard with fence, ground grid, yard stone and oil containment system.	This project is necessary at this time to improve the reliability and safety for this substation and customers it serves by proactively addressing asset management concerns and improving circuit feeder back-up for the Randolph area. The Pleasant Street Substation has circuit ties between the Pleasant St G42 and the Randolph G33 and between Pleasant St G43 and Randolph Center G51. Installation of larger circuit regulators and a new tie between the Pleasant St G42 and G43 will increase the ability for feeder backup with the other area substations and between the Pleasant St G41, G42 and G43 circuits themselves. Installation of an alternate station service will serve as a backup when a de-energized 15kV bus is required. This project will address equipment reliability by replacing aging equipment and clearance issues that would occur with larger equipment which will improve substation safety and operability. The existing distribution low side structure will be rebuilt to improve overall clearance and flexibility, incorporating GMP's current standards and practices. The existing Pleasant Street substation transformer is a 10/14 MVA unit installed in 1974 and has had DGA results indicating overheating of the core based upon Dissolved Gas Analysis (DGA). The unit has been re-tested and the issue persists. Therefore, the transformer will be replaced with a like in kind 10/14 MVA unit. The existing 200 PF high side fuses will be replaced with a 46 kV high side circuit breaker to comply with the current GMP standard practice to require a high side breaker for transformers 10 MVA and larger. This high side breaker will utilize microprocessor based relays to provide better and faster protection to the existing distribution power transformer. The new high side circuit breaker will also have SCADA capability, allowing for real time information and remote engineering access.
			The existing 1970 vintage distribution circuit breakers and electro-mechanical based relays will be replaced with new vacuum circuit breakers and microprocessor based relays that will reduce fault-clearing times. The distribution breakers are being replaced as they are no longer supported by the manufacture and replacement parts are not available. The age of the electro-mechanical relays makes them difficult to maintain as they now fall out of calibration more easily and spare parts are no longer available. A new relay/protection cabinet will be installed with a modern multi-function microprocessor relays. The microprocessor-based relays offer greater flexibility in protection and reclosing schemes. They have the ability to provide fault distance and event reports for restoration purposes.
164173: WO 34 Dist Subs	Project Type: Distribution Substation In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $999,996	The primary reason for this Project is reliability. The distribution substation blanket is for expenditures to replace or repair deteriorated or failed equipment in distribution substations in order to maintain system capability and reliability. Typical projects in this distribution substation blanket include, but are not limited to, the unplanned but necessary replacement of distribution substation equipment such as lightning arresters, batteries, breakers and regulators. This distribution substation blanket is based on the 5-year average of capital spending	The existing remote terminal unit (RTU) is an early vintage electronic technology which is no longer supported by the vendor. Furthermore, the existing RTU communicates with the master SCADA front end processor (FEP) located in the Systems Operations Headquarters. The FEP is a server of the same vintage as the RTU, which is also no longer supported. This project is appropriate at this time to address reliability concerns associated with an RTU. This project is part of GMP's plan for an orderly replacement of unsupported RTUs with few spare parts available. Failure of the SCADA FEP will result in loss of SCADA to as many as twenty facilities. The FEPs cannot be replaced until all RTUs have been upgraded. In an effort to migrate from the vintage unsupported technology, GMP is planning to replace these RTUs, allowing the migration to new technology utilizing digital communication between the master station and field devices.
175458: Spare 5MVA Transformer	Project Type: Distribution Substation In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $405,577	The purchase of this 5/7 MVA 46x34.5/12.47kV spare transformer is to provide reliability in the event that a less than 7MVA 46/12.47 kV or 34.5/12.47 kV transformer fails. This project consists of the purchase of (1) 5/7 MVA, 46x34.5/12.47 kV dual voltage spare transformer.	The project adds transmission line SCADA controlled MOLB switches on the 46kV lines to improve reliability and power quality to customers in this area. There are three switches being replaced at this time for various reasons. The 2010 vintage 742 SCADA Controlled MOLB is closing improperly, the 1974 vintage 741 Gang Operated Air Break switch is being replaced with a new SCADA Controlled MOLB switch to add remote sectionalizing operation with load break capability, and the 2010 vintage 743 SCADA Controlled Motor Operated Air Break (MOAB) switch is being replaced to add SCADA control for remote operation with load break capability.

Project Number and Title	Additional Information	Project Description	Project Justification
176554: X11 Portable Substation Rewind	Project Type: Distribution Substation In-Service Month: 9 In-Service Year: Jun 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Customer Service Total Project Spending: $586,402	This project is to rebuild the failed 10 MVA transformer on the X-11 portable substation as it experienced an internal failure while in service. This X-11 portable substation is necessary to continue to provide reliability support for planned substation construction work, customer support and/or in the event of emergency equipment failures where feeder backup is not available. This portable substation enables restoration of grid service while circumventing damaged substation equipment, allowing time to repair or replace necessary equipment. This projects consists of the rebuilding the 10 MVA, 46kV/12.47 kV transformer on the X-11 portable substation.	Additionally, the existing 1990 capacitor switching device and associated fusing are being replaced for asset management purposes. GMP's practice is to replace this style of capacitor switching device due to unreliable field calibration and operations.
179715: Hydeville Conversion	Project Type: Distribution Substation In-Service Month: 9 In-Service Year: Jun 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $3,398,516	The upgrades to the Hydeville substation will be comprised of increasing the size of the voltage regulators to 438 amps for both circuits to improve and provide feeder back-up for other circuits in the area, replacing the existing distribution steel structures to accommodate the larger voltage regulators, replacing the existing 1967 vintage distribution circuit breakers with new circuit breakers and microprocessor based relays, replacing the existing 1948 vintage dual voltage 46kV to 4.16/12.47kV 3/3.75 MVA power transformer with a 46kV to 12.47 kV 7.5/10 MVA transformer, installation of a new high fuses for transformer protection, replacing the existing 1955 and 1967 46kv transmission motor operated air break switches with 46kV circuit breakers and line voltage transformers, installing an additional transmission steel structure for the new circuit breakers and transmission line reconfiguration and adding a control building to house the communication, relay and control equipment and battery bank. This project will also include expansion of the substation yard, fence and ground grid to accommodate installation of a portable substation for future needs. In addition the new yard will include an oil containment system and security system. The project requires the installation of temporary substation to accomplish the substation upgrades. This project consists of the installation of (3) 46kv circuit breakers with foundations and disconnects, (3) 46kV line voltage transformers and fuses, (9) 46kV lightning arresters, (1) 46kV motor operated load break switch, (1) 46kV gang operated load break bypass switch, (1) new transmission steel structure with concrete foundations and bus work, (1) 7.5/10.5 MVA distribution power transformer with fuses and concrete foundation, (1) 15kV gang operated load break switch, (3) new distribution steel structures with concrete foundations and bus work, (2) 15kv circuit breakers with disconnect switches, foundations and wiring, (3) 15kV Bus voltage transformers and fuses, (2) 15kV line voltage transformers and fuses, (6) 438A voltage regulators with steel support and foundations, (6) 10kV lightning arresters, (1) control building, (1) 125VDC Battery Bank and (2) DC Panels, (1) AC Panel, (2) 15 KVA station service transformers with manual transfer switch and meter, (1) communication control cabinet, (3) protection and control cabinets, (1) expanded substation yard complete with fence, foundations, yard stone, ground grid, conduit and cable trench system, oil containment system and security system.	The Hydeville substation upgrade is necessary at this time to address reliability and asset management. This project will address equipment reliability by replacing aging equipment and clearance issues that would occur with larger equipment which will improve substation safety and operability. The existing distribution low side steel structure will be rebuilt to improve overall clearance and flexibility, incorporating GMP's current standards and practices. The existing substation transformer is 73 years old, manufactured in 1948. It is a dual voltage unit with a rating of 3/3.75 MVA. The new transformer will be a 7.5/10.5 MVA unit. The substation regulators will be upgraded to 438 amps. The existing #24 circuit has 219 amp regulators manufactured in 2007, 2015 and 2018. The #25 circuit has 150 amp regulators manufactured in 2011. These regulators will be returned to stock. The existing 1967 vintage distribution circuit breakers will be replaced with new vacuum circuit breakers. The distribution breakers are being replaced as they are no longer supported by the manufacture and replacement parts are not available. The new circuit breakers will have microprocessor based relays that will reduce fault-clearing times and have advanced features that are better suited for communication based tripping and for any required communications to Distributed Energy Resources (DER's) installed on the distribution feeders. Additionally, the microprocessor-based relays offer greater flexibility in protection and reclosing schemes. They have the ability to provide fault distance and event reports for restoration purposes. The larger transformer and regulators will allow for improved feeder backup capability with the Castleton substation, and with the Fair Haven substation once it is converted. The substation upgrades will increase DG interconnection and load capability. Replacement of the three-46kV Motor Operated Air Break (MOAB) switches with new 46kV vacuum breakers improves reliability and power quality to several substations in Western Rutland County. These breakers provide automatic selective fault isolation eliminating the need for momentary outages. In the event of a problem on the 46kV line between Blissville to Hydeville, the breaker additions will allow continued service to Hydeville (1,719 customers), Fair Haven (1,223 customers), Carvers Falls (720 customers) and Castleton (1,070 customers) substations. A problem on the 46kV line between West Rutland to Hydeville will allow continued service to Hydeville, Fair Haven and Carvers Falls substations. A problem on the Hydeville to Carvers Falls 46 kV line will allow continued service to the Hydeville and Castleton served customers and keep the 46 kV loop from West Rutland to VELCO Blissville in service.
General Plant - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total=$473,879			
163092: Capital Tools Budget	Project Type: General Plant In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $473,879	This blanket covers the purchase of tools and equipment needed due to failure or higher efficiency tools and equipment that are needed to support the electrical system, such as lineworker tools or test equipment. Some tools are needed for safety initiatives. The capital blanket is based on the 5-year average of capital spending.	This equipment is necessary for basic area functions. Typical expenditures may be for defibrillators, testing and diagnostic equipment and lineworker tools.
General Plant - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total=$483,357			
163092: Capital Tools Budget	Project Type: General Plant In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Total Project Spending: $483,357	This blanket covers the purchase of tools and equipment needed due to failure or higher efficiency tools and equipment that are needed to support the electrical system, such as lineworker tools or test equipment. Some tools are needed for safety initiatives. The capital blanket is based on the 5-year average of capital spending.	This equipment is necessary for basic area functions. Typical expenditures may be for defibrillators, testing and diagnostic equipment and lineworker tools.