Green Mountain Power
Interim and Rate Year Capital Projects
Generation

Project Number and Title	Additional Information	Project Description	Project Justification
Production - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total = $5,069,571			
159605: EHC GSU Replacement	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2021 Fiscal Year: FY2022 Primary Purpose: Safety Secondary Purpose: Reliability Total Project Spending: $433,949	The generator step-up transformer ("GSU") currently in service at the EHC Hydro /Hoague-Sprague generation facility is over-dutied and in need of replacement. Recent test reports indicate degrading insulation and a imminent electrical failure. The current transformer is rated at 1000 KVA, while connected loads total 1460 KVA. (46% over-dutied) This project entails the installation of a modern, pad-mount, dry-type 1500 KVA transformer. In addition, this project includes the replacement of the existing foundation for the transformer, conduits, cables, and transformer protection. The transformer protection includes the installation of a SEL-787 relay with associated test switches and wiring. The relay will be designed to protect equipment and operate the high side recloser and generator breakers when needed. This project was originally planned for October 2019. Due to availability of resources this project was postponed to November 2021. The original project was estimated using a cost opinion for transformer replacement only. However, following the inception of this project, it was determined the foundation, conduits, cables and protection would need to be upgraded as well. In addition, Eversource notified GMP that the interconnection agreement for the project would need to be updated and modified as part of this project since it had expired. Eversource provided an itemized list of protection upgrades required to update the interconnection agreement.	As stated above, the GSU is over-dutied. Recent test reports indicate degrading insulation and imminent electrical failure. Replacing the GSU now will reduce the possibility of an unplanned outage due to failure. A GSU is typically a 32 week delivery—planning replacement now will limit the outage to only the time required for installation. Also, as noted above, Eversource identified that the interconnection agreement had expired and additional protection devices would be required for continued operation.
159609: Beldens Electrical Upgrades	Project Type: Production In-Service Month: 6 In-Service Year: Mar 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $319,281	This is reliability project replaces the existing end of life Schneider PLC ((Programmable Logic Controller) that controls Beldens Falls Hydro Units 1 and 2 with a new Emerson Rx3i PLC. The new PLC will provide the same unit condition monitoring, supervisory control, alarming, and water level management. The Beldens Hydro Electric Site consists of a concrete dam with 2.5 foot high wooden flashboards. The dam comprises two sections on either side of a bedrock island. Inflow from the reservoir created passes through two intakes and is then conveyed to the powerhouses through 2 penstocks. The first intake feeds a 12ft penstock that bifurcates into two 10ft penstocks before entering the "Unit 1 and 2" powerhouse containing two horizontal Francis turbine generator units with a combined capacity of 1,747 kW. The second intake conveys water via 12ft penstock to a powerhouse containing a horizontal Kaplan turbine generator unit with a capacity of 4,100 kW. The PLC is a required piece of equipment to safety operate and generate electricity from Units 1 & 2.	This project is necessary at this time due to the following timeline of events. In May 2021 the existing Schneider PLC failed causing a generation outage from units 1 and 2 at Beldens Hydro. Furthermore, the control system for Beldens is configured in a way that does not allow for manual operation in event of PLC failure. Therefore, GMP immediately engaged with Electrical Consultants Inc. (Formally Casco Systems) to try emergency repairs of the existing PLC and restore generation. Unfortunately the efforts to revive the PLC were unsuccessful due to the state of failure. In August 2021, GMP accepted a proposal from Electrical Consultants Inc. to immediately begin the process to install a new PLC system for the site. This project is necessary at this time to restore generation.

Project Number and Title	Additional Information	Project Description	Project Justification
171265: Generation Small Capital Blanket	Project Type: Production In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Operational Efficiency Secondary Purpose: Safety Total Project Spending: $838,744	This work order is for the Generation Blanket, which is an overall budget for small expected and unplanned capital generation projects. The Generation Blanket includes Hydro, Wind, Fuel and Hydro & Solar. The generation blanket is estimated using a five-year historical average. The amount included in the filing represents the lower of the five year average or the budget.	When operating a fleet of generation facilities, some over 100 years old and in rural, often isolated places, it is expected that small, unplanned and unforeseen repairs and improvements will be required throughout the year. In addition, GMP uses the blanket budget to address small capital projects. These repairs may be necessary to get a plant back on line, or to address safety issues that crop up over the year. This includes minor component failures, site or building issues (in some cases due to severe weather), or the need to acquire small tools needed for specific jobs in the plants. The amount allocated to blanket capital spending for these sites is normally based on a historical average for similar unplanned work. If a planned or unplanned project is estimated to exceed $250K, it is rolled into the Generation Large Capital plan and accounted and planned for accordingly.
171609: Ltl Rvr cone valve building	Project Type: Production In-Service Month: 6 In-Service Year: Mar 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Regulatory compliance Total Project Spending: $234,409	This project consists of the construction of a structural steel building and shelter around the cone valves and actuators at the Little River hydro. The purpose of the building is to shelter the cone valves from ice buildup in the winter to maintain safe, reliable and compliant operations. It will be designed to support ice if built up upon its walls. It will also be finished with architecture complementary to hydro plant.	To comply with the FERC license, 401 Water Quality Certification, and a Memorandum of Understanding with the State of Vermont Agency of Natural Resources, several modifications were completed at the Little River hydro station. One of the modifications was the addition of two energy dissipating cone valves. These valves are fully automated and are used, among other things, to pass minimum flows, station flow when the turbine trips off, and bypass flows while annual maintenance is completed at the Plant. During the winter of 2019-2020, spray from the valves formed ice buildup and rendered them inoperable. Because the valves were locked closed by the ice, a flow violation occurred during a system fault that tripped the generation station off-line. The project is necessary at this time to maintain the operability of the cone valves for dam safety and to ensure compliant flows.
176397: Essex Mechanical Seal 2021	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Total Project Spending: $83,948	seals. The large turbines have been in service for over 100 years. Because of shaft wear, the original packing shaft seals were replaced with mechanical seals several years ago. These seals have had operational challenges since their installation, with many revisions over the years. The seals are complex, difficult to install and align, and do not maintain a positive seal. This project includes the procurement and installation labor to install the 2 new seals on Unit 3.	The project is necessary to reduce the number of hours associated with maintaining the current seals. Each turbine has two seals. One turbine will be retrofitted with the new seals in a fiscal year.

Project Number and Title	Additional Information	Project Description	Project Justification
176479: Marshfield Bypass Pipe	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2021 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $1,798,617	The Marshfield Dam is a non-FERC, high-hazard dam. A 2019 Memorandum of Understanding (MOU) between the Vermont Agency of Natural Resources (ANR) and GMP requires a number of operational changes to the Marshfield dam and hydro station. This compliance project is one of several designed to meet these requirements. This project is for the installation of a new pipe to bypass water from the penstock to Molly's Brook at the discharge of the new service spillway. This bypass pipe is required to provide bypass flows of 8.5cfs between July-March and 12.0 cfs between April-June into Molly Falls Brook. The scope of this project includes tapping into the penstock with a new 14" tap, plug valve, and concrete manhole for access to the new plug valve, a 14" welded steel pipe run to just downstream of the toe of the dam, and a concrete outlet structure at Molly's brook at the outlet of the service spillway and emergency spillways (plunge pool area). A second concrete manhole will be installed just upstream of the outlet structure where the pipe bifurcates. Additional work includes a dissipation structure and armoring of the plunge pool area and some concrete resurfacing at the base of the primary spillway. This project was originally estimated to be complete by September 2021 for $1,302,090. The revised cost is $1,798,617 as illustrated in this capital forecast summary, and is estimated to close in December 2021. The project delay is due to supply issues related to COVID-19 pandemic. In addition, the change to project costs were related to changes to the project plans following completion of RFC (Release for Construction) plans and specifications. The original estimate was based upon an earlier set of plans and specifications created by the Engineer of Record, Kleinschmidt. Some of the notable changes since originally estimated are: changes to the access road to the plunge pool, addition of electrical conduit and vaults along the penstock bypass pipe to the plunge pool, and an increase of sheetpile steel panels from original estimate.	The project is necessary at this time to meet the compliance schedule agreed to in the MOU. Following ANR approval of GMP's Flow and Water Level Management Plan, GMP must implement at Molly's brook bypass flows as identified in this work order. This requirement cannot be met with existing infrastructure; therefore, this project is necessary at this time to ensure compliance.
176482: Rollinsford FERC License	Project Type: Production In-Service Month: 8 In-Service Year: May 2022 Fiscal Year: FY2022 Primary Purpose: Regulatory Compliance Total Project Spending: $510,276	This project includes the capital investment to obtain a new license for the Rollinsford Hydroelectric Facility. The Federal Energy Regulation Commission (FERC) licenses and relicenses hydroelectric projects. FERC is an independent federal agency whose mission includes promoting the development of a strong national energy infrastructure that includes hydropower. FERC issues licenses or relicenses for hydropower projects, enforces the conditions of each license for the duration of its term, and conducts project safety and environmental inspections. An original hydropower license authorizes the construction and operation of a project. A new license or relicense authorizes the continued operation of an existing project.	This project is necessary at this time due to expiration of the existing license. This project involves obtaining a new license, authorizing the continued operation of the Rollinsford facility. The Final License Application (FLA) for the Project was filed with FERC on August 29, 2019 and was expected to be issued on or about August 31, 2021. On September 14, 2021 FERC issued a one-year extension on the existing license for Rollinsford as they have not completed the FLA review. As of December 28, 2021 the Maine Department of Environmental Protection (MDEP) and the New Hampshire Department of Environmental Services (NHDES) are also still reviewing the Project's Water Quality Certification (WQC) Applications. As detailed in the FERC extension letter FERC, MDEP and NHDES are expected to reach a certifying decision on or before August 31, 2022.

Project Number and Title	Additional Information	Project Description	Project Justification
176484: Marshfield Bypass Plant Pipe	Project Type: Production In-Service Month: 5 In-Service Year: Feb 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $737,213	The Marshfield Dam is a non-FERC, high-hazard dam. A 2019 Memorandum of Understanding (MOU) between the Vermont Agency of Natural Resources (ANR) and GMP requires a number of operational changes to the Marshfield dam and hydro station. This compliance project is one of several designed to meet these requirements. The MOU requires the use of the existing powerhouse bypass pipe system to ramp flow from 0 to 40cfs. The existing piping consists of a 16 inch diameter ball valve and a steel bypass pipe penetrating through the powerhouse concrete substructure with a set of energy dissipation baffles on the end. The original intent of this valve & pipe were to pass 40cfs of flow during an unexpected extended outage of the hydro station. In 2019, Kleinschmidt found that the existing system had a maximum flow capacity of 40cfs and modifications to or replacement of the valve & pipe would be required to meet the MOU's ramping requirements. Following this finding, GMP also noted that the valve is not currently operational because the system had caused significant vibrations in the system and the powerhouse. For this reason, and with anticipated increased use of the bypass pipe as part of the new MOU and ramping operation, Kleinschmidt has engineered a new valve with actuator and pipe.	The project is necessary at this time to meet the MOU's compliance schedule. Following ANR approval of GMP's Flow and Water Level Management Plan, GMP must implement at the ramping protocol. This requirement cannot be met with existing infrastructure as identified above; therefore, this project is necessary at this time to ensure compliance.
		This project includes the replacement of the existing ball valve with an energy dissipating plunger valve, an increase in the discharge pipe from 16" to 24" and a reroute of the discharge pipe to a new location in the plant substructure. This project was originally estimated to be complete by October 2021 for $623,259. The revised cost is $737,213 as illustrated in this capital forecast summary, and is estimated to close in December 2021. The project completion date was delayed due to project 176479 (please see that project folder for description). In order to safety construct this project, the project involving the penstock bypass up at the dam (176479) needed to be completed first. In addition, the change to project costs were related to changes to the project plans following completion of RFC (Release for Construction) plans and specifications. The original estimate was based upon an earlier set of plans and specifications created by the Engineer of Record, Kleinschmidt. For instance: the final set of plans increased the size of the pipe coming from the new penstock valve from 20" to 24" and core size through the building from 24" to 28". These changes were a result of the design process from initial plans to final, following hydraulic analysis..	
176498: NEARC FERC	Project Type: Production In-Service Month: 4 In-Service Year: Jan 2022 Fiscal Year: FY2022 Primary Purpose: Regulatory Compliance Total Project Spending: $113,139	This project involves historic and archaeological site work required under GMP's Lamoille license (FERC #2205), which covers GMP's Fairfax, Clark's Falls, Milton and Peterson hydroelectric projects. These projects operate on and affect the lower section of the Lamoille River. A prolonged relicensing process included the development of a Historic Properties Management Plan ("HPMP") which established a process to identify the nature and significance of historic properties possibly affected by project maintenance or operation, proposed improvements to project facilities, and public access. The HPMP also established procedures for consulting with the Vermont Division for Historic Preservation ("VDHP") and the public concerning the potential effects of the projects on historic properties. GMP has and continues to meet its license and HPMP obligations for both archaeological sites along the Lamoille River and for GMP buildings and components that are designated as historic. GMP has several HPMP obligations for the Lamoille project in 2021.	The HPMP requires GMP to monitor and preserve archaeological sites associated with or affected by the Lamoille projects. In 2021, GMP is obligated to monitor the Lamoille reach for any river changes including erosion especially at identified archaeological sites. GMP is scheduled to complete archaeological fieldwork, both Phase II and Phase III assessments. The HPMP itself is also due for its five-year periodic update.

Project Number and Title	Additional Information	Project Description	Project Justification
		Northeast Archaeology Research Center, Inc. ("NE ARC") has been involved with the Lamoille Project since 2014 which is comprised of the Milton, Petersen, Fairfax and Clark Falls developments. A Phase I survey has been completed. Phase II testing at all but four of the identified archaeological sites has also been completed. For the remaining four sites, Phase II fieldwork was initiated in 2018 but could not completed due to weather conditions. Likewise, the 2018 HPMP stipulated monitoring could not be completed due to conditions. Twenty sites are now known in the Project, five of which are considered eligible for the NRHP. Tasks to be completed under this work order include; •HPMP (Historical Property Management Plan) update •2021 HPMP Monitoring •Completion of Phase II Site Evaluation. Of four sites that require phase II testing, fieldwork at all but one has been completed. Fieldwork scheduled for May, report for all four sites scheduled for 2021 •VT-CH-28, Peterson. Fieldwork on-going following additional request by DHP (Department of Historical Properties) Report submittal planned for 2021 •VT-CH-29, Peterson. Fieldwork on-going following additional request by DHP (Department of Historical Properties) Report submittal planned for 2021 •VT-FR-189, Fairfax. Fieldwork completed. Ongoing laboratory work, analysis and writing. Report submittal scheduled for 2021 •VT-FR-393, Fairfax. Fieldwork scheduled for July 2020. Lab work, and report planned for 2021. •VT-CH-1191, Peterson. Fieldwork scheduled for August and September 2020. Lab work and report planned for 2021.	
Production - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total = $35,185,949			
153320: Middlesex #2 Electrical UG	Project Type: Production In-Service Month: 6 In-Service Year: Nov 2022 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Reliability Total Project Spending: $2,709,672	The Middlesex Electrical Modernization project is safety driven project designed to bring the site up to typical GMP specifications and standards. Middlesex Hydro is a non-FERC, High-Hazard facility located in Moretown, VT. The site consists of a 51ft high and 284ft long concrete gravity dam, two square 9ft square sluiceways near the base of the spillway right leg, a canal and concrete gravity intake structure separate from the dam, 2 9ft penstocks, and a powerhouse located about 50ft downstream of the intake structure. The powerhouse contains two vertical axis synchronous generation units with a combined capacity of 3.2MWs. Between 2015 and 2017 the unit 1 and 2 runner were replaced and ancillary components refurbished by Norcan Hydro. In addition, a major Dam Stability project was performed in 2020, installing rock anchors to meet dam stability standards. During the permitting phase of the 2020 Rock Anchor project, GMP obtained a 401 water quality certification for the project. GMP is actively working with Vermont agencies to develop a Flow and Water Management Plan. The completion of this electrical modernization project will aid in GMP's ability to meet the new criteria of the 401 certification. The work includes installation of improved unit protection (SEL 700G relays) and control (PLC), modern arc-resistant switchgear, voltage regulation, SCADA, turbine governor upgrades, control panels, neutral grounding and surge protection, lighting and fire alarm systems, a DC battery and charger, and upgrades to the existing station service.	Safety was the primary reason for completing this project. This project provides much needed safety, resiliency, and efficiency improvements to the plant's antiquated electrical system. We aim to systematically improve safety at our facilities related to arc flash and electrical exposure. This means transitioning from older, open-air electric buses--sometimes insulated with asbestos--to modern, fully-enclosed, and protected electrical gear. In addition to the safety improvement, we are improving the operations and resiliency of the facility, including the ability to maintain reliable control of the site. Furthermore, the project is necessary at this time to preemptively replace the station switchgear and turbine control equipment before it becomes problematic or fails. The switchgear has exceeded its usable life and replacement components or refurbishment are not available at this time. Waiting for failure prior to initiating this project is not feasible or prudent due to the lead time required in design and procurement of new switchgear and/or turbine control equipment, during which period the facility would be idle. Historically, lead time for switchgear equipment has been 16 weeks; with COVID and the resulting disruption in supply chain, we've seen this lead-time significantly increase. For perspective the annual 20-year average production of Middlesex Hydro is 12,819MWs. At an assumed LMP (Locational Marginal Pricing) of $40 per MWh, this amounts to an annual generation of $512,760.

Project Number and Title	Additional Information	Project Description	Project Justification
153329: Cavendish Elec Modernization	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Operational Efficiency Total Project Spending: $3,611,266	The Cavendish Electrical Modernization project is safety driven project designed to bring the site up to typical GMP specifications and standards. Cavendish Hydro is a 1.4MW capacity station located in Windsor County, VT. The facility consists of a gravity dam with two spillway sections, an impoundment of 10 acres, concrete intake, manually operated headgates, trashrack, and a power tunnel that runs parallel to the river. This tunnel conveys flow 180ft from the intakes to the 6ft diameter, 1250ft long steel penstock. The penstock connects to a manifold located adjacent to the powerhouse that divides the flow and distributes it to the 3 turbines. The powerhouse contains the three Horizontal Shaft Francis Turbine generators. The powerhouse is the primary location for electrical modernization, although work is also planned at the intake to provide public notification and increased remote functions. The original equipment is antiquated and has reached its end of service life and has become difficult to maintain. In addition, this project would provide modern arc flash protection equipment, typical with modern electrical standards. These standards are also important improvements for worker safety. The work includes installation of improved unit protection (SEL 700G relays) and control (PLC), modern arc-resistant switchgear, voltage regulation, SCADA, turbine governor upgrades, control panels, neutral grounding and surge protection, lighting and fire alarm systems, DC battery and charger, and upgrades to the existing station service.	Safety was the primary reason for completing this project. This project provides much needed safety resiliency, and efficiency improvements to the plant's antiquated electrical system. We aim to systematically improve safety at our facilities related to arc flash and electrical exposure. This means transitioning from older, open-air electric buses--sometimes insulated with asbestos--to modern, fully enclosed and protected electrical gear. In addition to the safety improvement, we are improving the operations and resiliency of the facility, including the ability to maintain reliable control of the site. We have been planning to complete this project for several years but even more pressing generation projects and other delays have caused schedule shifts. In the interim, we worked with our consultant to develop safe operating procedures until the upgrade could be completed. Furthermore, the project is necessary at this time to preemptively replace the station switchgear and turbine control equipment before it becomes problematic or fails. The switchgear has exceeded its usable life, and replacement components or refurbishment are not available at this time. Waiting for failure prior to initiating this project is not feasible or prudent due to the lead time required in design and procurement of new switchgear and/or turbine control equipment, during which time the facility would be idle. Historically, lead time for switchgear equipment has been 16 weeks; with COVID and the resulting disruption in supply chain, we've seen this lead-time significantly increase. For perspective; the annual 20-year average production of Cavendish Hydro is 5338MWs. At an assumed LMP (Locational Marginal Pricing) of $40 per MWh, this amounts to an annual generation of $213,520.

Project Number and Title	Additional Information	Project Description	Project Justification
167976: Goshen Dam Intake	Project Type: Production In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $12,609,879	The Goshen Dam is a FERC regulated, high-hazard dam. The Goshen Dam impounds the Sugar Hill Reservoir and is located in Goshen, VT, 4.1 miles upstream along Sucker Brook from GMP's 2.2MW Silver Lake Hydroelectric Facility. The flow of water from Sucker Brook to Silver Lake Development is mostly regulated by Goshen Dam. The Dam is an earth embankment structure that regulates flows. The embankment is 700ft long with a crest elevation of 1,777.0ft. The dam has a 4ft x 4ft 260ft long concrete conduit that is perpendicular to and located at the base of the earthen dam. The conduit has a submerged upstream concrete headgate. Water from the Goshen Dam is discharged into Sucker Brook by means of a downstream steel bulkhead gate containing 5 small diameter valves. Depending on the environmental and/or hydropower flow requirements, individual valves are opened as needed to provide flows into the downstream reach of Suck Brook. Under normal operations, the entire length of the conduit is charged with full head pressure matching the impoundment elevation. In a July 2, 2019 letter, FERC stated routine inspections could no longer guarantee Goshen's safe operation. Additionally, FERC noted under current design standards FERC would not approve construction of such as penetration through an embankment. Controlling the flow on the downstream end subjects the conduit to full hydrostatic head through the entire length of the embankment at all times. Even small leaks through cracks, expansion joints, etc. that are unfiltered become "cutting knives" through the embankments as the hydrostatic pressure far exceeds the effective stress of the soil. Internal erosion can begin undetected leading to a sudden and catastrophic failure. In addition, FERC performed updated flood inundation mapping simulating the failure of the Goshen Dam which show severe consequences to property and human life in the event of a failure. FERC is requiring GMP to modify the intake structure at the Goshen Dam with an intake on the upstream side of the dam thereby eliminating the pressurization within the conduit. The work will require major capital improvements to comply with the FERC's safety standards and GMP's License obligations.	FERC is requiring this work at this time to mitigate risks associated with the pressurized conduit and results from updated inundation mapping. FERC has informed GMP that this project is the "most important" project in the FERC NYRO region. Since the July 2, 2019 letter, GMP has worked very closely with FERC and HL Turner (Independent Consultant and design engineer for this project) to determine a schedule for completing this work. FERC has committed to complete timely reviews of design documents in order for GMP to maintain the schedule. This project has been completely designed. The project has received all federal, state, and local approvals and permits. Construction initiated in the spring of 2021. Due to unforeseen conditions listed above; the project was forced to extend into a second construction season. The project is currently demobilized for the winter. In the spring of 2022, construction will commence again. The projected completion is October 2022.
		The project includes the design, hydraulic analysis, construction of a new intake structure including access bridge, a gate house structure, 24" valves with actuators and intake racks. This project also includes the design and installation of an early warning detection and alert system and upgrades to the outlet structure into Sucker Brook. Following the geotechnical investigation, it was also determined a cofferdam was not a viable option for water control during construction due to reservoir bottom soil information. For this reason, GMP has also obtained approval from FERC and State Agencies to drain the reservoir to 1720' to facilitate construction. This project was originally estimated to be complete by March 2022 for $8,177,178. The revised cost is $12,609,879 as illustrated in this capital forecast summary, and is estimated to close in October 2022. Below is a summary of the major impacts to the project budget due to unforeseen environmental conditions. In addition to environmental challenges, there were design changes due to the unforeseen physical condition of the reservoir bottom once drained.	

Project Number and Title	Additional Information	Project Description	Project Justification
		1.The intake tower was moved further out into the reservoir due to constructability issues. It was discovered the intake structure was inset into the earthen dam, not proud of the face as original depicted on historical drawings. This was a major change in the design that included FERC consultation. 2.Once the reservoir was drained, the volume of sediment was more than the team anticipated. This sediment could not be controlled within the original limits of disturbance ("LOD") for the project. Due to these challenges; the LOD was expanded to include several hundred feet downstream and upstream. Additional sediment control devices were installed within the expanded LOD which added cost to the project to initial install as well as maintain. 3.The project team's original cofferdam construction did not work due to the sediment condition at the bottom of the reservoir. To remedy this situation, a costly cofferdam had to be constructed with sheetpiles to a higher elevation than original planned. Furthermore, additional stone had to be trucked into the facility to manage and gain access to the work area at the bottom of the reservoir. 4.Additional costs are attributable to the extension of the construction season into summer of 2022. A major contributor is the management and upkeep of large bypass pumps to move water over the reservoir and maintain downstream flows from inflow into the reservoir. 5.Finally, there are changes to the overall budget due to changes in design from the original estimate. This is related to the level of design at estimate vs. final drawing and specifications for construction.	
176475: Weybridge Crane	Project Type: Production In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Total Project Spending: $139,667	During an annual crane inspection process in January 2020, the gantry crane at the Weybridge hydro station was determined to need refurbishment to meet current electrical standards for safe operation. The crane has been tagged "out of service" since the inspection. The crane is a 30 ton gantry style crane with auxiliary 3 ton hoist. The crane sits over the powerhouse primarily functioning to remove the weybridge roof hatch for access to the generator and turbine for maintenance. The crane is also used to install and remove the headgate, closing or opening the water passage to the Turbine. The proposed work includes upgrades to the primary components of the crane, including the main and auxiliary hoists, electrical upgrades, the bridge center drive gearbox and motor/brake assembly, and controller systems, as well as testing following completion of the work. This project was originally estimated to be complete by December 2021 for $307,335. The revised cost is $139,667 as illustrated in this capital forecast summary, and is estimated to close in October 2022. The project delay is due to availability of resources to complete the project. In addition, the change to project costs were related to a competitive bid process. The original estimate was based upon a cost opinion.	The project is necessary at this time because the crane is tagged "out of service" and the existing crane components have exceeded their serviceable life and require replacement to safely and reliably operate the crane. The crane is a critical component to the continued safe and effective operation of the Weybridge Hydroelectric plant because it is the primary tool for any heavy Hydro & Generator maintenance or installation of headgate to stop the flow of water to the turbine.

Project Number and Title	Additional Information	Project Description	Project Justification
176487: Proctor Automatic Rack Raker	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $790,943	Proctor is a modified run-of-river facility located on the Otter Creek in Proctor, VT. The facility was built in 1906 and impounds a 95-acre reservoir. It is comprised of a 128-foot-long, 13-foot-high dam with 3-foot inflatable flashboard system. Inflow passes through forebay and into the intake structure that contains trashracks. Two penstocks convey water down to the hydro station where there are 5 turbines with a total installed capacity of 10.233MW. The trashracks include an airblast system that use compressed air to "blow-off" the trash-racks. This existing debris management system includes an adjacent leaf-sluice gate to flush downstream the debris blasted to the surface. In addition, Power Production Workers use rack cleaning rakes to manually clean the racks. This process has been found to be insufficient during high flow events due to the characteristics of debris in the Otter Creek, causing operators to reduce generation by ramping units down and increasing worker support to manually clean racks. This project includes the improvement of this system with the installation of an automatic rack raker to mechanically remove debris from the racks.	This project is necessary at this time due to the loss generation due to the existing debris management system at Proctor. For reference; the 5-year annual output average of Proctor is 24,044MW. Based on an LMP (Locational Marginal Pricing) of $40 per MHW; the annual output is calculated at $961,760. The proposed Kuenz Automatic Rack Raker will improve efficiency by increasing unit output, increase worker safety by eliminating the manual task of raking, as well as reduce O&M due to reduced call-outs after hours to address clogged racks.
179617: Marshfield Emergency Spillway	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $7,141,193	The Marshfield dam is a non-FERC, high-hazard dam at which GMP is obligated to assure continued safe, reliable dam operation. GMP performs Five-Year Independent Safety Inspections of this facility pursuant to PUC Rule 4.50. In 2018 Craig Findlay of Findlay Engineering, Inc. was hired by GMP for this purpose and submitted a report in December 2018. The report recommended rebuilding the emergency spillway. The project involves mass excavation, access improvements, and water control during construction. In addition, the emergency spillway structure is composed of concrete reinforced slabs and walls extending down to the plunge pool, originating downstream of the existing stanchion stoplog structure at the Dam. Since publication of the Safety Inspection Report in 2018, the project team has been engaged to complete the design, various flood analysis, and obtain the appropriate regulatory approvals through a PUC Chapter 43 proceeding. This project has PUC approval and construction is planned for 2022.	he work is recommended by an independent engineering consultant, Craig Findlay. GMP believes it is important to move forward now to ensure we continue to fulfill our commitment to the safe and efficient operation of the facility. Per the inspection, the emergency spillway could be susceptible to headcutting and uncontrolled release of reservoir in its current configuration, representing a dam safety issue in the event of a flood in excess of about ½ PMF (probable maximum flood). The spillway should be reconfigured to mitigate the potential for headcutting and erosion of the spillway chute for flows up to and including the PMF. The report notes that events requiring use of the emergency spillway are remote, should the need arise, it could result in significant downstream impact and risk to life, and therefore the sooner this can be implemented the sooner that this risk will be managed.
179622: Midd Lwr St Service	Project Type: Production In-Service Month: 3 In-Service Year: Dec 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $146,994	The objective of this project is to address the undersized station service at the Middlebury Lower Hydro Station. This project includes the additional of electric heat for the station as well. The station service at Middlebury Lower is currently sourced from the generation bus. One set of CLE-3E fuses, located in the switchgear, protect an externally located station service transformer that is significantly undersized for the current station loads. One three-phase station service panel is connected to the low side of the transformer and distributes AC power to the various loads in the plant. This panel is at capacity and has no room for additional circuit expansion.	This project will address important reliability issues. With the current station service, distribution circuits in the plant regularly trip and station lighting dims during hydraulic pump and air compressor operations, indicating a heavy draw on the station service transformer. In addition, the current facility does not have station heat. Station heat is important for the maintenance and operation of the electrical equipment in the plant. Dry heat from electrical sources is important to limit condensation that forms and erodes electrical components.

Project Number and Title	Additional Information	Project Description	Project Justification
179623: Beldens #1 Rewind	Project Type: Production In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $187,180	This project is a reliability and capacity project to re-insulate the Beldens Hydro #1 hydro generator rotor. A benefit of modern generator relay protection is that the generator field insulation integrity is continuously monitored. Relaying on the Beldens #1 unit is demonstrating that the field insulation has degraded to the point where replacement is required. The typical value the relay will display of a rotor with good insulation is above 20,000 kOhms. The relay will trip the unit if the value is below 100 kOhms. Beldens Unit #1 has tripped on several occasions in the last few years. Meggar testing of the unit verified the reading of the relay. To prolong life, the unit is cleaned temporarily restoring the insulation resistance to an acceptable value. This cleaning cycle, however, proved that the insulation is at the end of its useful life. This is a proactive approach, taking the unit out of service for rewind to prevent an unplanned outage because GMP can ensure the unit is taken out of service to perform the work during a period in which generation output from the facility can be least impacted. The scope for this project includes the complete re-insulation of the rotor pole pieces, and cleaning the stator.	This is preemptive work to prevent the extra costs of an unplanned outage. As described in Q1 above, the unit has experienced trips from low insulation values for several years. To defer the cost of the project, GMP elected to clean the unit when the resistance value got too low. Cleaning the unit and restoring it to operation is a calculated risk because cleaning only improves the resistance value above acceptable levels. Cleaning, however, doesn't repair the electrical tracking that is taking place in the coils. Eventually, the tracking could cause a fault and failure of the rotor. For reference; the annual 20-year average of generation from Beldens Hydro (3 units) is 14,321 MWH. Using an average LMP (Locational Marginal Pricing) of $40 per MWh, annual generation from Beldens Hydro is $572,840. The rewind scope requires approximately 3 months. By planning this project, GMP can utilized a low flow period of time, in which only one or two of the three generator units are operating due to water flows, to take the unit out of service for rewind. This will ensure the annual generation is least affected.
179624: Carvers Heat Upgrades	Project Type: Production In-Service Month: 2 In-Service Year: Nov 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $141,421	The objective of this project is to address the undersized station service at the Carver Falls Hydroelectric Project (FERC No. 11475). This project includes the additional of electric heat for the station as well. Carver Falls includes a 514' long concrete and stone masonry dam, with 110' long northern spillway topped with 6' -high flashboards. The 10 acre reservoir is connected to the powerhouse via a 300', 7' diameter penstock that bifurcates into two 150',-3'- and 4'-diameter penstocks before connecting to the station. The powerhouse was constructed in 1894 and contains a 1.1 MW and 0.80 MW generating unit with a total capacity of 1.9 MW. There is no source of heat in the station during the winter months, however as long as a unit is running enough heat is generated to keep the facility from freezing. A few years ago, the facility was out of service due to mechanical issue affecting both units. During this time, leakage through the penstocks eventually froze solid preventing the station from generating once the mechanical issues were resolved. As a secondary benefit to completing this project, this issue will be avoided due to increased capacity of the new station service to run station electric heat.	This project will address important reliability issues. With the current station service, distribution circuits in the plant regularly trip and station lighting dims during hydraulic pump and air compressor operations, indicating a heavy draw on the station service transformer. In addition, the current facility does not have station heat. Station heat is important for the maintenance and operation of the electrical equipment in the plant. Dry heat from electrical sources is important to limit condensation that forms and erodes electrical components
179625: EHC Switchgear	Project Type: Production In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Reliability Total Project Spending: $358,383	This project includes the replacement of the Switchgear at GMP's Hoague-Sprague/EHC Hydro Plant (FERC No. 4337-NH) on the Contoocook River in New Hampshire. The existing switchgear that is currently in service at EHC G2 station is obsolete. It presents a safety and operational concern and should be replaced to ensure safe and reliable unit operation into the future. The G2 switchgear will be addressed with the completion of this project. This project includes the installation of a single-line of low voltage (600V) switchgear. In addition to the low voltage power circuit breaker, the estimate includes generator protection relaying (SEL-700G) and the replacement of the manual control hardware to locally operate the machine.	This project is appropriate at this time because the existing equipment has reached the end of its service life and requires replacement to maintain safe, reliable operation and output. This project is a safety and reliability-driven project. For reference; EHC Hydro unit #1 (960kva) and unit #2 (500kva) produced 4,012 MW this past year. Based on an LMP (Locational Marginal Pricing) of $40 per MHW; the annual output is calculated at $160,480. Performing the replacement of the switchgear for unit 2 will ensure the continued reliable output of this facility.

Project Number and Title	Additional Information	Project Description	Project Justification
179626: Midd Lwr RTU	Project Type: Production In-Service Month: 2 In-Service Year: Nov 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Regulatory compliance Total Project Spending: $143,861	This project includes the replacement of the existing remote terminal unit (RTU) and program updates to the existing HMI (Human Interface Machine) at the Middlebury Lower Hydro facility. The Hydro station is controlled and monitored with an ACS RTU that is 1980's vintage electronic technology and has reached the end of its serviceable life. The RTU is no longer supported by the vendor. This project includes the design and installation of a modern Orion LX based SCADA interface. Additionally, this project includes the programming services and HMI licenses required to upgrade the unit HMI graphics and program function to the current GMP standard.	This project is appropriate at this time to address reliability concerns associated with an RTU. Failure of the SCADA will result in loss of SCADA control to the Middlebury Lower Hydro facility. Reliability and resiliency are being improved with replacement of legacy technology with a modern RTU that is microprocessor based and interfaces with GMP's SCADA master system.
179627: Carvers Retain Wall	Project Type: Production In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $498,760	This is a safety project to address present slope instability and rockfall hazards along the access road and immediately behind the powerhouse at the Carver Falls Hydroelectric Project (FERC No. 11475). Carver Falls includes a 514'-long concrete and stone masonry dam, with 110'-long northern spillway topped with 6'-high flashboards. The 10 acre reservoir is connected to the powerhouse via a 300', 7'diameter penstock that bifurcates into two 150', 3'and 4' diameter penstocks before connecting to the station. The powerhouse was constructed in 1894 and contains a 1.1 MW and 0.80 MW generating unit with a total capacity of 1.9 MW. The station access roadway was constructed in 1901, and provides access to the powerhouse for workers and vehicles. In order to provide access, the roadway was constructed by cutting into the slope with an overall angle of 50 to 60 degrees. The area of this access road and powerhouse are the subject of this project. The following treatments will provide continued long-term safe use of the existing access roadway and reduce long-term slope maintenance requirements. 1.Scalings and Tree/Vegetation removal. 2.Localized Dental shotcrete – use of embedded steel pins and steel fiber re-inforced dental shortcrete to replace blocks that have fallen out and support significant bedrock overhangs. 3.Spot rock dowels – Install untensioned steel rock dowels to reinforce and support potentially unstable slabs of rock 4.Anchored mesh – install high strength rockfall mesh to support portions of the post scaled rock slope that are capable of shedding rock.	This project is necessary at this time due to the immedate safety risk present with the slope instability/rockfall hazards at the site. A rockfall event occured in September 2020. This event impacted the access roadway down to the powerhouse. The rockfall was at the lower end of the access roadway, about 25 feet south of the Powerhouse. The affected segment of slope was on the order of 30' -long by 4' high and 2' thick, encompassing roughly 10 cubic yards with the largest blocks estimated to be approximately 3' by 3' by 10'. Following the rockfall incident, a follow-up inspection was performed in November 2020, and then again in October 2021. Kleinschmidt and their subconsultants have recommended based on site observations that action is required to mitigate future rockfall potential. This project is necessary to address the risk of rockfalls impacting the powerhouse or threatening work safety maintaining the Carvers Facility.

Project Number and Title	Additional Information	Project Description	Project Justification
179628: Somersworth Left Abutment	Project Type: Production In-Service Month: 4 In-Service Year: Jan 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $1,491,448	This is a regulatory-driven project to address the abutment at the Somersworth Hydro facility. The dam abutment has been an issue raised in the previous Safety Inspection Report (SIR) as part of the FERC 5 year Part 12D inspection process. The inspection report is a 5-year FERC requirement for dam safety, and performed by third party engineer. The most recent SIR was completed in August 2020. Lower Great Falls Hydro (FERC 4451) also referred to as "Somersworth Hydro" is a hydro facility located on Salmon Falls River, which establishes the border between the States of New Hampshire (NH) and Maine (ME), in Strafford County, NH and York County, ME. This site includes is a 270-foot-long, 32-foot-high stone masonry and concrete dam with 4.0-foot-high wooden flashboards, creating a 40-acre impoundment. There is an intake structure with two 8.5-foot-diameter buried steel penstocks and powerhouse containing four turbine-generator units with a total installed capacity of 1.28 MW. The dam was rehabilitated in 1984 and the spillway was rehabilitated in 1991. The right abutment of the dam is located in Somersworth, Strafford County, NH and the left abutment is located in Berwick, York County, ME. In August 2020, the dam inspection referenced above was performed by independent engineer. This inspection required the following work, now planned to be completed through this project, to be addressed within two years: 1. A retrofit of a deteriorating wall system located immediately downstream of the left side (looking downstream) of the existing Dam. 2. This site previously housed a mill building and the foundation and 2 penstocks remain. The 2 penstocks also have headgates which provided water to the former mill. The right headgate is currently used to modulate flows in the river. The left side headgate of the former left side penstock is no longer operational and will be permanently closed off.	GMP is obligated to address the deficiency to assure continued safe, reliable dam operation. GMP believes it is important to move forward now to ensure we continue to fulfill our commitment to the safe and efficient operation of the facility.
179629: Middlesex Roof	Project Type: Production In-Service Month: 1 In-Service Year: Oct 2022 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Safety Total Project Spending: $83,542	The project will be to replace the existing roof at our Middlesex Hydro Facility. The existing roof is over 20 years old and has reached the end of its useful life. The manufacturer's recommended life for this roof is 15 years.	The existing roof has reached the end of its useful life, and is regularly leaking and breaking down. The roof is pitched slightly and in the winter ice accumulates and has now started leaking down the west wall near the high-voltage switchgear that operates the turbines. This becomes a safety issue while operating the high-voltage gear in the station. Over the years and increasingly in recent years, we have made several repairs and patches to the roof to prevent leaks. This has resulted in many hours searching for the leaks and then fixing them. Due to the age of the existing roof, working on the roof has also caused other leaks to form. The roof is a stone ballasted roof. The membrane under the stone has shrunk and pulled out from under the flashing along the edge of the roof.

Project Number and Title	Additional Information	Project Description	Project Justification
179630: Rollinsford Concrete	Project Type: Production In-Service Month: 5 In-Service Year: Feb 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $400,797	Rollinsford Hydro (FERC No. 3777) is located on the Salmon Falls River in Rollinsford, NH and Berwick, ME and has a significant dam hazard classification. The site consists of a 385ft long reinforced concrete and stone block gravity dam with a maximum height of 20 feet. There is an intake with five exterior headgates. Water conveys from the intake to a 600ft long composite reinforced concrete and reinforced concrete lined with steel penstock. The penstock incudes surge tank before entering the powerhouse. The Powerhouse includes 2 turbines that operate run-of-river mode, whose combined capacity is 1.5 MW. In 2015; a penstock inspection by Dubois and King identified several deficiencies requiring monitoring and follow-up inspections to be performed to ensure continued safe operation of the penstock. In the summer of 2021, GMP retained H.L. Turner to perform a follow-up inspection and produce a set of drawings and specifications to address the following scope of work. This project is a regulatory- and safety- driven project to address failed sections of penstock coatings, and perform concrete resurfacing to various sections of the exterior of the 10' x 10' concrete penstock.	This project will ensure the continued safe operation and ability to move water out of the dam and operate the generation facility. For reference: Rollinsford Hydro's average annual production is 4,675 MW. Based on an LMP (Locational Marginal Pricing) of $40 per MHW, the annual output is calculated at $187,000. Performing the upgrades to the penstock will ensure the continued safe and reliable output of this facility.
179631: Gage Obermeyer Sys	Project Type: Production In-Service Month: 6 In-Service Year: Mar 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $3,281,976	The project replaces the existing flashboard system at Green Mountain Power Corporation's (GMP) Gage Hydroelectric Power Facility located in St. Johnsbury, Vermont with an automatically controlled Obermeyer flashboard system. The existing flashboards are 5.7 feet high and approximately 176 feet long and are located on the left side (looking downstream) of the Passumpsic River. The permanent concrete crest of the spillway is at 534.20. Gage Hydro includes two vertical shaft turbines rates Unit 1 and Unit 2; combined the total plant capacity is 0.7 MW. As a result, the existing steel panel flashboards will be replaced by a new, automatically controlled, steel plate system operated by pneumatic bladders designed and operated as a single zone system—an Obermeyer System. The new automatic, single zone crest gate will be installed on top of the existing concrete spillway at the location of the current wood strut supported manual system. The crest gate control building will be located in the former winch house located on the right side of the river near the existing powerhouse. All existing components inside the winch house will need to be removed. All of the existing steel towers, steel cables, man basket and operating mechanisms are to be removed on both the left and right sides of the Passumpsic River as part this project. The current flashboards are comprised of individual steel panels, hinged at the base and supported by wooden struts on the downstream side. The wooden struts collapse once approximately 2' of river water overtops the flashboards. Once collapsed, the hinged flashboards cannot be returned to a raised position until water flow in the river recedes to the top of the permanent crest of the concrete spillway. Once river water is at the spillway crest, the hinged steel panels are then raised into position by Power Production Workers from an overhead, cable-suspended basket while workers simultaneously install the wooden support struts from the downstream side of the spillway. The Vermont Occupational Safety and Health Association (VOSHA) has deemed this manual installation method no longer safe.	This project is necessary at this time because the existing manual installation method has been deemed no longer safe by the Vermont Occupational Safety and Health Association (VOSHA) in November 2019. At that time, GMP tagged the man-basket system out of service. The flashboards remained in the up position through March 2020 before they finally collapsed during an overtopping event. Since March 2020, the facility has been out of service due to the inability to generate at the lower pond elevation. This condition has also been shared with State officials as this facility does have a 401 water quality certification. Furthermore, re-establishing the function of the crest gate system will restore GMP's ability to safety operate the facility during high water events by utilizing the full functionality of the crest gate system. In addition, at full pond there is 15.2 acres of reservoir. Restoring GMP's ability to store water will improve GMP's ability to remain in compliance with the 401 Water Quality Certification for this facility. For reference; the average 20-year annual output of Gage is 2,641 MWh. With an assumed LMP (Locational Marginal Pricing) of $40 per MWh, the estimated annual revenue is $105,640. The sooner this project is completed, the sooner additional clean renewable energy can restored to this facility.

Project Number and Title	Additional Information	Project Description	Project Justification
180326: Kelleys Concrete	Project Type: Production In-Service Month: 5 In-Service Year: Feb 2023 Fiscal Year: FY2023 Primary Purpose: Safety Secondary Purpose: Regulatory compliance Total Project Spending: $520,394	Kelleys Falls is a FERC regulated, high-hazard dam. Kelley's Falls Hydroelectric (FERC No. 3025) is located on the Piscataquog River in Hillsborough County, New Hampshire. The facilities include a concrete gravity dam, headworks, and powerhouse with an installed capacity of 1.5 MW. The overall length of the dam is approximately 504'. From right to left it consist of a right spillway abutment constructed of concrete with a low level outlet gate, a concrete ogee spillway near the center, an intake structure to the left of the spillway, and a masonry non-overflow wall with concrete cap on the left most side of the dam. This is a regulatory-driven project to address the deficiencies identified in the 6th Part 12 Safety Inspection Report (SIR) performed in 2017 and submitted to FERC in 2018. The inspection report is a 5-year FERC requirement for dam safety, and performed by third party engineer. Specifically, the following items will be addressed as part of this project. 1.Fill with concrete a 36" pipe that penetrates the base of the spillway. 2.Address deteriorated concrete on the tailrace side of the powerhouse through concrete resurface process. 3.Concrete resurfacing of elements of the intake structure due to failed deteriorated concrete.	This is classified as a high hazard dam, and as owner, GMP is obligated to address the deficiencies to assure continued safe, reliable dam operation. GMP believes it is important to move forward now to ensure we continue to fulfill our commitment to the safe and efficient operation of the facility.
Joint Ownership - Interim Year (Oct. 1, 2021 - Sept. 30, 2022) Total = $1,202,080			
176158: McNeil Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Regulatory Compliance Secondary Purpose: Reliability Total Project Spending: $440,785	This project is related to GMP's 31% joint–ownership interest in the Joseph C. McNeil Generating station which is a wood-fired plant located in Burlington, Vermont. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The plant began operation in 1984, and generates roughly 50 megawatts of electricity. As a joint owner, Green Mountain Power is entitled to our ownership percentage of the energy capacity (roughly 16 megawatts) and is also required to share in all direct and indirect costs of operation, maintenance and capital costs to keep the plant running reliably and efficiently. Burlington Electric Department ("BED") is the principal owner and operator of the facility with a 50% ownership interest.	BED, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that McNeil generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176159: Stoneybrook Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $16,309	GMP owns a small 8.8% joint ownership interest in the 354-megawatt "Stony Brook Intermediate Unit" combined-cycle power plant in Ludlow, MA. Massachusetts Municipal Wholesale Electric Company (MMWEC) is the principal owner with a 90.75% interest and the Village of Lyndonville has a small interest of 0.44%. MMWEC is the operator of the facility. This project is related to GMP's 8.8% share in the capital improvements at the Stony Brook facility and represents the 5-year average of historical costs.	MMWEC, as the lead owner and sole operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to GMP and Lyndonville. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that the Stony Brook facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176160: Millstone Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $731,454	This project is related to GMP's 1.7303% joint–ownership interest in the Millstone Nuclear Plant Unit # 3 located in Waterford, CT. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The unit began operation in 1986 and generates roughly 1,258 MW of energy capacity. As a joint owner, GMP is entitled to our ownership share of the energy capacity (roughly 21.4 MW) and is also required to share in all direct and indirect costs of operation, maintenance and capital cost to keep the plant running reliably and efficiently. Dominion Energy Nuclear Connecticut, Inc. ("Dominion") is the principal owner and operator of the facility with a 93.47% ownership interest.	Dominion, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that Millstone Unit # 3 generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176161: Wyman Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2022 Fiscal Year: FY2022 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $13,532	This project is related to the 2.9207% joint–ownership interest in the Wyman Unit No. 4 oil-fired generating plant located in Yarmouth, Maine. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The Unit began operation in 1978 and generates 610 megawatts of energy capacity. As a joint owner, Green Mountain Power is entitled to our ownership percentage of the energy capacity (roughly 17.6 megawatts) and is also required to share in all direct and indirect costs of operation, maintenance and capital costs to keep the plant running reliably and efficiently. NextEra Energy Resources, LLC ("NextEra") is the principal owner and operator of the facility with a 84.3% ownership interest.	NextEra, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that the Wyman generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.

Project Number and Title	Additional Information	Project Description	Project Justification
Joint Ownership - Rate Year (Oct. 1, 2022 - Sept. 30, 2023) Total = $1,226,122			
176158: McNeil Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Regulatory Compliance Secondary Purpose: Reliability Total Project Spending: $449,601	This project is related to GMP's 31% joint–ownership interest in the Joseph C. McNeil Generating station which is a wood-fired plant located in Burlington, Vermont. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The plant began operation in 1984, and generates roughly 50 megawatts of electricity. As a joint owner, Green Mountain Power is entitled to our ownership percentage of the energy capacity (roughly 16 megawatts) and is also required to share in all direct and indirect costs of operation, maintenance and capital costs to keep the plant running reliably and efficiently. Burlington Electric Department ("BED") is the principal owner and operator of the facility with a 50% ownership interest.	BED, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that McNeil generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176159: Stoneybrook Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $16,635	GMP owns a small 8.8% joint ownership interest in the 354-megawatt "Stony Brook Intermediate Unit" combined-cycle power plant in Ludlow, MA. Massachusetts Municipal Wholesale Electric Company (MMWEC) is the principal owner with a 90.75% interest and the Village of Lyndonville has a small interest of 0.44%. MMWEC is the operator of the facility. This project is related to GMP's 8.8% share in the capital improvements at the Stony Brook facility and represents the 5-year average of historical costs.	MMWEC, as the lead owner and sole operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to GMP and Lyndonville. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that the Stony Brook facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176160: Millstone Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $746,083	This project is related to GMP's 1.7303% joint–ownership interest in the Millstone Nuclear Plant Unit # 3 located in Waterford, CT. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The unit began operation in 1986 and generates roughly 1,258 MW of energy capacity. As a joint owner, GMP is entitled to our ownership share of the energy capacity (roughly 21.4 MW) and is also required to share in all direct and indirect costs of operation, maintenance and capital cost to keep the plant running reliably and efficiently. Dominion Energy Nuclear Connecticut, Inc. ("Dominion") is the principal owner and operator of the facility with a 93.47% ownership interest.	Dominion, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that Millstone Unit # 3 generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.
176161: Wyman Capital	Project Type: Jt Ownership In-Service Month: 12 In-Service Year: Sep 2023 Fiscal Year: FY2023 Primary Purpose: Reliability Secondary Purpose: Operational Efficiency Total Project Spending: $13,803	This project is related to the 2.9207% joint–ownership interest in the Wyman Unit No. 4 oil-fired generating plant located in Yarmouth, Maine. The amount included here represents the 5-year average of the amount Green Mountain Power is responsible for related to capital improvements. The Unit began operation in 1978 and generates 610 megawatts of energy capacity. As a joint owner, Green Mountain Power is entitled to our ownership percentage of the energy capacity (roughly 17.6 megawatts) and is also required to share in all direct and indirect costs of operation, maintenance and capital costs to keep the plant running reliably and efficiently. NextEra Energy Resources, LLC ("NextEra") is the principal owner and operator of the facility with a 84.3% ownership interest.	NextEra, as the principal owner and operator of the facility, determines the annual capital projects and spending based on prudent and reasonable utility practice and provides this information to all the joint owners in the facility. As a joint owner of the facility, GMP is committed to ensuring that the facility is available and efficiently generating power for our customers. This project is necessary to ensure that the Wyman generating facility receives its important and critical upgrades and that GMP meets our obligation as a joint owner.