HG&E
2023
ANNUAL REPORT

HG&E Board of Commissioners (from left): Francis J. Hoey III, Marcos A. Marrero, and James A. Sutter

TO THE HONORABLE MAYOR, MEMBERS OF THE CITY COUNCIL, AND VALUED CUSTOMERS:

Submitted herewith is the 121st Annual Report of the City of Holyoke Gas & Electric Department (HG&E) for the year ending December 31, 2023.

HG&E delivered strong financial and operating performance in 2023 despite ongoing volatility with wholesale energy prices and supply chain challenges. The Department continued to offer some of the lowest utility rates in the region while maintaining very strong customer satisfaction ratings and receiving national recognition for reliability performance from the American Public Power Association. During the year both Fitch Ratings and Moody's Investor Service affirmed HG&E's credit rating at AA- and A1, respectively.

HG&E was named one of the Smart Electric Power Alliance's utility transformation leaders in 2023 and continued its energy transition plan to ensure compliance with Massachusetts climate legislation. This legislation commits the Commonwealth to reducing emissions to below 1990 levels by 50% by 2030, 75% by 2040, and achieving net-zero emissions by 2050. HG&E's plan is a work in progress and will be updated annually to include technological advances and other measures that will be incorporated into the plan. The climate bill will continue to have a significant impact on the electric and natural gas businesses over the coming years and will impact the building and transportation sectors as well. HG&E is well-positioned to meet the incremental targets laid out in the climate bill and is currently expected to be compliant with the established targets through 2035, without taking any additional measures.

The Electric Division made significant progress with grid modernization efforts during the year. The team completed the conversion of the 4,800 V system to 13,800 V, addition of automated sectionalizers and reclosers to improve distribution system reliability, and completing phase 1 of an accelerated five-year advanced meter infrastructure (AMI) deployment project. Significant additional distribution grid upgrades are expected to be required over the next several years to accommodate the electrification of heating and transportation sectors, and we appreciate our customers' patience as we conduct this necessary work.

The Gas Division continued efforts to upgrade leak prone assets and other critical infrastructure and finished the year with zero active leaks. The Division also received a $10 million federal grant from the Pipeline and Hazardous Materials Safety Administration (PHMSA) to assist with the replacement of gas mains in the Flats section of the city. That project is expected to start in 2024. Efforts continued on several fronts to allow a loosening of the natural gas moratorium that has been in place since 2019 due to regional gas pipeline constraints. The Department is awaiting a decision from the Massachusetts Energy Facilities Siting Board on HG&E's petition to add one additional liquid natural gas (LNG) storage tank at the West Holyoke LNG Storage Facility while continuing to reduce peak demand through conservation and electrification incentives.

With one of the rainiest seasons on record in 2023, the Hydro Division took full advantage of high river flows that resulted in the highest amount of local hydroelectric generation on record. The division produced a total of 303,799 MWh, outpacing the previous record by 4.4%. The hydro team also completed preparations necessary to conduct a major overhaul on Hadley Falls Unit #2 in 2024.

HG&E's Telecom Division continued to support the Department's Information Technology and network operations while expanding wholesale network business with several local communities. Staff completed the fiber-to-the-home (FTTH) network design during the year and will continue to review the results of that exercise, as well as customer interest, in order to determine if there are viable areas within the city to provide FTTH internet service to residential customers.

In response to several solicitations that were released as part of the Federal Inflation Reduction Act and the Infrastructure Investment and Jobs Act, HG&E drafted and/or submitted several grant applications in 2023 for projects including Cybersecurity, Hydroelectric Infrastructure, and Telecommunications. In addition, HG&E helped connect customers with grants for electrification and efficiency improvements.

We thank the city officials for their support and HG&E employees for their continued faithful service. We shall continue to work diligently to provide our customers with reliable utility services at competitive rates, backed by an unprecedented dedication to customer service.

Respectfully,

Francis J. Hoey III, Commission Chairman
James A. Sutter, Commission Treasurer
Marcos A. Marrero, Commission Secretary
James M. Lavelle, Manager

GAS DIVISION

Left to right:
Andrew Schultz, Brendan Flynn, Christopher Bourque, Kevin Fitzgerald, Jeffrey Sullivan

LNG INFRASTRUCTURE & RESILIENCY PROJECT

In 2019, the Department was forced to institute a gas moratorium on all requests for new and increased gas load as the regional demand for natural gas is outpacing supply and the gas distribution system operates at capacity under peak demand in the winter. In 2022, the Department identified the LNG Infrastructure & Resiliency Project as a potential resource to support system reliability during peak demand periods and filed a petition with the Massachusetts Energy Facility Siting Board (EFSB) for regulatory approval.

HG&E's natural gas portfolio is made up of both firm pipeline capacity from the Tennessee Gas Pipeline and liquefied natural gas (LNG), which is stored at HG&E's West Holyoke LNG Facility. The Department has safely operated an LNG storage facility for over 50 years to supplement peak demand. The proposed project consists of the installation of a fifth LNG storage tank with a nominal capacity of 70,000 gallons to increase on-site storage by 5,000 dekatherms (Dth) to a total of 21,000 Dth.

The key objective of the project is to enable HG&E to continue to provide reliable service during cold weather periods by maintaining adequate, on-site storage capacity. The project will also help maintain stable rates and reduce environmental impacts of the heating sector throughout the energy transition to net-zero by 2050 by enabling HG&E to selectively add limited natural gas service with the aim to reduce consumption of higher-emitting fuel when a cost-justifiable alternative is not feasible. The project, which was filed in December 2022, remains under EFSB review with an anticipated ruling in 2024. The Department continues to evaluate additional options that will allow for the moratorium to be lifted; however, it is uncertain when, and if, the moratorium will be lifted in full.

GAS SUPPLY & FLOW CONTROL

The Department distributed 2,049,178 Dth of gas in 2023, with a peak daily send-out of 18,348 Dth on February 3, 2023. Of that, 12,184 Dth was delivered over the pipeline and 6,164 Dth was supplemented by LNG. This was the seventh highest daily gas send-out in the Department's history. As mentioned above, HG&E continues to operate its LNG storage and vaporization system, providing the supplemental gas necessary to meet customer demand during the coldest winter days. LNG also serves as an emergency supply for the City.

The Department also continued its five-year plan to install tertiary protection at all gas regulating stations in the distribution system. This plan, which began in 2020, will further enhance the safety of the distribution system by reducing the risk of over-pressurization of the downstream gas system in the event of equipment failure. Of the Department's 18 regulating stations, 16 locations are now currently equipped with tertiary protection.

GAS MAINS & SERVICES

The Department continued its cast-iron main replacement and abandonment efforts and eliminated over 1¾ miles of cast-iron pipes on Appleton Street, Briarwood Drive, Dwight Street, Green Lane, Ingleside Street, Locust Street, Mountain View Drive, Northampton Street, South Street, Suffolk Street, Sycamore Street, and Walnut Street. Where replaced, the new plastic mains are generally four, six, and eight inches in diameter.

Per HG&E's Distribution Integrity Management Plan (DIMP), which was implemented in August 2011, the Department is continuing efforts on an accelerated bare steel service replacement program. There are currently less than 375 bare steel gas services remaining in Holyoke, down from approximately 4,000 at the beginning of the program. At the conclusion of this program, all gas services will be constructed of either polyethylene plastic or cathodically protected coated steel. Bare steel services were installed from the early 1900s through the late 1960s.

In all, the Department installed over 6,800 feet of new main infrastructure, 279 replacement services and abandoned 37 services. HG&E's natural gas distribution system now consists of 184 miles of mains and just over 8,200 service lines.

LEAK SURVEYS

The Department prioritizes safety and is committed to reducing methane emissions. To help ensure the continued safe and reliable operation of the gas distribution system, HG&E completes an extensive series of compulsory and voluntary comprehensive leak surveys. Each year, the Department conducts public building, mobile patrols, walking service and specialized monthly winter surveys. The full-length walking survey over each individual gas service covered over 3,700 lines in 2023, or almost one-half of the service pipes in the system. The combined surveys accounted for the detection of 74 gas leaks, mostly minor. All leaks were investigated, prioritized, and repaired in accordance with applicable industry standards and regulations. At year end, the Department had zero leaks on file within the gas distribution system.

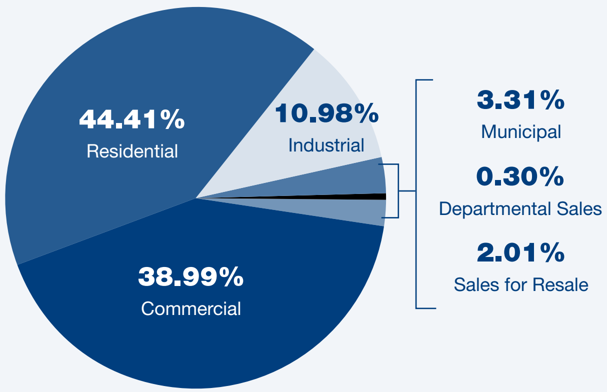
GAS SERVICE

The Department's gas service group offers 24-hour emergency residential heating and select appliance maintenance and repair services. In 2023, the team responded to 1,580 trouble calls from customers in Holyoke and Southampton. These calls included boiler/furnace, space/unit heater, water heater, and dryer repairs. In addition, a total of 3,769 atmospheric corrosion inspections were completed to evaluate the integrity of exposed service piping. The Service team also assisted in mutual aid response for a neighboring utility to perform state-mandated gas meter exchanges.

PIPELINE SAFETY MANAGEMENT SYSTEM

The Department continues to enhance its Pipeline Safety Management System (PSMS), which started in 2019. Safety management systems (SMS) have proven to help other industries and the adoption of API RP1173, Pipeline Safety Management Systems (PSMS), will allow the Department to systematically manage pipeline safety and continuously measure progress to improve overall pipeline safety performance, awareness, and vigilance. The Department continues to work with regional organizations and SMS experts on implementation and enhancement to further maintain operational and, more importantly, public safety. In 2023, the Department strengthened processes for sharing lessons learned across industries with team members. Lessons learned are a crucial part of continuous improvement. Understanding past experiences helps organizations improve processes, increases the likelihood of success for projects, and reduce risks, which in turn helps ensure public safety is maintained.

2023 GAS REVENUES



ELECTRIC PRODUCTION

HYDROELECTRIC

Aided by mild winter and consistent rainfall throughout the year, Holyoke's hydroelectric system had record generation of 303,799 MWH in 2023, eclipsing the previous high of 290,862 MWH set in 2009. The Hadley Falls facility contains two hydroelectric generating units with a total installed capacity of approximately 33 megawatts. The Holyoke Canal System is a three-tiered, 4½-mile system that runs throughout downtown Holyoke and provides water to generating stations that have a total combined capacity of approximately 17 megawatts. HG&E received Low Impact Hydropower Institute (LIHI) certification for its hydro system in 2012 and was recertified in 2017. The current LIHI certification extends through January 2030.

In addition to operating a source of carbon-free electrical generation and conducting various environmental studies, HG&E has made significant environmental enhancements since acquiring these assets. Several projects were completed in 2023 that improved or contributed to the future generation capacity and reliability of the Department's hydroelectric facilities, including:

- Hadley Falls #2: By the end of 2023, all twenty-four (24) of the new wicket gates were cast for the Hadley Falls 2 Rehabilitation Project. On-Site construction efforts associated with this rehab project will begin in May 2024. In addition, concrete erosion was repaired by divers at the Hadley Unit 2 draft tube gate sill. Electrical testing was performed on the generator and stator to verify long-term operability of the unit.
- Hadley Falls #1: Major preventative maintenance was conducted including replacement of turbine guide bearing pads and shaft alignment. In addition, surface cracking was repaired on the outside of the Hadley Unit 1 penstock.
- Overflow #2: Placed shotcrete on the upstream side of Overflow #2 as a measure to protect the structure from leakage. Deck boards on the structure were also replaced.
- Boatlock Station: Boatlock Unit #2 runner had weld repairs completed in 2023. In addition, new operators were installed for Boatlock #3 and #4 feed gates.
- Holyoke Gatehouse: A new electrically operated bridge crane was installed at the Holyoke Gatehouse and its security system was upgraded. Various electrical upgrades were completed, which included:
    - Installation of a new electric panel for Gatehouse 480v distribution;
    - Replacement of the backup service electric feeder; and
    - Replacement of Gatehouse sewage line heat trace and upgraded controls.

OTHER PROJECTS

Annually, HG&E performs two canal inspections, one in the spring and another in the fall. During these inspections, the canals were drained and assessments performed along canals and canal walls, including overflows, intakes, penstocks, powerhouses, and tailraces. No significant findings were reported in 2023.

HG&E continued its annual efforts to control the invasive water chestnut infestation at Log Pond Cove. As in previous years, this work was completed in partnership with Connecticut River Conservancy and the U.S. Fish and Wildlife Conte Refuge. Efforts consisted of hand pulling by contractors. Due to high river flows, herbicide treatment was not possible this year. In addition, in 2023 HG&E conducted a five-year comprehensive survey of invasive plant species within its impoundment.

In 2023, various repairs were made to the Second Level Canal. A section of wall on the Second Level Canal across from Overflow #3 was repaired. In addition, a section of canal bank located on the second level north of Jackson St. was repaired.

Repairs were made to the South Hadley Eel ramp after it was damaged during a period of high flows in July.

New water level sensors were installed at the Salmon Gate and on the Second Level Canal at Overflow #3. All other water level transmitters were calibrated. These efforts help to ensure that flows remain balanced in the Canal System, and that hydro assets are being operated in accordance with license requirements.

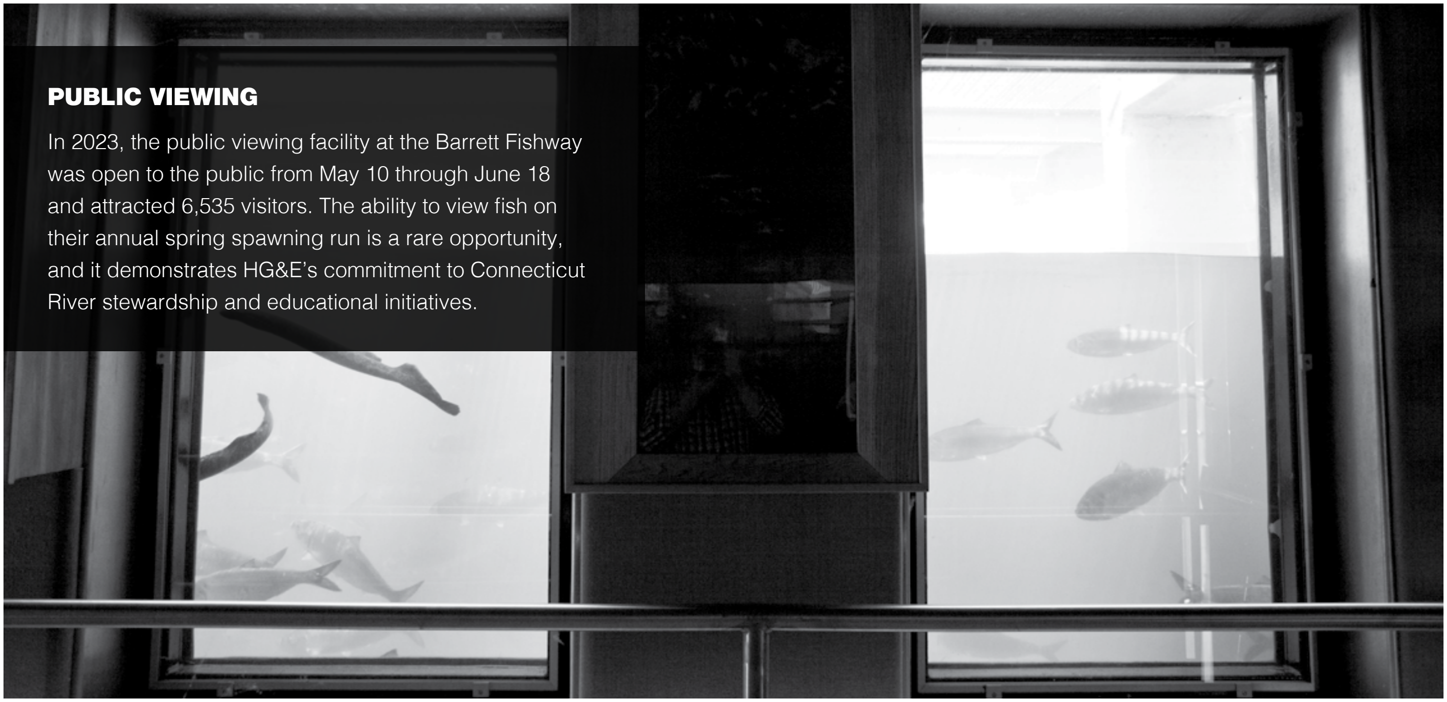
Acoustic tag readers were installed in the vicinity of the Project to support the completion of a five-year study on federally endangered shortnose sturgeon. In addition, a PIT tag reader was installed at the spillway fish lift entrance. Year 4 of the five-year study was completed in 2023.

The final report for the Twelfth Part 12 Inspection (completed in 2022) was filed in May 2023 for the Holyoke Hydroelectric Project, along with the Potential Dam Failure Mode Analysis. This intensive dam safety inspection is completed once every five years. The Federal Energy Regulatory Commission found the project structures to be in satisfactory condition.

Final reporting on 2022 leakage observed in the vicinity of the Louver Bypass Slope and subsequent mitigation measures was filed with FERC in March 2023. As of the writing of this annual report, the repair methods have eliminated the leakage previously experienced, which continues to be monitored weekly.

An annual FERC inspection of HG&E hydroelectric assets was conducted in May 2023. FERC found the projects to be in satisfactory condition.

Left to right:
Jacob Humiston, Lauren Nash, Cody Darr, Manny Jusino



PUBLIC VIEWING

In 2023, the public viewing facility at the Barrett Fishway was open to the public from May 10 through June 18 and attracted 6,535 visitors. The ability to view fish on their annual spring spawning run is a rare opportunity, and it demonstrates HG&E's commitment to Connecticut River stewardship and educational initiatives.

2023 FISH PASSAGE

ROBERT E. BARRETT FISHWAY

In 2023, HG&E continued its partnership with Holyoke Community College (HCC) for the collection of data on the number of species passed at the Robert E. Barrett Fishway. Activities included biological sampling, trapping, and loading of shad, trapping of shortnose sturgeon, and observations of lift operations and eel passage. In addition to the fishlift, there are a total of three juvenile American eel passage facilities on both the Holyoke and South Hadley shores below the dam. A total of 10,684 American eels were passed upstream in 2023.

HG&E SHAD DERBY

The annual HG&E Shad Derby offers both adult and youth fishing enthusiasts the opportunity to enjoy the recreational benefits of the Connecticut River. The 2023 HG&E Shad Derby was held on May 13, 14, 21, and 22. The event attracted 121 registrants in the Senior Division and 22 registrants in the Junior Division.

Richard Pianka of Cromwell, Connecticut led the Senior Division with a 4.04 lb. shad. Yadriel Torres of Holyoke led the Junior Division with a 3.28 lb. shad. The John DiNapoli Award for the first shad caught by a youth went to Michael Denault of East Longmeadow.

The passage of anadromous and resident fish species that were observed and monitored in the lift system this year included:

AMERICAN SHAD	**277,367**
BLUEBACK HERRING	**2,211**
GIZZARD SHAD	**60**
SEA LAMPREY	**21,168**
SHORTNOSE STURGEON	**64**
STRIPED BASS	**116**

ELECTRIC DIVISION

ELECTRIC OPERATIONS

In 2023, a number of projects were completed that will increase the reliability of the Department's electric substation and transmission infrastructure as well as prepare the Department for future grid modernization and electrification efforts for the housing and transportation sectors.

THESE PROJECTS INCLUDED:

SCADA Master System Replacement – Phase II: Efforts to upgrade the Department's Supervisory Control and Data Acquisition (SCADA) system continued. Work in 2023 focused on the two main components. The first component consisted of building a database of 3,789 analog points, 3,568 status points and 44 Remote Terminal Units (RTUs), 26 of which were successfully put online. The second component was the setup of the user interface, including the alarms summary page. The new user interface will enhance operator situational awareness and improve our ability to respond to alarms and system disturbances. Work in 2024 will focus on the building of the one-line displays, setting up the historical database, operator training, commissioning, and final cutover from the old system.

RTU Replacements – Phase II: Two legacy (RTUs) serving the Electric Station and Distribution field devices were replaced as part of a multi-year project. These devices aggregate I/O data from field devices (relays, meters, breakers, etc.) and send it to the SCADA Master for monitoring. The new RTUs have additional features including event retrieval and are integrated into Distribution Automation schemes.

Distribution Automation Controller (DAC) – Phase II: As part of the Department's Grid Automation Plan, five Loop Schemes were commissioned on our Distribution Automation Controller (DAC). This system monitors field conditions and automatically reconfigures the system configuration in response to system disturbances. The system was put to the test during a December fault, and it operated to restore service to hundreds of customers that otherwise would have experienced an extended outage.

Transmission Maintenance: Tree clearing on the 1657 & 1292 Lines was performed. This included Ashley Reservoir, Westfield Rd., Rock Valley Rd., and along the railroad right of way between Ingleside Substation & I391. This will reduce tree contact outages and reduce response times to difficult-to-access areas.

Substation Preventative Maintenance: As part of the Department's preventative maintenance (PM) plan, major maintenance and testing was performed on various substation and plant equipment throughout the year. In summary, 218 maintenance orders were completed, including major maintenance and/or testing on:

- Three 115kV circuit breakers at Holyoke Substation,
- Twenty-two medium voltage vacuum circuit breakers at Hadley Falls & Holyoke Substations,
- Two power transformers at Ingleside Substation,
- Two station battery systems at Hadley Falls & Ingleside Substations,
- Six 115kV voltage transformers at North Canal Substations,
- Four 115kV protection packages consisting of ten relays, required for NERC compliance.
- One 13.8kV bushing on the 52W-2X transformer was replaced at Ingleside Substation after it was found to be defective during routine testing.
- The oil in two load tap changers (LTCs) was replaced at Ingleside Substation based on routine oil test results.

Support for electric distribution and hydro during the year included the preparation of 276 switching orders with clearances / permissions issued for planned and emergency medium and high-voltage work, assistance with the design, testing, and commissioning of four medium voltage automated switchgears, 19 reclosers, as well as assistance with the interconnection processes and protection of various diesel, solar, and battery energy storage projects. Maintenance/repair operations were also performed as required on distribution and hydro equipment, including inspections of line reclosers, sectionalizers, and capacitor switching controls. Support was again provided for the city-owned flood control pumping stations in the form of emergency maintenance and pumping operations, as required.

ELECTRIC DISTRIBUTION

In 2023, HG&E continued to make investments in both the reliability and future electrification needs of the electric distribution system. One such investment included the replacement of approximately 4,600' of 350 MCM Cu underground primary cable on sections of the 32W3 circuit originating from Walnut Substation including the installation of two new automated padmounted switchgear located on Cabot Street near the intersection of Beech Street. These two switchgears provide automated redundancy from other nearby circuits in the neighborhood and further sectionalize the circuit minimizing outages during abnormal local system conditions.Additionally, another 1,000' of new underground cable for laterals was installed from existing termination cabinets to further increase customer reliability by reducing the number of potential outages and durations that customers may experience. This area included Forestdale Avenue, Pleasant Street from Cabot Street to Forestdale Avenue, Cabot Street from Locust Street to Beech Street, and Walnut Street from Beech Street to Dwight Street. In addition, approximately 3,300' of overhead primary wire and 19 poles on West Cherry Street improving system resiliency and reliability in this area.

The Department completed the last phase of its 4.8 kV conversion by converting the H1 and H3 circuits from Highland Substation. This is a multiyear project that started back in 2003 that upgraded infrastructure, including the addition of automated devices to circuits, provided fault isolation points to all laterals, and increased the operating voltage to

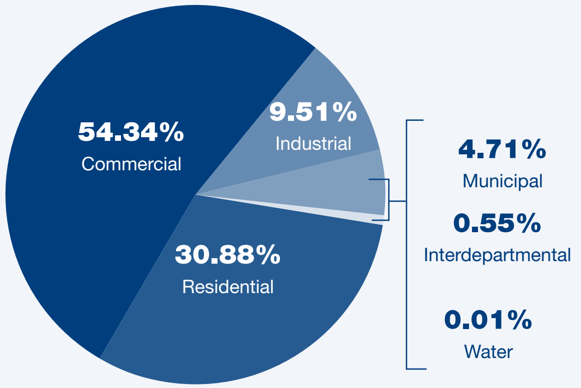
13.8 kV reducing system losses in preparation for future electrification initiatives. This area included Northampton Street between Mountain View Drive and Dwight Street, Dwight Street between Pleasant and Northampton streets, and Lincoln Street between Northampton and Nonotuck s treets including any side streets. There were 29 poles replaced, approximately 3,200' of underground primary cable, 13,835' of overhead primary wire, and 7,350' of overhead secondary wire installed, and numerous automated devices installed that will help improve reliability and restoration efforts in these areas.

The Department continued its work that began in 2016 involving the removal or replacement of existing vacuum switches in manholes. The project involves replacing all 94 existing 15 kV vacuum switches located in various manholes throughout the city that are used in isolating a circuit for the purposes of load shifting, outage restoration, and/or maintenance work. Nine more vacuum switches were removed or replaced with air break switches and/or padmounted air switchgear throughout the year, bringing the total to 86 since 2016. The Department has been using a combination of automated padmount, oil-filled and air-insulated switchgear that replace some of the remaining vacuum switches in the field. The new switchgear will also provide automation to isolate faulted sections of circuit more quickly and provide control of these devices from remote locations. The Department expects to complete the replacement of remaining vacuum switches in 2024.

Backyard pole lines in the areas serviced mainly from Highland Substation were constructed in the 1950s and 1960s. The aging infrastructure has created reliability and access issues, which is a vulnerability to the overall system. Based on reliability data, tree trimming expenses, and known hazard areas, locations with backyard facilities were reviewed in 2018. The Department determined if new facilities are to be installed underground or overhead based on the type of distribution infrastructure existing nearby. There were 25 services, 20 single family and five multifamily, that were relocated from the backyard to the street in locations, including Parker Street, Lincoln Street, Arlington Street, Beacon Avenue, Morgan Street, Lawler Street, Allyn Street, and Northampton Street. This work will improve customer electric service reliability, as well as protection from potential safety hazards during extreme weather related events. Additionally, 1,600' of new underground cable was installed on Lexington Avenue and Irving Street in preparation for the removal of existing overhead backyard primary wire between Lexington Avenue and Madison Avenue that will reduce some of the tree trimming and outage costs for the Department.

Despite ongoing supply chain issues and the high cost of transformer replacements, there were 30 transformers that were replaced as part of our ongoing age based asset replacement program. This program is a proactive approach to replacing assets in the field found to be beyond the expected asset life span before a problem arises that causes an outage.

2023 ELECTRIC DIVISION REVENUES



Transformers of at least 40 years in age have been initially targeted to be replaced as part of this project. A net 775 kVA was removed from the system as a result of the program.

A number of preventative maintenance (PM) activities continued throughout the year. Testing was performed on 15 reclosers, four padmounted switchgear, and four fuse savers. HG&E also performed 280 manhole inspections and 660 wood pole inspections throughout various areas of the city. Stray voltage testing of approximately 20% of the city was completed in West Holyoke and Blueberry Hill areas. There were 185 padmount transformers and 17 termination cabinets on various circuits inspected by the Department line crew. Annual visual inspections on all three transmission lines were performed using drones to ensure reliable operation of the transmission system. Infrared inspections were performed on all distribution circuits throughout the city. There were six services found to be in poor condition that were either upgraded or replaced.

New electric services for future businesses at the former Lynch School site on Northampton Street, Western Mass Behavioral Hospital on Lower Westfield Road, and Gary Rome Car & Dog Wash on Whiting Farms Road were completed, resulting in a net additional connected load of 1,800 kVA. Service upgrades were performed at 693 Dwight Street for an existing apartment block and the Veterans Home on Cherry Street for its temporary structures and equipment resulting in an additional connected load of 4,150 kVA. There were six new homes constructed on available lots on Bleumer Road, Mountain Road, Keyes Road, Homestead Avenue, and Lower Westfield Road that required new electric services resulting in a connected load of 25 kVA.

In summary, for 2023, HG&E set 127 poles and removed 100. A net 4,223.75 kVA connected load was installed onto the distribution system. 25,795 circuit feet of underground cable was installed, while 17,463 was removed. Similarly, 54,945 circuit feet of overhead wire was installed, while 95,412 was removed. Approximately 9,194 feet of PVC conduit was installed. There was a net decrease of four contract lights and a net increase of 12 streetlights.

RELIABILITY

Reliability statistics allow the Department to track its service reliability and compare them from year to year with other municipal and private utilities. There are four statistics used to define the length and frequency of interruptions to customers, system availability, and the number of customers impacted by both unscheduled outages alone, as well as unscheduled and scheduled outages combined (see chart, below).

The Department has received the American Public Power Associations' (APPA) Reliable Public Power Provider (RP3) designation since 2011. An RP3 designation is a sign of a utility's dedication to operating an efficient, safe, and reliable distribution system. Being recognized by the RP3 program demonstrates to community leaders, governing board members, suppliers, and service providers a utility's commitment to its employees, customers, and community. The Department has been either a Diamond or Platinum member, the highest awarded designations, since 2015.

In addition to the RP3 designation, the Department is also a five-year recipient of the Certificate of Excellence in Reliability award from APPA. This award recognizes the Department for having achieved excellence in reliability by significantly outperforming the electric industry national average and achieving the top quartile of system outage duration from national reliability data collected by the Energy Information Administration (EIA).

METERING

In 2023, the Department continued its advanced metering infrastructure (AMI) system rollout which provides real-time energy information, advanced metrics, and other operational benefits. The Department installed 2,586 AMI meters, which included the replacement of 2,580 single-phase AMR meters with AMI meters for hard to access/safety locations and to facilitate the mesh network communication paths back to the field routers. Despite these replacements, the AMR system still maintained an average daily read rate of 99.65%.

Throughout the year, the metering group continued to support the Customer Service, performing delinquent customer ons and offs, tagging notifications, meter reads, and collections. In total, 2,297 credit-related duties were performed in 2023.

In summary, there was a net total of 57 electric meters installed, 2,611 electric meters replaced, and 3,626 electric meters retired, having an average age of 17.32 years. A total of 2,621 electric meters were tested and calibrated, 170 turn-ons and 161 turn-offs, one electric successions performed, and seven vacant consumption reports investigated for metering problems and/or theft of service. There were 24 current transformers installed and nine current transformers removed. In addition, 24 surge protectors were replaced due to warranty expiration. On the gas side, 2,270 meters were removed and tested, 2,267 meters were sealed, and 179 meters were retired.

UNSCHEDULED OUTAGES ONLY

STATISTIC	2023	2022
ASAI	99.9924%	99.9882%
CAIDI	56.020 min	97.022 min
SAIDI	41.934 min	66.264 min
SAIFI	0.749 outages	0.683 outages

COMBINED OUTAGES

STATISTIC	2023	2022
ASAI	99.9803%	99.9678%
CAIDI	86.991 min	111.075 min
SAIDI	105.432 min	173.248 min
SAIFI	1.212 outages	1.560 outages

Average System Availability Index (ASAI)
Represents how much of the time a customer actually has service available.

Customer Average Interruption Duration Index (CAIDI)
Represents the average time expected to restore service after a sustained interruption.

System Average Interruption Duration Index (SAIDI)
Defines the average interruption duration per customer served.

System Average Interruption Frequency Index (SAIFI)
Defines the average number of times that a customer's service is interrupted during a given year.

WHOLESALE POWER

HG&E manages a diverse power supply portfolio, purchasing power to meet the ever-changing electric loads and brings it into Holyoke from all over New England. HG&E monitors potential monthly and annual peak hours and actively institutes load reduction measures to reduce its load, and thus costs, during these times. As part of the Energy Purchasing and Risk Management Plan, the Department monitors the available energy supply and sources on a daily basis to stabilize and ensure price certainty for the future cost of power. The Department purchases power on both a short-term and long-term basis to take advantage of the fluctuating market, manage the risk of rising prices, and increase the stability of future energy costs, thereby stabilizing rates for all customers while maintaining a clean energy supply. HG&E is committed to protecting the environment and setting minimum percentages of noncarbon energy sold to its retail customers.

HG&E's goal is to maintain and increase clean energy within the fuel mix through sustainable, long-term business practices. For 2023 through 2035, HG&E is expected to meet and exceed greenhouse gas (GHG) emission reduction targets set by the state and will continue to generate and procure energy with the best interest of the ratepayers in mind.

The Carbon-Free Electric Program is designed for commercial and industrial customers who wish to have their electricity come from 100% carbon-free energy sources, made possible through the purchase and retirement of qualifying Renewable Energy Certificates (RECs). This program assists HG&E and commercial customers with achieving carbon-free goals. In 2023, this program had two customers purchasing a total of 2,771 RECs.

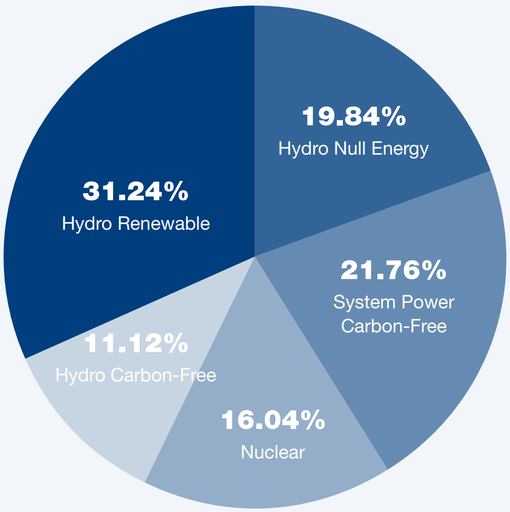
In 2023, 31.24% of HG&E's power supply production came from generation that qualifies as renewable, according to definitions set forth by the Renewable Portfolio Standards within the New England states. Additionally, 46.29% of HG&E's production came from generators that produce solar, hydro, battery storage, and wind power, but that HG&E cannot claim as green energy because the renewable energy certificates (REC) are not owned by or retired with HG&E. The Null Energy Label is used to signify non-REC ownership; 19.84% of Null Energy total production served to meet HG&E's electrical load in 2023. The pie chart below shows Holyoke's supply by fuel type as a percentage of electrical load from retail sales. It can be collapsed into three categories.

In 2023, 31.24% is renewable and carbon-free while an additional 48.92% is carbon-free (nuclear, carbon-free system power, and hydro). The Other category comprises 19.84% of carbon-emitting resources. Therefore, 80.16% of HG&E's electrical load for the year was considered carbon-free. This percentage is significantly higher than the 2022 carbon-free percentage primarily because our hydro system had a record-producing output year resulting in 303,799 MWhs of hydro generation. The Department was able to sell enough hydro RECs to help offset high power supply costs and retain enough RECs to achieve the 80.16% carbon-free level. The revenue from the sale of these RECs allowed HG&E to maintain low electrical rates for our customers. Our load was down approximately 7.2% due to the loss of a large cannabis growing facility, and hydro generation was up approximately 45.35% as compared to 2022.

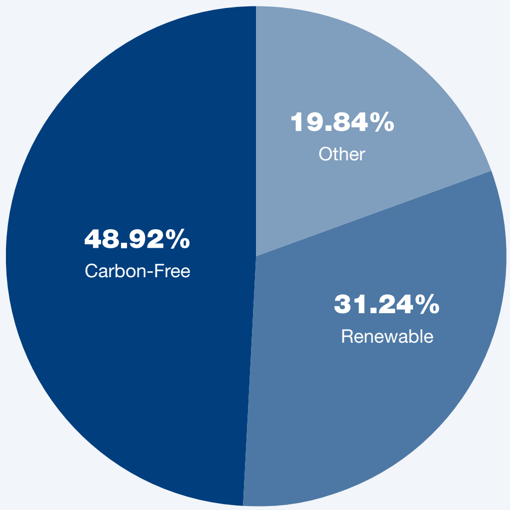
The System Power represents various term-length bilateral contracts comprising system mix within ISO-NE that were procured during the summer time-frame. System Power Carbon-Free represents long-term, around-the-clock bilateral contracts with nuclear carbon-free certificates attached that will end in December 2049 and a long-term, around-the-clock bilateral contract from Hydro Quebec with carbon-free certificates attached that will end in October 2025.

HG&E currently hosts two battery energy storage systems. One system totals 3 MW/6 MWh, and the other system, which began commercial operation in June 2021, totals 4.99 MW/10 MWh. These clean energy systems were successful in reaching 11 of 12 forecasted monthly hourly peak loads and the one annual hourly summer peak load, resulting in significant transmission and capacity cost savings to rate payers of more than $269,078 in late 2024 to early 2025. Project was delayed due to lead times.

2023 ENERGY MIX AS PERCENTAGE OF RETAIL SALES



2023 ENERGY EMISSIONS CHART



The Department continued to proactively pursue and host low-cost carbon-free projects to secure and further enhance its energy portfolio. In 2021, HG&E contracted with one additional utility-scale battery energy storage systems totaling 4.80 MW/14.40 MWh. This system is expected to become commercially operational in 2025.

HG&E currently hosts 28 solar projects (17 utility-scale, nine residential, and two commercial), with a corresponding output load of 17.886 MW-dc, allowing the Department to purchase power at a low cost. Utility-scale projects resulted in 19,130 MWh of load reduction, while residential and commercial customer solar resulted in 109,859 kWh of load reduction on the system in 2023.

The harnessing of solar energy from these projects within Holyoke is offsetting the Department's demand and reducing future costs for all customers.

In an effort to help foster the adoption of electric vehicles and meet the needs of many customers and city visitors, HG&E installed four public Level 2 electric vehicle charging stations throughout downtown Holyoke in 2021.

Additional locations and funding sources continue to be analyzed as adoption levels and demand increase. HG&E has also begun to work with private charging station owners to determine the feasibility associated with location, installation costs, and rates. One new charging station is expected to be operational in Summer 2024 near Barnes & Noble.

Beginning in February 2017, HG&E developed a Community Solar Program open to all residential customers who have chosen to participate (opt in) to the program. In 2023, 2,379 customers participated in this program. This program allows residential customers to receive the benefits of solar without the expense of installing a system at their location. The Mt. Tom Solar project, totaling 4.988 MW-ac (increased in output during 2019 from prior 4.50 MW-ac rating), and the Kelly Way 2 project, totaling 0.603 MW-ac, were designated as community solar projects. Load reduction from community-shared solar generated a total savings of $94,518 to those participating in the program. Additionally, in 2023, a total of $18,644 was provided to the Holyoke Housing Authority from three solar systems (Aegis, Gary Rome, and Hadley Mills) that were set up under the Low or Moderate Income (LMI) Solar Program.

A total of 303,770 MWh of net generation was produced from Department-owned hydro resources, which continued to help drive down the overall cost of power. During 2023, the hydro preference power credit to residential customers generated total savings of $1,115,568 ($962,830 from Department-owned hydro and $152,738 from New York Power Authority entitlements).

The hydroelectric system, including the Hadley Falls Dam and the Holyoke Canal hydro facilities, maintains Massachusetts Class I and II status, in addition to Maine Existing certifications. HG&E received MA Class I certification for 10.91% of Hadley Falls 1 and 2, and Hadley Falls 1 and 2 were certified as Clean Existing Generation Units in 2021. All of the canal units, with the exception of City 4J (which is 100% MA Class I) are MA Class II certified, and six canal units are certified with small percentages as MA Class I. Sale of these certificates resulted in $3,670,413 of revenue to the Department in 2023.

HG&E proactively works throughout the year to improve reliability by maintaining and making upgrades to its 9.25 circuit miles of pool transmission facilities (PTF). Ensuring that all transmission lines and processes are up to date allows HG&E to meet its future needs and reduce transmission costs. Transmission Regional Network Service (RNS) rates decreased 0.79% from $142.78/kW-year to $141.65/ kW-year in January 2023. The Department's RNS annual charge of $7,664,046 was offset by 9.25 circuit miles of transmission infrastructure, with three transmission substations. With PTF revenues of $4,420,972 and peak shaving solar, energy storage, and hydro offsets of $1,127,604, in 2023, the Department's annual RNS charge was reduced to $2,115,470.

Holyoke achieved Green Community status in 2010 and is committed to efficiency, conservation, and sustainability. The Department's replacement of high-pressure sodium lights with more efficient light-emitting diode (LED) lighting technology has, on average, reduced the city's streetlight consumption by 60%. The city realized about $300,000 in direct energy savings from these lights in 2023 compared to pre-LED street lighting costs, although, when factoring in additional LED decorative and other lights added by the city to the capital investment list over the past several years, the total resulting savings was approximately $225,000 in 2023.

HG&E earned a Smart Energy Provider (SEP) designation from the American Public Power Association for demonstrating commitment to and proficiency in energy efficiency, distributed generation, and environmental initiatives that support a goal of providing low-cost, quality, safe, and reliable electric service. The SEP designation, which lasts for two years (December 1, 2023, to November 30, 2025), recognizes public power utilities for demonstrating leading practices in four key disciplines: smart energy program structure, energy efficiency and distributed energy programs, environmental and sustainability initiatives, and the customer experience. HG&E is one of only about 100 of approximately 2,000 public power utilities in the nation to receive such designation.

In 2023, HG&E was recognized as one of a handful of utilities nationwide for its leadership in transforming to a carbon-free energy system by the Smart Energy Power Alliance (SEPA) and was listed on the 2023 Utility Transformation Leaderboard. This significant recognition was awarded to only 10 utilities nationwide. SEPA also ranked HG&E third nationally in energy storage per capita.

Left to right:
Adam Dunne, Pat Noonan, Dan Bailey, Derrick Siebold

ENERGY EFFICIENCY & ELECTRIFICATION

In 2019, HG&E issued a natural gas moratorium, effectively discontinuing new or increased requests for natural gas services in HG&E's territory. Through additional efforts to keep Holyoke's carbon footprint low, HG&E continued to expand its energy efficiency and electrification incentives and programs in 2023 by continuing to encourage the installation of cleaner, more efficient alternative electric technologies, such as heat pumps, and expanding on its demand response programs.

HG&E's Green Team, established in 2020, continued to strategize its energy efficiency and electrification efforts and initiatives for both residential and commercial customers. In 2023, HG&E launched a demand response program for commercial customers providing a performance payment of $6/kW. In order to receive the incentive, customers can participate by either reducing their use of electricity during peak events or by dispatching a battery during peaks. For customers that curtail their electric use, HG&E developed a calculator that will estimate how much electricity the customer would likely have used during the peak event vs how much they actually used to determine their estimated savings.

Demand response opportunities were also expanded in 2023 as HG&E added the ability for certain batteries to enroll in the residential Connected Homes program. These batteries will be remotely adjusted a few times each month when a peak is predicted. Customers will receive an incentive of $30/month for participating.

In 2023, HG&E continued to monitor the rebates and incentives offered through the Inflation Reduction Act. HG&E adjusted its heat pump incentive program eligibility requirements to align with 2023 tax incentive requirements. HG&E also participated in various meetings with Massachusetts Municipal Wholesale Electric Company to discuss how the rebate funding would be implemented with discussions continuing into 2024.

Beginning in 2021, HG&E began managing all rebates in-house, a process previously handled by a third-party contractor. This not only reduced administration costs, but also assists with expediting review and payment times. In 2023, HG&E approved 296 rebate and assistance requests, totaling approximately $1,140,000 in energy efficiency and electrification incentives for customers. Additionally, by processing all applications in-house, HG&E is able to collect the necessary data needed to track the energy and carbon emissions savings resulting from its incentive programs. HG&E will continue to analyze and evaluate the results of these incentive programs and continue to improve existing incentives offered in an effort to better understand how each program benefits the overall goal of reducing emissions.

In 2021, HG&E launched a Whole-Home Air Source Heat Pump (ASHP) Program, designed to support the installation of high-efficiency and optimally designed ASHP systems. Through this program, HG&E offers an enhanced rebate amount toward these systems along with an added incentive to improve weatherization in parallel. In 2023, six customers installed whole-home ASHP systems, all of whom took advantage of a total of approximately $60,000 in incentives through assistance and rebates.

In 2022, HG&E soft-launched the Beat the Peak program, which is a voluntary peak load reduction program available for residential customers. Through this program, notifications are sent to customers who enroll in the program in the attempt to help reduce consumption during specific peak time frames. Seventeen customers have enrolled through the end of 2023.

HG&E will continue to revise and improve its energy efficiency programs and initiatives in 2024 to further promote energy savings, electrification, and emissions reduction. Several new and enhanced rebate programs are being pursued, which include lawn equipment and induction stove rebates, heat pump rebates for commercial customers, incentives for ground source heat pumps, and continuous improvements of incentives for energy efficiency and electrification measures.

HG&E's Hadlet Falls Hydro Station

POWER SUPPLY

2023 POWER SUPPLY RESOURCES

PROJECT NAME	FUEL TYPE	PROJECT START DATE	CONTRACT CAPACITY (kW-AC) WINTER	SUMMER	CONTRACT END DATE
NYPA FIRM	HYDRO	1985	1,989	1,989	9/1/25
MILLSTONE 3 - MIX 1	NUCLEAR	1986	1,334	1,334	11/25/45 *
MILLSTONE 3 - PROJ 3	NUCLEAR	1986	2,325	2,325	11/25/45 *
SEABROOK - MIX 1	NUCLEAR	1990	147	147	3/15/50 *
SEABROOK - PROJ 4	NUCLEAR	1990	3,306	3,306	3/15/50 *
SEABROOK - PROJ 5	NUCLEAR	1990	408	408	3/15/50 *
HYDRO QUEBEC 1	N/A	1986	1,717	1,717	LOU **
HYDRO QUEBEC 2	N/A	1989	3,585	3,585	LOU **
NYPA PEAK	HYDRO	1985	426	426	9/1/25
STONYBROOK GT 2A	#2 OIL	1982	2,476	1,910	10/31/2040 * **
STONYBROOK GT 2B	#2 OIL	1982	2,413	1,850	10/31/2040 * **
HADLEY FALLS 1&2	HYDRO	1949	33,400	33,400	OWNED *
RIVERSIDE 8	HYDRO	1931	4,575	4,575	OWNED *
RIVERSIDE 4-7	HYDRO	1921	3,270	3,270	OWNED *
BOATLOCK	HYDRO	1924	3,313	3,313	OWNED *
HOLYOKE HYDRO/CABOT 1-2	HYDRO	1923	1,856	1,856	OWNED *
HOLYOKE HYDRO/CABOT 3	HYDRO	1940	450	450	OWNED * ****
HOLYOKE HYDRO/CABOT 4	HYDRO	1955	750	750	OWNED * ****
CHEMICAL	HYDRO	1935	1,600	1,600	OWNED *
SKINNER	HYDRO	1924	300	300	OWNED *
VALLEY HYDRO	HYDRO	2004	790	790	OWNED *
OPEN SQUARE	HYDRO	2004	525	525	2/29/16 ****
HANCOCK WIND	WIND	2016	6,032	6,032	12/14/41
LUMINACE, A BROOKFIELD CO. - MUELLER RD	SOLAR	2012	2,693	2,693	12/27/31****
LUMINACE, A BROOKFIELD CO. - MEADOW ST	SOLAR	2012	793	793	12/27/31****
CITIZENS - COUNTY RD	SOLAR	2013	615	615	2/5/33 ****
HPP MA, LLC - RICAR	SOLAR	2015	792	792	10/1/40 ****
C2 ENERGY CAPITAL - DINN	SOLAR	2016	475	475	12/27/36 ****
C2 ENERGY CAPITAL - KELLY WAY I	SOLAR	2016	475	475	12/27/36 ****
JACKSON CANAL, LLC - AEGIS	SOLAR	2017	833	833	1/4/37 ****
GROWING HOLYOKE, LLC - GARY ROME	SOLAR	2017	666	666	1/6/37 ****
MT. TOM SOLAR, LLC - ENGIE	SOLAR	2017	4,988	4,988	2/7/37 ****
SCANNELL SOLAR, LLC - CONKLIN	SOLAR	2017	633	633	2/24/37 ****
GEEPV - RIVERSIDE A/B	SOLAR	2017	133	133	5/8/37 ****
GEEPV - WALNUT	SOLAR	2017	100	100	11/22/37 ****
SUNWEALTH - HADLEY MILLS	SOLAR	2017	336	336	12/31/37 ****
C2 ENERGY CAPITAL - KELLY WAY II	SOLAR	2018	475	475	6/4/38 ****
GEEPV - BOYS & GIRLS CLUB	SOLAR	2018	150	150	4/20/38 ****
GEEPV - JACKSON	SOLAR	2018	120	120	3/15/38 ****
GEEPV - YMCA	SOLAR	2018	167	167	12/17/38 ****
MT. TOM SOLAR, LLC - ENGIE	STORAGE	2019	3,000	3,000	5/31/38 ****
HOLYOKE BESS, LLC	STORAGE	2021	4,999	4,999	7/31/36 ****

All capacity contracts follow the ISO New England calendar system.

* Investments continue for the life of the unit (LOU)

** After 8/31/01, there is no firm energy contract, only capacity and entitlement, which continue for the life of the unit and are based on full rating of the line.

*** In process of retiring assets

**** Load reducer

Left to right, front row:
TJ Robak, Rohan Vernon, Rick Stacy, Peter Vichi, Kyle Lippman, Jim Crowley, Jason Barnes

Back row, left to right:
Benjamin Richter, Kirk Jonah, Ed Griffin, Keith Pronowicz, Adam Jasionkowski

TELECOMMUNICATIONS

TELECOMMUNICATIONS DIVISION

HG&E's commercial network, now in its 24th year of operation, providing high-speed internet and network connectivity through fiber optic lines for business-class customers located in Holyoke, Chicopee, downtown Springfield, and throughout the Pioneer Valley. Both the Department and the city receive services from the network. The service platforms are industry-standard Carrier Ethernet and Internet Protocol (IP), supporting speeds up to 100Gbps (gigabits per second).

TELECOMMUNICATIONS HELP DESK

HG&E administers a centralized help desk, accepting support calls from customers and internal staff. As a telecom utility, HG&E offers 24x7 network monitoring services and an on-call support structure to ensure maximum network uptime, as well as the best possible customer experience.

In 2023, the help desk received 1,386 tickets: 875 for HG&E Department employees and 510 for commercial customers; 1,306 tickets were resolved in 2023.

COMMERCIAL NETWORK UPGRADES

As customers' needs grow and application requirements evolve, HG&E's network investments continue as well. In 2023, HG&E completed key improvements in its carrier transport backhaul network with full ring protection from Springfield through Chicopee and Holyoke to improve backhaul capacity from 10G to 100G while it works to complete a 400G capable network in 2024.

COMMERCIAL NETWORK EXPANSION

In 2023, the Department continued fiber-optic wide-area networking (WAN) services throughout the Pioneer Valley. Within this service territory, HG&E is focused on providing fiber-optic WAN services for large, complex institutions. For example, HG&E provides support for a regional healthcare organization with six locations, offering 10Gbps of bandwidth, ring-protection and carrier Ethernet over fiber connecting all locations. In 2023, HG&E provided professional services support and refreshed transport network nodes to next-generation 25G/100G/200G capability at all six locations for this customer.

The department also maintains its strategic partnership with a large regional financial institution by proving managed high-speed fiber WAN connections, internet connections, and a fleet of managed IP routers throughout nearly 40 locations.

Local support, network performance, and reliability are some of the factors that contribute to our customer loyalty.

CARRIER INTERCONNECTION

In 2023, HG&E continued its interconnection relationships with regional fiber Ethernet carriers in order to service core customers with locations outside of the existing footprint. These interconnections allow HG&E the flexibility to provide additional services outside of the previous service boundaries.

HG&E is a next-generation provider, having designed, engineered, and implemented full IPv6 internet routing and peering with upstream internet carriers. In 2023, the Telecom Division continued to scale into its primary wholesale internet feeds to 100Gbps capable connections.

The Department has three 100G internet upstream connections, one operating at 50G, a second operating at 50G and the third operating at 30G. For a total aggregate internet capacity of 130G, scalable to 300G in its current state. The current 10,000 wholesale connected subscribers utilize about 45G of capacity on average during daily peak-time hours of 8pm to 10pm.

HG&E has plans for an overhaul of the carrier transport network to 100% 100G with 400G capability in the core. The equipment is on hand and being staged in the department's lab for roll-out in 2024.

UTILITY OPERATIONS NETWORK UPGRADE

In addition to maintaining commercial network customers, the Division continued its support for the design, operation, and maintenance of HG&E's internal network and information intelligence needs. In 2019, the Department began refreshing the entire utility operations network; this was phase 1 of a three-phase plan. Phase one included the network core switching and routing at HG&E's Main Office (99 Suffolk Street) and Walnut Street facility, with two 100Gbps interconnects, and a data center mesh using a combination of 100Gbps and 40Gbps interconnects. Phase 2 consisted of the distribution areas of the network, substations, larger buildings, etc. Phase 3 included endpoint locations such as hydro wheels. The project is complete.

In 2023, HG&E continued to optimize its new compute, storage, and network platforms. HG&E continued to provision software, and in some cases provided new hardware, in order for employees to work from home through VPN access during the pandemic. Telecommunications is able to provide solutions to accommodate the unique ways in which our employees collaborate with each other, as well as with vendors and contacts outside of HG&E.

The Division supports a wide variety of utility applications, systems, and platforms including computing, internet, telephone, collaboration, video surveillance, SCADA platforms, cybersecurity engineering, and user training and support.

Major changes, upgrades and modifications were supported throughout the year with the roll-out of several key SCADA applications and systems.

The Departments GIS mapping platforms were updated in 2023 reflecting the increased reliance on these platforms for both planning and day-to-day operations for all divisions of HG&E.

CYBERSECURITY

As cyber-threats continue to evolve, both internally and externally, HG&E remains committed to continually improving its cybersecurity posture. Pursuant to these goals, HG&E maintains an umbrella cyber-threat detection and mitigation system at its internet gateways. This system provides blanket attack protection, in real time, to all HG&E internet subscribers and users. In 2023, Telecommunications introduced complete endpoint security on its Utility operations computing platforms. HG&E also performs regular user awareness training and vulnerability testing to ensure compliance with cybersecurity policies and best practices.

The Department commissioned and deployed a third 100G threat mitigation appliance with the addition of the third 100G capable internet feed. These appliances, and the managed security platform that goes along with them, protects both the Department and its customers from internet threats and attacks.

WHOLESALE BROADBAND SERVICES

HG&E continued its development and execution of a last-mile strategy and wholesale service offerings, including the continued scaling of the residential wholesale broadband platform. Leveraging its current network infrastructure, HG&E is supporting several communities that sought to build their own networks but needed an experienced network operator.

In these communities, HG&E does not provide residential internet service, but rather wholesale internet services to internet service providers (ISPs) and those ISPs then sell internet services to residents. These engagements have helped HG&E develop additional expertise in the design, construction, and operation of FTTH networks and have provided additional revenue to HG&E. As of 2023, HG&E has a network operator or ISP presence in 12 rural and local communities. HG&E utilizes the Massachusetts Broadband Institute (MBI) regional fiber-optic network and Crown Castle Fiber to connect with these rural communities.

FIBER TO THE HOME

After the test marketing campaign in 2021, this year the Department completed a citywide fiber to the home network design and associated construction cost estimates. While HG&E is capable of providing residential FTTH service and is currently providing residential broadband service within Holyoke on a limited basis, there must be sufficient interest in order for a citywide venture to be economically viable and not have an adverse effect on utility rates. Taking the time to fully understand the impact of a potential FTTH build is critical to meeting HG&E's mission to provide competitive rates, innovative and sustainable energy solutions, reliable service, and excellent customer care.

The test marketing campaign did not show sufficient interest to support a full system residential build-out. HG&E is processing the results of the design and will continue to assess all broadband opportunities within the service territory while studying the outcomes of similar projects in neighboring communities. The team is also evaluating funding opportunities to determine if segments of the system can be cost-effectively constructed.

HG&E's Safety & Conservation Program

GOODWILL

Community involvement is a central belief of the public power philosophy, and the Department is proud of the role it takes in making Holyoke a better place to call home. Key community events that were underwritten by HG&E in 2023 include the St. Patrick's Day Parade, the Holyoke Fireworks, and the inaugural Fiestas Patronales de Holyoke. In total, $113,005 in sponsorships and $11,839 in labor were provided for nonprofit causes.

HG&E invited the local community to the annual Public Power & Public Natural Gas Week on October 4 from 4 to 6 PM at Veterans Park. This free celebration featured electric vehicles, HG&E's energy efficiency and audit incentives, information on the LNG Project, activities for kids, and several community and state partner organizations. Each October, community-owned utilities throughout the country celebrate Public Power & Public Natural Gas Week, collectively providing electricity and natural gas services to millions of Americans. This annual nationwide event is intended to build public awareness about the value of having a community-owned utility.

NEIL J. MORIARTY JR. SCHOLARSHIP FOR CADET ENGINEERS

The Cadet Engineer program is dedicated to the memory of our late commission Chairperson Cornelius J. Moriarty Jr. He often noted that the admission of new students into the program was one of the most rewarding actions that the commission took each year.

The program offers aid to Holyoke students who are pursuing Bachelor of Science degrees in engineering. Natalie Ramos was admitted as the 2023 cadet.

In 2023, the Department provided $81,447

in additional discounts to businesses that have relocated or expanded within the city under the Economic Development Discount Program.

This program provides an additional

10% Off

participants' gas and electric bills for a three-year period.

The Department also offers a similar program for residential customers, under which first-time Holyoke homebuyers can receive 10% off of their first three years of gas and electric bills. In 2023, $144,863 was provided under this program.

$113,005
Nonprofit Sponsorships

$1,717,949
Payment in Lieu of Taxes

$11,839
Nonprofit Labor

$370,338
Municipal Payment Discounts

$71,250
Cadet Engineer Scholarship

$364,405
Discounted Street Lighting

$81,447
Economic Development Discount

$144,863
New Homeowner Discount

$951,808
Energy Conservation Assistance

Total Community Support

$3,682,041

AWARDS & RECOGNITION

- **2021 & 2023 UTILITY TRANSFORMATION LEADERBOARD** I from the Smart Electric Power Alliance
- **2023 BUSINESS OF THE YEAR** I Holyoke Veterans Services
- **SYSTEM OPERATIONAL ACHIEVEMENT RECOGNITION** I from the American Public Gas Association (APGA)
- **RELIABLE PUBLIC POWER PROVIDER** I from the American Public Power Association
- **SMART ENERGY AWARD** I from the American Public Power Association
- **CERTIFICATE OF EXCELLENCE IN RELIABILITY** I from the American Public Power Association
- **RANKED HG&E THIRD NATIONALLY IN ENERGY STORAGE PER CAPITA** I by Smart Electric Power Alliance

SEPA Utility Transformation CHALLENGE

RP3 RELIABLE PUBLIC POWER PROVIDER American Public Power Association

SOAR BRONZE

SMART ENERGY PROVIDER American Public Power Association

Holyoke Gas and Electric

(Enterprise and Fiduciary Funds of the
City of Holyoke, Massachusetts)

Financial Statements and
Supplementary Information

December 31. 2023 and 2022

Table of Contents
December 31, 2022 and 2021

Independent Auditors' Report

To the Board of Commissioners of
Holyoke Gas and Electric

Opinions

We have audited the financial statements of Holyoke Gas and Electric and Holyoke Gas and Electric OPEB Trust, enterprise and fiduciary funds of the City of Holyoke, Massachusetts, respectively, as of and for the years ended December 31, 2023 and 2022, and the related notes to the financial statements. Hereafter, the funds will collectively be referred to as Holyoke Gas and Electric.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the financial position of Holyoke Gas and Electric as of December 31, 2023 and 2022, and the changes in financial position and, where applicable, cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Holyoke Gas and Electric and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; and for the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Holyoke Gas and Electric's internal control. Accordingly, no such opinion is expressed.

- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings and certain internal control-related matters that we identified during the audit.

Emphasis of Matters

As discussed in Note 1, the financial statements present only the Holyoke Gas and Electric enterprise and fiduciary funds and do not purport to, and do not, present fairly the financial position of the City of Holyoke, Massachusetts, as of December 31, 2023 and 2022 and the respective changes in financial position or cash flows, where applicable, for the years then ended in accordance with accounting principles generally accepted in the United States of America. Our opinions are not modified with respect to this matter.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the required supplementary information, as listed in the table of contents be presented to supplement the financial statements. Such information is the responsibility of management and, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements as a whole. The supplementary information as listed in the table of contents is presented for purposes of additional analysis and is not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information is fairly stated in all material respects, in relation to the financial statements as a whole.

Baker Tilly US, LLP

Madison, Wisconsin
April 24, 2024

MANAGEMENT'S DISCUSSION AND ANALYSIS

The management of Holyoke Gas & Electric (HG&E) offers all persons interested in the financial position of the utility this narrative overview and analysis of the utility's financial performance during the years ending December 31, 2023, 2022 and 2021. You are invited to read this narrative in conjunction with the utility's financial statements.

Financial Highlights

Operating Revenue

- Operating revenues for the utility increased by $3,737,950, or 4%, in 2023.

- Electric operating revenues increased by $5,841,771, or 10.5% percent. The increase was mainly due to additional residential, commercial and industrial sales revenue in 2023 (up 9.10%, 10.01% and 4.62% respectively) as result of planned rate increases during the year. The planned increase in rates was necessary to cover the Department's ongoing 2023 capital and operating costs. Renewable energy certificate (REC) sales increased by $1,433,804 in 2023 which further increased revenues.

- Gas operating revenues decreased by $2,103,821, or 7%. The decrease in gas revenues was due to a lower purchased gas adjustment (PGA) and lower unit sales in 2023. The PGA was down 14% from 2022 due to decreases in the market price for gas during the year. Unit (Mcf) sales were down 6% from 2022 as a result of warmer weather.

Fuel Cost

- Fuel costs decreased by $6,540,397 or 16% in 2023.

- Electric fuel expenses decreased by $3,245,733 or 13%. The decrease was a result of lower purchased power costs as a result of lower loads at a lower average price and higher hydro generation in 2023. Hydro maintenance costs were also lower in 2023. In 2022 the Department incurred additional costs for canal dike repairs that drove up those maintenance costs.

- Gas fuel expenses decreased by $3,294,664 or 21%. The decrease is a result of lower pipeline fuel prices and lower unit sales during 2023.

Non-Fuel Cost

- Non-fuel expenses increased by $4,306,957 or 17%, in 2023. The non-fuel increase from 2022 was primarily due to a $3,179,980 or 760% increase in the Department's actuarially determined pension expense as well as additional maintenance expenses during the year.

- Depreciation expense increased by $171,309 or 2% in 2023 as a result of ongoing capital improvement and replacement projects undertaken by the Department.

Other Revenue

- Other revenues increased by $17,351,761, or 154% in 2023 due to the performance of the Department's investment portfolios. Market performance in 2023 resulted in overall investment gains of $7,710,430 compared with investment losses of $9,439,716 in 2022.

Net Position

- The Departments' total net position increased by $21,598,566 in 2023 from the combined activities of HG&E, Holyoke Solar Cooperative, and the Massachusetts Clean Energy Cooperative. This increase was primarily due to an increase in the market value of investments experienced during the year. Overall, the Department continued to report strong operating results in 2023. Operating income increased by $5,792,105 or 53% in 2023 as a result of higher electric operating revenue, lower electric fuel costs and higher REC sales during the year. The increases in operating income over 2022 continue to support the Department's aggressive capital improvement plan.

Overview of the Financial Statements/Using This Report

The HG&E Commission is a three member board comprised of three local citizens. Nominated by the mayor and approved by the city council, each member has a six year term when approved. One member comes up for re-appointment every two years on a rotating schedule. HG&E provides Electric, Gas and Telecommunications services to the City of Holyoke.

The gas division has a distribution system that covers the City and the eastern portion of Southampton, Massachusetts. There are approximately 11,500 meters and 184 miles of main pipes. The division also operates a liquefied natural gas plant that is used to meet peak demand during the winter months. In addition to these services, gas and electric appliance repair is offered to customers.

The electric division operates and maintains three substations, 150+ miles of pole lines, 44+ miles of underground distribution, 9.25 miles of overhead transmission, 2,483 transformers and 4,231 streetlights. There are 17,520 electric customers.

HG&E also owns and operates over 50 MW of hydro-electric generation capacity within the City of Holyoke. The Holyoke Gas & Electric hydroelectric system, including the Hadley Falls Dam and the Holyoke Canal hydro facilities, generated a total of 303,771 MWh of net generation which continued to help drive down the overall cost of power.

The Department is a member of the Massachusetts Municipal Wholesale Electric Company (MMWEC), a public corporation and a political subdivision of the Commonwealth of Massachusetts. Through MMWEC, HG&E has partial ownership (entitlements) to the following projects; Stony Brook Peaking Unit, Millstone Unit # 3 and Seabrook Nuclear Power Station.

In addition to offering some of the lowest electric rates in the Commonwealth, in 2023, 31.24% of HG&E's electricity sold at retail was renewable and 80.16% of HG&E's electricity sold at retail is considered carbon free.

Other

Please refer to the table of contents for the various sections included in this report. The utility is a self-supporting entity and follows enterprise fund reporting; accordingly, the financial statements are presented using the economic resources measurement focus and the accrual basis of accounting. Enterprise fund statements offer short- and long-term financial information about the activities and operations of the utility.

- The Statements of Net Position includes all of the utility's assets, deferred outflows of resources, liabilities, and deferred inflows of resources and provides information about the nature and amount of investments in resources and the obligations to creditors. This statement provides the basis for evaluating the capital structure and assessing the liquidity and financial flexibility of the utility.

- The Statements of Revenues, Expenses, and Changes in Net Position provide an indication of the utility's financial health.

- The Statements of Cash Flows report the cash provided and used by operating activities, as well as other cash sources such as investment income and cash payments for repayment of bonds and capital additions.

Utility Financial Analysis

An analysis of the utility's financial position begins with a review of the Statements of Net Position, and the Statements of Revenues, Expenses and Changes in Net Position. These two statements report the utility's net position and changes therein. The utility's net position, the difference between assets, deferred outflows of resources, liabilities, and deferred inflows of resources, is key to measuring the financial health of the utility. Over time, increases or decreases in the net position value are an indicator of whether the financial position is improving or deteriorating. However, it should be noted that the financial position can also be affected by other non-financial factors, including economic conditions, customer growth, climate conditions and new regulations.

A summary of the utility's Statements of Net Position is presented below in Table 1.

Table 1
Condensed Statements of Net Position

	2023	2022	Restated 2021
Current and Other Assets	$ 120,439,382	$ 115,165,513	$ 123,980,171
Capital Assets	183,069,190	177,194,056	171,957,385
TOTAL ASSETS	303,508,572	292,359,569	295,937,556
DEFERRED OUTFLOWS OF RESOURCES	11,373,451	11,051,550	7,451,056
Long-term Debt Outstanding	70,011,218	76,001,335	83,958,308
Other Liabilities	48,054,597	41,613,460	42,356,373
TOTAL LIABILITIES	118,065,815	117,614,795	126,314,681
DEFERRED INFLOWS OF RESOURCES	57,309,737	67,888,419	57,619,682
Net Investment in Capital Assets	118,761,530	108,170,525	98,917,924
Restricted for Debt Service	3,890,322	4,006,529	3,878,552
Restricted for OPEB	1,414,455		1,896,162
Unrestricted	15,440,164	5,730,851	14,761,611
TOTAL NET POSITION	$ 139,506,471	$ 117,907,905	$ 119,454,249

Current and other assets increased by $5,273,869 or 4.6% in 2023 primarily due to a $5,507,672 increase in the Departments' investment accounts due to favorable market performance during the year.

Net Capital assets increased by $5,875,134 or 3% in 2023. The Department continued with its aggressive capital improvement and replacement plan during 2023, investing $15,158,958 into capital. That increase, however, was offset by the recording of annual depreciation expense of $8,387,423 and the retirement of $379,805 in assets that were not yet fully depreciated as part of the Department's ongoing efforts to identify obsolete assets that are no longer in service.

Long-term debt outstanding decreased by $5,990,117 or 8% in 2023 due to scheduled debt repayments made during the year.

Other liabilities increased by $6,441,137 or 15% in 2023 primarily due to a $11,323,274 or 67% increase in the Department's actuarially determined net Pension liability. Decreases in the Department's accounts payable balance of $4,170,788 or 40% from 2022 offset those increases. The decrease in accounts payable was due to the timing of the last warrant of 2022.

Table 2
Condensed Statement of Revenue, Expenses, and Changes in Net Position

	2023	2022	Restated 2021
OPERATING REVENUES	$ 88,679,652	$ 84,941,702	$ 74,439,506
OPERATING EXPENSES	71,943,406	73,997,561	63,264,234
Operating Income	16,736,246	10,944,141	11,175,272
OTHER REVENUES (EXPENSES)	6,056,889	(11,294,872)	2,754,426
Change in Net Position before Transfers	22,793,135	(350,731)	13,929,698
TRANSFERS	(1,194,569)	(1,195,613)	(1,194,152)
Change in Net Position	21,598,566	(1,546,344)	12,735,546
NET POSITION - Beginning of Year	117,907,905	119,454,249	106,718,703
NET POSITION - End of Year	$ 139,506,471	$ 117,907,905	$ 119,454,249

As previously noted, the Statement of Net Position shows the change in financial position. The specific nature or source of these changes then becomes more evident in the Statements of Revenues, Expenses and Changes in Net Position as shown above in Table 2.

During 2023, operating revenues increased by $3,737,950, or 4%, This increase in revenue was due to a combination of overall higher electric revenue and REC sales offset by lower gas revenues.

Operating expenses decreased by $2,054,155 or 3% overall. This was due to decreases in gas and electric fuel costs during the year that were offset by an increase in the Department's actuarially determined pension expense.

The Departments' total net position increased by $21,598,566 in 2023 from the combined activities of HG&E, Holyoke Solar Cooperative, and the Massachusetts Clean Energy Cooperative. This increase was primarily due to an increase in the market value of investments experienced during the year and overall strong operating results. Changes in the Department's net operating income and overall net position are discussed in more detail in the financial highlights section.

Table 3
Condensed Statements of Cash Flows

	2023	2022	Restated 2021
CASH FLOWS FROM OPERATING ACTIVITIES	$ 21,994,904	$ 16,584,253	$ 18,338,124
CASH FLOWS FROM INVESTING ACTIVITIES	7,012,029	(9,758,286)	6,707,187
NET CASH USED IN NONCAPITAL FINANCING ACTIVITIES	(1,194,569)	(1,195,613)	(1,194,152)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES	(23,469,097)	(20,459,694)	(8,459,752)
Increase in Cash and Cash Equivalents	4,343,267	(14,829,340)	15,391,407
CASH AND CASH EQUIVALENTS - Beginning of Year	77,789,028	92,618,368	77,226,961
CASH AND CASH EQUIVALENTS - END OF YEAR	$ 82,132,295	$ 77,789,028	$ 92,618,368
NONCASH FINANCING ACTIVITY			
Bond proceeds used in refunding debt	$ -	$ -	$ 53,660,000
Loss on retirement of fixed assets	$ 373,306	$ 317,806	$ 876,750
Amortization	$ 257,384	$ 249,401	$ 711,779
Lease receivable	$ -	$ 759,695	$ -

Cash flows from operating activities increased by $5,410,651, primarily because of an increase in cash received from customers, offset by a decrease in cash paid to suppliers. The increase in cash received from customers was a result of higher overall sales during the year. Cash paid to suppliers decreased as a result of overall lower operating expenses in 2023 as discussed in the financial highlights section.

Cash flows from investing activities increased by $16,770,315 due to investment earnings resulting from favorable market performance during the year.

Cash flows from capital and related financing activities decreased by $3,009,403 in 2023. Cashflow was higher in 2022 as a result of proceeds received from a HSC note issued in 2022.

Cash and cash equivalents increased by $4,343,267 during 2023.

Table 4
Capital Assets – Electric

Electric	2023	2022	2021
Capital Assets			
Land	$ 4,709,783	$ 4,408,008	$ 4,408,008
Plant, Property, and Equipment	234,467,451	229,072,294	221,313,391
TOTAL CAPITAL ASSETS	239,177,234	233,480,302	225,721,399
Construction Work in Progress	5,140,028	2,906,490	2,540,580
Less: Accumulated Depreciation	(96,680,918)	(91,750,024)	(86,380,632)
NET CAPITAL ASSETS - ELECTRIC	$ 147,636,344	$ 144,636,768	$ 141,881,347

Electric plant, property and equipment increased by $2,999,576 or 2% in 2023 as a result of ongoing replacements of the electric division's substation, transmission and distribution infrastructure as well as the ongoing Hadley Unit #2 rehabilitation project.

Table 5
Capital Assets – Gas

Gas	2023	2022	2021
Capital Assets			
Land	$ 236,856	$ 236,856	$ 236,856
Plant, Property, and Equipment	69,592,481	65,614,081	61,201,760
TOTAL CAPITAL ASSETS	69,829,337	65,850,937	61,438,616
Construction Work in Progress	1,233,905	658,144	1,028,895
Less: Accumulated Depreciation	(35,630,396)	(33,951,792)	(32,391,471)
NET CAPITAL ASSETS - GAS	$ 35,432,846	$ 32,557,289	$ 30,076,040

Gas plant, property and equipment increased by $2,875,577 or 9% in 2023 due to ongoing replacements of bare steel and cast iron services and mains and planned upgrades to the Department's liquified natural gas facility.

Further details on capital assets are included in Note 3.

Long-Term Debt

As of December 31, 2023, Holyoke Gas & Electric had $58,385,000 in bonds payable as well as $11,626,218 in notes payable. Bond and notes payable decreased by $5,145,000 and $845,117 respectively due to scheduled debt payments during the year.

Details of the existing debt are included in Note 8.

Currently Known Facts/Economic Conditions

HG&E continues its aggressive maintenance and capital improvement program to upgrade its infrastructure in order to maintain system reliability performance objectives for all facets of the operation.

Contacting Utility's Financial Management

This financial report is designed to provide our customers, investors and creditors with a general overview of the Utility’s finances. If you have questions about this report, or need additional financial information, contact Holyoke Gas & Electric Department at 99 Suffolk St, Holyoke Massachusetts 01040 or (413) 536 9300.

Holyoke Gas and Electric

Statements of Net Position
December 31, 2023 and 2022

	2023	2022
Assets and Deferred Outflows of Resources		
Current Assets		
Cash and investments	$ 30,580,809	$ 25,473,308
Restricted assets:		
Redemption account	4,242,067	3,787,167
Customer accounts receivable, net	8,223,270	8,615,448
Note receivable, current portion	359,734	330,848
Materials and supplies	5,701,646	5,306,054
Fuel for electric generation and gas in storage	845,084	1,140,846
Prepaid expense	3,530,281	3,272,365
Other receivables	1,118,064	2,043,835
Total current assets	54,600,955	49,969,871
Noncurrent Assets		
Restricted assets:		
Accounts required under bond indenture/note payable	13,847,064	14,484,411
Net OPEB asset	1,414,455	-
Customers' deposits	1,787,555	1,654,299
Note receivable, after one year	3,796,883	4,163,482
Customer Energy Conservation Assistance	1,704,004	1,216,976
Other assets:		
Purchased power accounts	371,258	387,898
Rate stabilization accounts	40,415,009	40,415,008
Regulatory asset, debt issuance cost	586,766	651,963
Costs recoverable in future, pollution	80,410	77,300
Other investments	188,390	188,390
Lease receivable	1,116,634	1,359,249
Intangible assets	529,999	596,666
Capital assets:		
Plant, property and equipment in service	304,596,326	294,920,993
Right of use asset	4,410,245	4,410,245
Construction in progress	6,373,933	3,564,634
Total capital assets	315,380,504	302,895,872
Less accumulated depreciation	(132,311,314)	(125,701,816)
Net capital assets	183,069,190	177,194,056
Total noncurrent assets	248,907,617	242,389,698
Total assets	303,508,572	292,359,569
Deferred Outflows of Resources		
OPEB related amounts	1,442,294	2,964,891
Pension related amounts	9,931,157	8,086,659
Total deferred outflows of resources	11,373,451	11,051,550

See notes to financial statements

Holyoke Gas and Electric

Statements of Net Position
December 31, 2023 and 2022

	2023	2022
Liabilities, Deferred Inflows of Resources and Net Position		
Current Liabilities		
Accounts payable	$ 6,364,522	$ 10,535,310
Accrued liabilities	910,378	869,209
Current portion, accrued compensated absences	365,153	352,339
Accrued environmental costs	80,410	77,300
Current portion, leases	196,661	188,323
Current portion, notes payable	876,908	845,117
Liabilities payable from restricted assets:		
Current portion, bonds payable	5,820,000	5,145,000
Customers' deposits	1,759,461	1,686,891
Accrued interest	573,568	590,186
Total current labilities	16,947,061	20,289,675
Long-Term Liabilities and Credits		
Bonds payable, long-term	52,565,000	58,385,000
Notes payable, long-term	10,749,310	11,626,218
Leases payable, long term	3,656,336	3,852,997
Accrued compensated absences	3,581,906	3,615,466
Net OPEB liability	-	443,781
Unearned revenue	2,386,532	2,545,262
Net pension liability	28,179,670	16,856,396
Total long-term liabilities and credits	101,118,754	97,325,120
Total liabilities	118,065,815	117,614,795
Deferred Inflows of Resources		
Regulatory deferral	11,036,133	10,689,939
Gain on refunding on debt	1,208,321	1,342,579
Lease related amounts	1,359,249	1,591,619
Pension related amounts	638,985	10,804,798
OPEB related amounts	2,652,040	3,044,475
Rate stabilization reserve	40,415,009	40,415,009
Total deferred inflows of resources	57,309,737	67,888,419
Net Position		
Net investment in capital assets	118,761,530	108,170,525
Restricted for debt service	3,890,322	4,006,529
Restricted for OPEB	1,414,455	-
Unrestricted	15,440,164	5,730,851
Total net position	$ 139,506,471	$ 117,907,905

See notes to financial statements

Holyoke Gas and Electric

Statements of Revenues, Expenses and Changes in Net Position
Years Ended December 31, 2023 and 2022

	2023	2022
Operating Revenues		
Gas charges for service	$ 26,938,084	$ 29,041,905
Electric and telecommunications charges for service	61,741,568	55,899,797
Total operating revenues	88,679,652	84,941,702
Operating Expenses		
Gas operation and maintenance	21,830,298	23,536,435
Depreciation, gas plant and equipment	1,942,289	1,827,182
Total gas operating expenses	23,772,587	25,363,617
Electric and telecommunications operation and maintenance	41,537,362	42,064,672
Amortization, right of use asset	188,323	180,339
Depreciation, electric and telecom plant and equipment	6,445,134	6,388,933
Total electric and telecommunications operating expenses	48,170,819	48,633,944
Total operating expenses	71,943,406	73,997,561
Operating Income		
Gas	3,165,497	3,678,288
Electric and telecommunications	13,570,749	7,265,853
Total operating income	16,736,246	10,944,141
Other Revenues (Expenses)		
Investment income, net of fees	3,357,898	3,590,958
Net gain (loss) on investments	4,352,533	(13,030,673)
Interest expense	(1,720,923)	(1,850,813)
Miscellaneous income (expense)	956,995	968,457
Amortization of intangible assets	(66,667)	(66,667)
Net gain (loss), plant retirements	(736,573)	(853,950)
Net gain (loss), merchandise jobbing	(6,606)	27,583
Taxes, other	(79,768)	(79,767)
Total other revenues (expenses)	6,056,889	(11,294,872)
Change in net position before transfers	22,793,135	(350,731)
Transfers		
Payment in lieu of taxes, City of Holyoke	(1,194,569)	(1,195,613)
Change in net position	21,598,566	(1,546,344)
Net Position, Beginning	117,907,905	119,454,249
Net Position, Ending	$ 139,506,471	$ 117,907,905

See notes to financial statements

Holyoke Gas and Electric

Statements of Cash Flows
Years Ended December 31, 2023 and 2022

	2023	2022
Cash Flows From Operating Activities		
Cash received from customers	$ 90,156,110	$ 86,498,477
Cash paid to suppliers	(49,659,769)	(51,774,499)
Cash paid to employees	(18,501,437)	(18,139,725)
Net cash flows from operating activities	21,994,904	16,584,253
Cash Flows From Investing Activities		
Proceeds from sale of investments	4,871,227	967,589
Purchase of investments	(5,569,629)	(8,017,785)
Investment income (loss), net of fees	7,710,431	(9,166,001)
Repayments on notes receivable	-	6,457,911
Net cash flows from investing activities	7,012,029	(9,758,286)
Cash Flows From Noncapital Financing Activities		
Payment in lieu of taxes and other property taxes	(1,194,569)	(1,195,613)
Net cash flows from noncapital financing activities	(1,194,569)	(1,195,613)
Cash Flows From Capital and Related Financing Activities		
Net investment in plant, property and equipment	(15,741,439)	(10,891,686)
Proceeds from debt issued	-	4,700,000
Payments on bonds and notes payable	(5,990,117)	(12,656,972)
Interest paid on bonds, notes and leases payable	(1,737,541)	(1,611,036)
Net cash flows from capital and related financing activities	(23,469,097)	(20,459,694)
Increase in cash and cash equivalents	4,343,267	(14,829,340)
Cash and Cash Equivalents, Beginning	77,789,028	92,618,368
Cash and Cash Equivalents, Ending	$ 82,132,295	$ 77,789,028
Supplemental Noncash Financing Activity		
Loss on retirement of fixed assets	$ 373,306	$ 317,806
Amortization	$ 257,384	$ 249,401
Lease receivable	$ -	$ 759,695

See notes to financial statements

Holyoke Gas and Electric

Statements of Cash Flows
Years Ended December 31, 2023 and 2022

	2023	2022
Schedule of Reconciliation of Operating Income to Net Cash Provided by Operating Activities		
Operating income	$ 16,736,246	$ 10,944,141
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation and amortization	8,575,746	8,396,454
Amortization of regulatory deferral	334,767	128,029
Nonoperation Income	546,575	575,364
Changes in operating assets and liabilities:		
(Increase) decrease in:		
Accounts receivable	392,178	(630,812)
Materials and supplies	(395,592)	(1,600,668)
Fuel for electric generation and gas in storage	295,762	(373,164)
Prepaid expense	(257,927)	(243,047)
Other receivables	1,263,484	(453,069)
Energy Conservation Assistance and Constellation loan	(487,028)	451,185
Accounts payable	(3,685,425)	4,600,974
Customers' deposits	72,570	68,802
Accrued liabilities	(117,550)	153,797
Accrued compensated absences	(20,746)	(95,575)
Rate stabilization related deferrals	(232,370)	1,591,619
Pension and OPEB related deferrals and liabilities	(1,022,676)	(6,937,277)
Accrued environmental costs	(3,110)	7,500
Total adjustments	5,258,658	5,640,112
Net cash provided by operating activities	21,994,904	16,584,253
Reconciliation of Cash and Cash Equivalents to the Statements of Net Position		
Cash and investments	30,580,809	25,473,308
Redemption account	4,242,067	3,787,167
Accounts required under bond indenture/note payable	13,847,064	14,484,411
Customer deposits	1,787,555	1,654,299
Purchased power accounts	371,258	387,898
Rate stabilization accounts	40,415,009	40,415,008
Other investments	188,390	188,390
Total cash and investments	91,432,152	86,390,481
Less noncash equivalents	(9,299,857)	(8,601,453)
Cash and cash equivalents	$ 82,132,295	$ 77,789,028

See notes to financial statements

Holyoke Gas and Electric OPEB Trust

Statements of Fiduciary Net Position - Fiduciary Fund
December 31, 2023 and 2022

	2023	2022
Assets		
Noncurrent Assets		
Investments	$ 21,865,312	$ 18,950,522
Total assets	$ 21,865,312	$ 18,950,522
Net Position		
Net Position Restricted for OPEB	$ 21,865,312	$ 18,950,522

See notes to financial statements

Holyoke Gas and Electric OPEB Trust

Statements of Changes in Fiduciary Net Position - Fiduciary Fund
Years Ended December 31, 2023 and 2022

	2023	2022
Additions		
Employer contributions	$ 351,799	$ 82,547
Investment income (loss)	2,633,640	(3,365,236)
Employee contributions, direct payment of member benefits	397,464	402,958
Employer contributions, direct payment of member benefits	581,161	574,368
Total additions	3,964,064	(2,305,363)
Deductions		
Benefit payments, including refunds of member contributions	978,625	977,326
Advisory fees	70,649	70,020
Total deductions	1,049,274	1,047,346
Net increase in net position	2,914,790	(3,352,709)
Net Position, Beginning	18,950,522	22,303,231
Net Position, Ending	$ 21,865,312	$ 18,950,522

See notes to financial statements

1. Summary of Significant Accounting Policies

The accounting policies of Holyoke Gas and Electric (Department) conform to accounting principles generally accepted in the United States of America as applicable to governmental units. The accepted standard-setting body for establishing governmental accounting and financial reporting principles is the Governmental Accounting Standards Board (GASB).

Reporting Entity

The financial statements present information on the activities of the Department, an enterprise fund of the City of Holyoke, Massachusetts (the City) and its component units, Holyoke Solar Cooperative (the Solar Cooperative) and Massachusetts Clean Energy Cooperative Corporation (the Clean Energy Cooperative).

The Department provides gas, electric, hydro and telecommunications services to its customers, substantially all of whom are local residents and commercial and industrial businesses. Approximately 70% and 66% of the Department's revenues were derived from its electric division in 2023 and 2022, respectively.

Blended Component Units

The Holyoke Solar Cooperative (Solar Coop) is a cooperative organized in Massachusetts, in December 2010 and is owned by the Department (its original Member). Solar Coop engages in transactions associated with the purchase, acquisition, distribution, sale, resale, supply and disposition of energy or energy-related services to wholesale or retail customers. The Solar Coop is included in the enterprise fund. The Solar Coop does not issue separate financial statements.

The Massachusetts Clean Energy Cooperative Corporation (Clean Energy Coop) was organized in Massachusetts, in March 2013. The initial members are the Department and the Massachusetts Municipal Wholesale Electric Company (MMWEC). The business of the Clean Energy Coop is managed by the board of directors, a majority of which consist of members of the Department's management or Commission. The Clean Energy Coop was formed to finance, purchase, own, lease or otherwise acquire, hold and use property; transact any business associated with the property; and the purchase, acquisition, generation, transformation, distribution, sale, resale, supply and provision of energy and telecommunications products and services, which will include, but is not limited to, the purchase and sale of the electrical capacity of the Hadley Falls Station hydroelectric generator unit #1 and #2 in Holyoke. The Clean Energy Coop is included in the enterprise fund. Separately issued financial statements of the Clean Energy Coop may be obtained from the Department's office.

The Cooperatives are organized under Chapters 157 and 164: Section 47C of the State of Massachusetts Statutes and are subject to the same federal and state laws and regulations applicable to municipal lighting plants or other public entities that provide those services.

All intercompany account balances and transactions have been eliminated in the basic financial statements.

Other Postemployment Benefit (OPEB) Trust

The OPEB Trust fund is a fiduciary fund that is used to account for and report resources that are required to be held in trust for the members and beneficiaries of the OPEB plan. The OPEB Trust was established in October 2014.

Rate Regulation

The rates of the Department are approved by the Department's Board of Commissioners. Rate schedules are filed with the Massachusetts Department of Public Utilities (DPU). While the DPU exercises general supervisory authority over the Department, the rates are not subject to DPU approval.

Measurement Focus, Basis of Accounting and Financial Statement Presentation

The Department is presented as an enterprise and fiduciary fund of the City. Enterprise funds are used to account for operations that are financed and operated in a manner similar to private business or when the governing body has decided that the determination of revenues earned, costs incurred and net income is necessary for management accountability. The OPEB trust fund is used to report resources that are held in trust by the Department for the members and beneficiaries of the defined benefit postemployment welfare plan. The financial statements have been presented using the economic resources measurement focus and the accrual basis of accounting. Under the accrual basis, revenues are recognized when earned and expenses are recorded when an obligation has been incurred.

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Assets, Deferred Outflows of Resources, Liabilities, Deferred Inflows of Resources and Net Position

Deposits and Investments

Cash and Cash Equivalents

For purposes of the statement of cash flows, the Department and OPEB trust, considers all highly liquid investments with an initial maturity of three months or less when acquired to be cash equivalents.

Investments

Investments totaling $20,390 represent the cost of the Department's equity in New England HydroTransmission Corporation and New England Hydro-Transmission Electric Company. These investments represent 0.2653% of the issued common stock of these untraded companies. In addition, the Department has invested $168,000 with the Public Utility Mutual Insurance Company (PUMIC). See Note 14 for additional information related to PUMIC. These investments are carried at original cost.

Investments in debt and equity securities are recorded at fair value (see Note 2).

Investments of the fiduciary fund are limited to investing in assets as a prudent investor would, by considering purposes, terms, distribution requirements and other circumstances of the trust.

Restricted Assets

Mandatory segregations of assets are presented as restricted assets. Such segregations are required by bond agreements and other external parties. Current liabilities payable from these restricted assets are so classified.

Designated Accounts

Purchased power funds are on deposit with Massachusetts Municipal Wholesale Electric Company (MMWEC) to pay for energy and related services as required under existing agreements.

The Department established a rate stabilization reserve which will be used for rate stabilization in the development of future rates and allow the Department to remain competitive under various market conditions by either purchasing replacement power or using reserves to mitigate the Department's exposure. Each year the Department determines the amount to be charged or credited to the reserve. The Department has set aside funds which will be used to offset these reserves. The reserve balance at December 31, 2023 and 2022 is approximately $40,415,000, with corresponding amounts reported as deferred inflows of resources. In 2023 and 2022, the Department credited and charged a balance of $0.

Accounts Receivable

Accounts receivable are stated net of an allowance for uncollectible accounts of $749,267 at December 31, 2023 and 2022. Management provides for probable uncollectible amounts through a charge to earnings and a credit to the valuation allowance based on its collection history and its assessment of the current status of individual accounts. Balances that are still outstanding after management has used reasonable collection efforts are written off through a charge to the valuation allowance and a credit to accounts receivable.

Customer Energy Conservation Advance

Customer energy conservation assistance are receivables from residential and commercial customers for assistance provided by the Department to make energy efficient improvements to their property, secured by municipal liens. Assistance amounts and terms vary based on the project type but are required to be repaid to the Department over a term generally between three to five years with 0% interest.

Materials, Supplies and Fuel

Materials, supplies and fuel are valued at the lower of cost or market utilizing the average cost method. All materials are intended to be used in operations and are not intended for resale.

Prepaid Expense

Certain payments to vendors reflect costs applicable to future accounting periods and are recorded as prepaid items. This includes the purchase of prepaid power.

Plant, Property and Equipment

Capital assets (including right-to-use lease assets) are generally defined as assets with an initial individual cost of more than $5,000 and an estimated useful life in excess of five years. Additions to and replacements of plant, property and equipment are recorded at cost or the estimated acquisition value at the time of contribution. The cost of plant, property and equipment retired, less accumulated depreciation and salvage, is charged against revenue in the year retired. The cost of repairs and minor renewals is charged to maintenance expense.

Leases

The Department is a lessor because it leases capital assets to other entities. As a lessor, the Department reports a lease receivable and corresponding deferred inflow of resources in the financial statements. The Department continues to report and depreciate the capital assets being leased as capital assets. The Department has a policy to recognize leases over $100,000 as a lease receivable.

The Department is a lessee because it leases capital assets from other entities. As a lessee, the Department reports a lease payable and corresponding right of use asset in the financial statements. The Department has a policy to recognize leases over $100,000 as a lease liability and right of use asset. Lease assets are typically amortized over the lease term.

Intangible Assets

Intangible assets are recorded at cost. Intangible assets subject to amortization include a franchise area fee to sell the electrical output associated with the December 2001 hydroelectric project purchase. Franchise fees are being amortized on a straight-line basis over the remaining lives of the respective licenses.

Line of Credit, Margin Credit Account

The Department is able to draw funds through the use of a margin account with their investment advisor. The investments held in the Department's investment account with their investment advisor are considered collateral for the borrowing. If the investments in the margin account decline in value, so does the value of the collateral supporting the borrowing and, as a result, the investment advisor may take action, such as issue a margin call or sell investments or other assets held in any of the Department's accounts held with the investment advisor. These funds received are recorded as a current liability and the subsequent investment as a restricted asset. No funds were outstanding on the margin account in 2023 and 2022. The margin line of credit is still open and available for the Department to use in the future.

Environmental Matters

Expenditures that result from the remediation of an existing condition caused by past operations and that do not contribute to current or future revenues are expensed. Liabilities are recognized for remedial activities when the cleanup is probable and the cost can be reasonably estimated. A related asset for pollution costs recoverable in future has been recorded according to the General Standards of Accounting for the Effects of Regulation included in GASB Statement No. 62 *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements.*

Pensions

For purposes of measuring the net pension liability and deferred outflows and inflows of resources related to pensions and pension expense, information about the fiduciary net position of the City of Holyoke Retirement System (the Plan) and additions to/deductions from the Plan's fiduciary net position have been determined on the same basis as they are reported by the Plan. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms, investments are reported at fair value.

Net OPEB Liability (Asset)

For purposes of measuring the net OPEB liability (asset), deferred outflows and inflow of resources related to OPEB and OPEB expense, information about the fiduciary net position of the City of Holyoke's OPEB Plan (the Plan) administered to Department employees through the Department's Trust and additions to/deductions from the Plan's fiduciary net position have been determined on the same basis as they are reported by the Plan. For this purpose, the Plan recognizes benefit payments when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Deferred Outflows of Resources

A deferred outflow of resources represents a consumption of net position that applies to a future period and will not be recognized as an outflow of resources (expense) until that future time.

Energy Tax

The Department is required to collect, on behalf of the State of Massachusetts, an energy tax based on 6.25% of gross sales to its commercial customers. The Department's policy is to exclude these energy taxes from revenue when collected and expenses when paid and instead, record the collection and payment of energy taxes through a liability account.

Compensated Absences

Substantially all employees receive compensation for vacations, holidays, illness and certain other qualifying absences. The number of days compensated in the various categories of absence is based generally on length of services. Compensated absences, which have been earned but not paid, have been accrued in the accompanying consolidated financial statements, based on current rates of pay.

Long-Term Obligations

Long-term debt and other obligations are reported as liabilities. Bond premiums, issuance costs and gains/losses on bond refunding are being amortized using the effective-interest method over the lives of the bonds. The balance at year-end for premiums is shown as an increase in the liability section of the statement of net position. The Department uses regulatory accounting to defer and amortize issuance costs in a manner similar to how they will be recovered in rates.

Unearned Revenues

In prior years, the Department collected charges from customers that will be used to pay for future pollution remediation costs. In the event that fees collected are in excess of actual pollution remediation costs, these charges may require refunds to customers and are therefore classified as a liability on the statement of net position. The Department stopped collecting charges from customers on January 1, 2019 as management believes the amounts collected to date are sufficient to cover future pollution remediation costs.

Regulatory Deferral

Regulatory deferral amounts represent reimbursements on infrastructure projects and customer/developer contributions that will be depreciated and recognized as revenue in matching amounts over future periods.

Deferred Inflows of Resources

A deferred inflow of resources represents an acquisition of net position that applies to a future period and, therefore, will not be recognized as an inflow of resources (revenue) until that future time. Rate stabilization reserves are reported as deferred inflows of resources for regulated business-type activities.

Net Position

The difference between assets, deferred outflows of resources, liabilities and deferred inflows of resources is net position. There are three components of net position: net investment in capital assets, restricted and unrestricted.

Net investment in capital assets consists of capital assets, less accumulated depreciation, reduced by the outstanding balances of any bonds, mortgages, notes or other borrowings that are attributable to the acquisition, construction or improvement of those assets.

Net position is restricted when constraints placed on its use are either: (1) externally imposed by creditors [such as through debt covenants], grantors, contributors or laws or regulations of other governments or (2) imposed by law through constitutional provisions or enabling legislation. The Department's restricted net position, as of December 31, 2023 and 2022, is related to the bond debt fund requirements.

Unrestricted net position represents the net amount of assets and liabilities that are not invested in property, plant and equipment or restricted for debt service.

When both restricted and unrestricted resources are available for use, it is the Department's policy to use restricted resources first, then unrestricted resources as they are needed.

Revenues and Expenses

Revenue Recognition

The Department distinguishes operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Department's principal ongoing operations. The principal operating revenues of the Department are charges to customers for sales and services. Operating expenses for an enterprise fund includes the cost of sales and services, administrative expenses and depreciation on capital assets. All revenues and expenses not making this definition are reported as nonoperating revenues and expenses.

Operating revenues are recognized on the basis of cycle billings rendered monthly, net of discounts. Revenues are not accrued for services delivered beyond such cycle billing dates.

Discounts reported for the year ended December 31, 2023 and 2022 that have directly reduced operating revenue in the statement of revenue, expenses and changes in net position are as follows:

	2023	2022
Gas	$ 2,563,555	$ 2,625,957
Electric	4,539,683	4,668,746
Total	$ 7,103,238	$ 7,294,703

Expense Allocation

Expenses associated with a particular division of the Department are charged to that division. For the years ended December 31, 2023 and 2022, shared expenses including administrative and supporting costs are allocated to each division as follows:

Gas	35.0 %
Electric and telecommunications	65.0 %

Depreciation

Depreciation is recorded on a straight-line basis using an annual rate of 3% of depreciable plant, property and equipment in service. The rate is in accordance with Massachusetts Department of Public Utilities regulations.

Effect of New Accounting Standards on Current Period Financial Statements

GASB has approved Statement No. 100, *Changes and Error Corrections—an Amendment of GASB Statement No. 62*, Statement No. 101, *Compensated Absences* and Statement No. 102, *Certain Risk Disclosures*.

When they become effective, application of these standards may restate portions of these financial statements.

Comparative Data

Certain amounts presented in the prior year data may have been reclassified in order to be consistent with the current year's presentation.

2. Deposits and Investments

The Department participates in a cash and investment pool maintained by the City. In addition, the Department holds certain cash separately from the pool.

Custody and use of restricted assets are subject to requirements and restrictions imposed under contractual agreements, bond indentures and the General Laws of the Commonwealth of Massachusetts and are not available for normal operating purposes. Postemployment benefit funds have been segregated by the Department to cover certain healthcare and life insurance benefits (see Note 10).

The Department invests various funds in debt and equity securities held by Flynn Financial Partners Ltd. and US Bank. All investments must be made in securities or deposits as authorized by Massachusetts General Laws, Chapter 44, Sections 54, 55 and 55B. Investments are stated at fair value.

The Department's deposits and investments as of December 31, 2023 were comprised of the following:

	Statement Balances	Carrying Value	Associated Risks
Demand deposits	$ 11,198,593	$ 11,104,489	Custodial credit risk
U.S. agencies, implicitly guaranteed	2,176,482	2,176,482	Credit risk, custodial credit risk, interest rate risk, concentration of credit risk
U.S. treasuries	7,240,255	7,240,255	Custodial credit risk, interest rate risk
Mutual funds, bond funds	39,553,227	39,553,227	Credit risk, interest rate risk
Mutual funds, other than bond funds	30,539,004	30,539,005	N/A
State and local bonds	818,694	818,694	Custodial credit risk, credit risk, interest rate risk, concentration of credit risk
Total, department	91,526,255	91,432,152	
OPEB Trust, demand deposits	175	175	Custodial credit risk
OPEB Trust, mutual funds, bond funds	6,413,782	6,413,782	Credit risk, Interest rate risk
OPEB Trust, mutual funds, other than bond funds	15,451,355	15,451,355	N/A
Total OPEB trust	21,865,312	21,865,312	
Grand total	$ 113,391,568	$ 113,297,464	

Reconciliation to Statement of Net Position:	
Cash and investments	$ 30,580,809
Redemption account	4,242,067
Accounts required under bond indenture/notes payable	13,847,064
Customer deposits	1,787,555
Purchased power accounts	371,258
Rate stabilization accounts	40,415,009
Other investments	188,390
OPEB Trust, statement of fiduciary net position (separate financial statement)	21,865,312
Total	$ 113,297,464

The Department's deposits and investments at as of December 31, 2022 were comprised of the following:

	Statement Balances	Carrying Value	Associated Risks
Demand deposits	$ 14,616,728	$ 13,232,881	Custodial credit risk
U.S. agencies, implicitly guaranteed	4,109,365	4,109,365	Credit risk, custodial credit risk, interest rate risk, concentration of credit risk
U.S. treasuries	1,627,365	1,627,365	Custodial credit risk, interest rate risk
Mutual funds, bond funds	10,408,772	10,408,772	Credit risk, interest rate risk
Mutual funds, other than bond funds	54,147,375	54,147,375	N/A
Certificates of deposit (CD), negotiable	1,858,752	1,858,752	Credit risk, custodial credit risk, interest rate risk
State and local bonds	1,005,971	1,005,971	Custodial credit risk, credit risk, interest rate risk, concentration of credit risk
Total, department	87,774,328	86,390,481	
OPEB Trust, demand deposits	658	658	Custodial credit risk
OPEB Trust, mutual funds, bond funds	1,647,627	1,647,627	Credit risk, interest rate risk
OPEB Trust, mutual funds, other than bond funds	17,302,237	17,302,237	N/A
Total OPEB trust	18,950,522	18,950,522	
Grand total	$ 106,724,849	$ 105,341,004	

Reconciliation to Statement of Net Position:	
Cash and investments	$ 25,152,085
Redemption account	3,787,167
Accounts required under bond indenture/notes payable	14,484,411
Customer deposits	1,654,299
Purchased power accounts	387,898
Rate stabilization accounts	40,736,232
Other investments	188,390
OPEB Trust, statement of fiduciary net position (separate financial statement)	18,950,522
Total	$ 105,341,004

Deposits in each local and area bank are insured by the FDIC in the amount of $250,000 for time and savings accounts (including NOW accounts) and $250,000 for demand deposit accounts (interest-bearing and noninterest-bearing). In addition, if deposits are held in an institution outside of the state in which the government is located, insured amounts are further limited to a total of $250,000 for the combined amount of all deposit accounts.

The Securities Investor Protection Corporation (SIPC), created by the Securities Investor Protection Act of 1970, is an independent government-sponsored corporation (not an agency of the U.S. government).

SIPC membership provides account protection up to a maximum of $500,000 per customer, of which $100,000 may be in cash. $500,000 of the Department's investments and $500,000 of the OPEB Trust investments are covered by SIPC. Additionally, through Lloyds of London, accounts have securities coverage subject to a $600 million aggregate firm limit. Coverage limits per customer are not available. The value of investments subject to Lloyds of London coverage was $9,759,254 in 2023 and $9,888,366 in 2022 for the Department; $0 in 2023 and 2022 for the OPEB trust.

Fair Value

The Department categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

The valuation methods for recurring fair value measurements as of December 31, 2023 and 2022 are as follows:

- Institutional bond quotes for U.S. government agency securities and state and local bonds
- Quoted market prices for identical assets for mutual funds, bond funds and mutual funds, other than bond funds
- Quoted market prices for similar assets for certificates of deposits
- Par value for U.S. Treasury investments

The valuation levels for investments held as of December 31, 2023 and 2022 are as follows:

	2023			
Investment Type	**Level 1**	**Level 2**	**Level 3**	**Total**
U.S. agencies, implicitly guaranteed	$ -	$ 2,176,482	$ -	$ 2,176,482
U.S. treasuries	-	7,240,255	-	7,240,255
Mutual funds, bond funds	39,553,227	-	-	39,553,227
Mutual funds, other than bond funds	30,539,004	-	-	30,539,004
State and local bonds	-	818,694	-	818,694
Total, department	70,092,231	10,235,431	-	80,327,662
OPEB Trust, mutual funds, bond funds	6,413,782	-	-	6,413,782
OPEB Trust, mutual funds, other than bond funds	15,451,356	-	-	15,451,356
Total, OPEB Trust	21,865,138	-	-	21,865,138
Grand total	$ 91,957,369	$ 10,235,431	$ -	$ 102,192,800

Investment Type	2022 Level 1	2022 Level 2	2022 Level 3	2022 Total
U.S. agencies, implicitly guaranteed	$ -	$ 4,109,365	$ -	$ 4,109,365
U.S. treasuries	-	1,627,365	-	1,627,365
Mutual funds, bond funds	1,275,732	9,133,040	-	10,408,772
Mutual funds, other than bond funds	54,147,375	-	-	54,147,375
Certificate of deposit (CD), negotiable	-	1,858,752	-	1,858,752
State and local bonds	-	1,005,971	-	1,005,971
Total, department	55,423,107	17,734,493	-	73,157,600
OPEB Trust, mutual funds, bond funds	1,647,627	-	-	1,647,627
OPEB Trust, mutual funds, other than bond funds	17,302,237	-	-	17,302,237
Total, OPEB Trust	18,949,864	-	-	18,949,864
Grand total	$ 74,372,971	$ 17,734,493	$ -	$ 92,107,464

Custodial Credit Risk

Deposits

Custodial credit risk is the risk that the Department's deposits may not be returned to the Department. Uninsured, uncollateralized, deposits subject to custodial credit risk were $9,609,422 in 2023 and $11,533,080 in 2022.

Investments

For an investment, custodial credit risk is the risk that, in the event of the failure of the counterparty, the Department will not be able to recover the value of their investments or collateral securities that are in the possession of an outside party. The investments listed on pages 15, and 16 associated with custodial credit risk, are exposed to this risk. The Department's investment policy addresses credit risk by defining allowable investments.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The Department does not have a formal investment policy that limits investment maturities.

At December 31, 2023 and 2022, the Department's investments subject to interest rate risk were as follows:

	2023				
		Maturity in Years			
	Fair Value	Less Than 1	1-4	5-10	Over 10
U.S. agencies, implicitly guaranteed	$ 2,176,482	$ 258,479	$ 354,540	$ 783,997	$ 779,466
U.S. treasuries	7,240,255	6,799,565	440,690	-	-
Mutual funds, bond funds	39,553,227	39,553,227	-	-	-
OPEB, Mutual funds, bond funds	6,413,782	6,413,782	-	-	-
State and local bonds	818,694	-	-	518,588	300,106
Total	$ 56,202,440	$ 53,025,053	$ 795,230	$ 1,302,585	$ 1,079,572

	2022				
		Maturity in Years			
	Fair Value	Less Than 1	1-4	5-10	Over 10
U.S. agencies, implicitly guaranteed	$ 4,109,365	$ 2,853,021	$ 236,017	$ 140,721	$ 879,606
U.S. treasuries	1,627,365	1,627,365	-	-	-
Mutual funds, bond funds	10,408,772	10,408,772	-	-	-
OPEB, Mutual funds, bond funds	1,647,627	1,647,627	-	-	-
CDs, negotiable	1,858,752	1,858,752	-	-	-
State and local bonds	1,005,971	233,334	-	370,000	402,637
Total	$ 20,657,852	$ 18,628,871	$ 236,017	$ 510,721	$ 1,282,243

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Department does not have a separate formal policy regarding credit risk.

As of December 31, 2023 and 2022, the Department's investments were rated as follows:

	2023		
Investment Type	**Standard & Poor's**	**Moody's Investment Service**	**Composite**
U.S. agencies, implicitly guaranteed	AA+	AAA	N/A
Mutual funds, bond funds	N/A	N/A	B to BBB
OPEB, Mutual funds, bond funds	N/A	N/A	B to BBB

	2022		
Investment Type	**Standard & Poor's**	**Moody's Investment Service**	**Composite**
U.S. agencies, implicitly guaranteed	AA+	AAA	N/A
Mutual funds, bond funds	N/A	N/A	B to BBB
OPEB, Mutual funds, bond funds	N/A	N/A	B to BBB
CDs, negotiable	N/A	N/A	N/A

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the Department's investment in a single issuer. In 2023 and 2022, there were no investments in any one issuer that represented greater than 5% of total investments.

3. Plant, Property and Equipment

Plant, property and equipment as of December 31, 2023 consist of the following:

	Balance January 1, 2023	Increase	Decrease	Balance December 31, 2023
Utility plant not being depreciated:				
Gas:				
Land	$ 236,856	$ -	$ -	$ 236,856
Construction in progress	658,144	5,070,118	4,494,357	1,233,905
	895,000	5,070,118	4,494,357	1,470,761
Electric/telecommunications:				
Land	4,408,008	301,775	-	4,709,783
Construction in progress	2,906,490	6,185,409	3,951,871	5,140,028
	7,314,498	6,487,184	3,951,871	9,849,811
Total utility plant not being depreciated	8,209,498	11,557,302	8,446,228	11,320,572
Utility plant being depreciated:				
Gas:				
Plant investment	61,750,349	4,060,514	395,831	65,415,032
Office furniture and equipment	1,630,302	219,395	-	1,849,697
Transportation and communication equipment	1,712,758	97,430	21,485	1,788,703
Other	520,672	18,377	-	539,049
	65,614,081	4,395,716	417,316	69,592,481
Electric/telecommunications:				
Plant investment	214,593,820	6,623,354	1,973,310	219,243,864
Office furniture and equipment	3,578,401	865,110	111,252	4,332,259
Transportation and communication equipment	5,739,921	118,724	136,550	5,722,095
Right of use asset	4,410,245	-	-	4,410,245
Other	749,907	44,974	35,893	758,988
	229,072,294	7,652,162	2,257,005	234,467,451
Total utility plant being depreciated	294,686,375	12,047,878	2,674,321	304,059,932
Total utility plant	$ 302,895,873	$ 23,605,180	$ 11,120,549	$ 315,380,504

Note: Immaterial differences may exist due to rounding.

	Balance January 1, 2023	Increase	Decrease	Balance December 31, 2023
Less accumulated depreciation:				
Gas:				
Plant investment	$ (31,026,945)	$ (1,808,619)	$ 266,167	$ (32,569,397)
Office furniture and equipment	(1,129,837)	(71,290)	2,166	(1,198,961)
Transportation and communication equipment	(1,466,799)	(64,927)	21,485	(1,510,241)
Other	(328,211)	(23,586)	-	(351,797)
	(33,951,792)	(1,968,422)	289,818	(35,630,396)
Electric/telecommunications:				
Plant investment	(82,990,726)	(6,323,747)	1,735,851	(87,578,622)
Office furniture and equipment	(2,582,463)	(154,860)	108,428	(2,628,895)
Transportation and communication equipment	(5,237,168)	(227,745)	133,978	(5,330,935)
Right of use asset	(368,925)	(188,323)	-	(557,248)
Other	(570,742)	(43,085)	28,609	(585,218)
	(91,750,024)	(6,937,760)	2,006,866	(96,680,918)
Total accumulated depreciation	(125,701,816)	(8,906,182)	2,296,684	(132,311,314)
Total utility plant being depreciated, net:				
Gas	31,662,289	2,427,294	127,498	33,962,085
Electric	137,322,270	714,402	250,139	137,786,533
	168,984,559	3,141,696	377,637	171,748,618
Total utility plant, net:				
Gas	32,557,289	7,497,412	4,621,855	35,432,846
Electric	144,636,768	7,201,586	4,202,010	147,636,344
Net capital assets	$ 177,194,057	$ 14,698,998	$ 8,823,865	$ 183,069,190

Note: Immaterial differences may exist due to rounding.

Plant, property and equipment as of December 31, 2022 consist of the following:

	Balance January 1, 2022	Increase	Decrease	Balance December 31, 2022
Utility plant not being depreciated:				
Gas:				
Land	$ 236,856	$ -	$ -	$ 236,856
Construction in progress	1,028,895	4,472,451	4,843,202	658,144
	1,265,751	4,472,451	4,843,202	895,000
Electric/telecommunications:				
Land	4,408,008	-	-	4,408,008
Construction in progress	2,540,580	7,542,323	7,176,413	2,906,490
	6,948,588	7,542,323	7,176,413	7,314,498
Total utility plant not being depreciated	8,214,339	12,014,774	12,019,615	8,209,498
Utility plant being depreciated:				
Gas:				
Plant investment	57,460,273	4,664,673	374,597	61,750,349
Office furniture and equipment	1,543,533	89,946	3,177	1,630,302
Transportation and communication equipment	1,711,765	10,124	9,131	1,712,758
Other	486,189	34,483	-	520,672
	61,201,760	4,799,226	386,905	65,614,081
Electric/telecommunications:				
Plant investment	207,056,472	8,999,016	1,461,668	214,593,820
Office furniture and equipment	3,408,171	184,035	13,805	3,578,401
Transportation and communication equipment	5,687,371	81,863	29,313	5,739,921
Right of use asset	4,410,245	-	-	4,410,245
Other	751,132	19,657	20,883	749,906
	221,313,391	9,284,571	1,525,669	229,072,293
Total utility plant being depreciated	282,515,151	14,083,797	1,912,574	294,686,374
Total utility plant	$ 290,729,490	$ 26,098,571	$ 13,932,189	$ 302,895,872

Note: Immaterial differences may exist due to rounding.

	Balance January 1, 2022	Increase	Decrease	Balance December 31, 2022
Less accumulated depreciation:				
Gas:				
Plant investment	$ (29,679,139)	$ (1,618,202)	$ 270,396	$ (31,026,945)
Office furniture and equipment	(975,869)	(155,598)	1,630	(1,129,837)
Transportation and communication equipment	(1,433,014)	(42,916)	9,131	(1,466,799)
Other	(303,449)	(24,762)	-	(328,211)
	(32,391,471)	(1,841,478)	281,157	(33,951,792)
Electric/telecommunications:				
Plant investment	(78,205,694)	(6,044,926)	1,259,894	(82,990,726)
Office furniture and equipment	(2,212,854)	(376,290)	6,681	(2,582,463)
Transportation and communication equipment	(5,224,087)	(40,964)	27,883	(5,237,168)
Right of use asset	(188,586)	(180,339)	-	(368,925)
Other	(549,411)	(49,139)	27,808	(570,742)
	(86,380,632)	(6,691,658)	1,322,266	(91,750,024)
Total accumulated depreciation	(118,772,103)	(8,533,136)	1,603,423	(125,701,816)
Total utility plant being depreciated, net:				
Gas	28,810,289	2,957,748	105,748	31,662,289
Electric	134,932,759	2,592,914	203,403	137,322,270
	163,743,048	5,550,662	309,151	168,984,559
Total utility plant, net:				
Gas	30,076,040	7,430,199	4,948,950	32,557,289
Electric	141,881,347	10,135,237	7,379,816	144,636,768
Net capital assets	$ 171,957,387	$ 17,565,436	$ 12,328,766	$ 177,194,057

Note: Immaterial differences may exist due to rounding.

Additional disclosures of the lease asset are included in the Lease Disclosure note (See Note 4).

4. Lease Disclosures

Lessee - Lease Liabilities

Electric and Telecommunications

Lease Liabilities Description	Date of Issue	Final Maturity	Interest Rates	Original Indebtedness	Balance 12/31/23	Balance 12/31/22
Solar power sales and energy storage services agreement	5/31/2018	5/31/2038	4.34%	$ 4,410,245	$ 3,852,997	$ 4,041,320
Total lease liabilities					$ 3,852,997	$ 4,041,320

Debt service requirements to maturity are as follows:

Years Ending December 31:	Principal	Interest	Total
2024	$ 196,661	$ 163,339	$ 360,000
2025	205,368	154,632	360,000
2026	214,461	145,539	360,000
2027	223,956	136,044	360,000
2028	233,871	126,129	360,000
2029-2033	1,334,149	465,851	1,800,000
2034-2038	1,444,531	145,469	1,590,000
Total	$ 3,852,997	$ 1,337,003	$ 5,190,000

Lessor - Lease Receivables

Electric and Telecommunications

Lease Receivables Description	Date of Inception	Final Maturity	Interest Rates	Receivable Balance 12/31/23	Receivable Balance 12/31/22
Lease of land for PODS	9/1/2012	8/31/2032	4.34%	$ 649,126	$ 709,526
Pole attachments	1/1/2017	12/31/2026	4.34	156,855	204,851
Lease of dark fiber	5/1/2022	12/31/2027	4.34	553,268	677,242
Total electric utility activities				$ 1,359,249	$ 1,591,619

The Department recognized $237,829 and $178,902 of lease revenue as of December 31, 2023 and 2022, respectively.

The Department recognized $65,438 and $61,119 of interest revenue as of December 31, 2023 and 2022, respectively.

5. Note Receivable

	2023	2022
Note receivable from Massachusetts Institute of Technology due to Holyoke Gas and Electric in monthly installments of $57,937 including interest at 8.4%, matures April 2032.	$ 4,156,617	$ 4,494,330
Less amount due within one year	(359,734)	(330,848)
Note receivable, due after one year	$ 3,796,883	$ 4,163,482

6. Other Receivables

Other receivables, all due within one year, consist of the following as of December 31, 2023 and 2022:

	2023	2022
Springfield Water and Sewer	$ -	$ 251,991
Massachusetts Department of Transportation	772,620	992,775
Accrued interest receivable	29,995	13,709
Current portion of lease receivable	242,615	232,370
Miscellaneous other receivables	72,834	552,990
Total	$ 1,118,064	$ 2,043,835

7. Intangible Assets

		2023	
	Life in Years	Gross Carrying Amount	Accumulated Amortization
2001 franchise fees	30	$ 2,000,000	$ 1,470,001

		2022	
	Life in Years	Gross Carrying Amount	Accumulated Amortization
2001 franchise fees	30	$ 2,000,000	$ 1,403,334

Aggregate amortization expense was $66,667 for the years ended December 31, 2023 and 2022. Estimated annual aggregate amortization expense is $66,667 for the eight years subsequent to 2023.

8. Long-Term Obligations

Revenue bonds, issued through Massachusetts Clean Energy Cooperative Corporation: Original issue amount is $69,040,000 and date of issue is December 2021. Bonds mature annually 2021-2038. Interest rates range from 0.567% to 2.985%.	$ 58,385,000
Less amount due within one year	(5,820,000)
Bonds payable, due after one year	$ 52,565,000

Principal maturing and interest payments are anticipated to be as follows:

Years Ending December 31:	Principal	Interest	Total
2024	$ 5,820,000	$ 1,147,135	$ 6,967,135
2025	5,885,000	1,086,607	6,971,607
2026	5,960,000	1,006,100	6,966,100
2027	6,060,000	912,648	6,972,648
2028	6,170,000	802,356	6,972,356
2029-2033	24,355,000	2,013,305	26,368,305
2034-2038	4,135,000	373,719	4,508,719
Total	$ 58,385,000	$ 7,341,870	$ 65,726,870

The outstanding revenue bonds contain:

1. a provision that in the event of default not remedied, the Trustee may declare the principal of all the Bonds then Outstanding and interest accrued thereon to be immediately due and payable; and,

2. a provision that in the event of default not remedied, upon demand of the Trustee, all monies, securities and funds held by the Clean Energy Cooperative and pledged under the Bond Resolution and after receipt thereof, all revenues from the net capability of the Hadley Falls facility.

Revenue Bonds are payable solely from and secured solely by the revenues of the Clean Energy Cooperative derived from the sale of the Net Capability of the Hadley Falls Facility.

The Department is required to satisfy certain bond covenant requirements in connection with the bonds payable. In addition, the notes payable from direct placement detailed on the following page also have funding requirements. The following funds are required as part of the bond and note agreements:

	2023	2022
Revenue bonds:		
Debt service reserve fund	$ 6,041,823	$ 5,954,549
Redemption account:		
Reserve and contingency fund	676,060	608,675
Principal account	2,509,305	2,585,915
Bond interest fund	514,627	592,577
Bond revenue fund	542,075	-
Hadley Falls construction account	7,805,241	8,529,862
Total funds required under bond indenture/ note payable	$ 18,089,131	$ 18,271,578

Note payable to bank, secured by revenues of the Department with a lien on all business assets of the Solar Cooperative and a pledge of the service contract between the Department and the Solar Cooperative, monthly payments of $54,667 including interest at 3.30%, matures in April 2038.	$	7,459,720
Note payable to bank, secured by all assets of the Solar Cooperative, monthly payments of $4,707 including interest at 3.250%, matures January 2026.		113,576
Note payable to bank, secured by all assets of the Solar Cooperative, monthly payments of $48,493 including interest at 4.34%, matures April 2032		4,052,922
Less amount due within one year		(876,908)
Notes payable, due after one year	$	10,749,310

Principal maturing and interest payments are anticipated to be as follows:

Years Ending December 31:		Principal		Interest		Total
2024	$	876,908	$	417,510	$	1,294,418
2025		912,369		382,048		1,294,417
2026		895,542		347,096		1,242,638
2027		926,027		311,903		1,237,930
2028		961,817		276,114		1,237,931
2029-2033		4,410,828		808,950		5,219,776
2034-2034		2,642,727		199,958		2,842,685
Total	$	11,626,218	$	2,743,579	$	14,369,795

The outstanding notes from direct placements contain:

1. a provision that in an event of default, outstanding amounts become immediately due and payable; and/or

2. a provision that in an event of default, the borrower shall reimburse the bank for any reasonable cost incurred by the Bank in connection to the collection and enforcement of the provisions of the loan agreement; and/or

3. a provision that in the event of default, all deposits, securities and other property in the possession of the bank belonging to the borrower shall be treated as collateral to secure payment of the notes; and

4. a provision that in the event of default, the entire outstanding principal balance of the notes shall bear interest, from the date of default at the default rate of 5%.

Changes in Long-Term Liabilities

Long-term liability activities for the years ended December 31, 2023 are as follows:

	Balance January 1, 2023	Additions	Reductions	Balance December 31, 2023	Current Portion
Long-term bonds and loans:					
Bonds payable	$ 63,530,000	$ -	$ 5,145,000	$ 58,385,000	$ 5,820,000
Notes payable	12,471,282	-	845,064	11,626,218	876,908
Total long-term bonds and loans	76,001,282	-	5,990,064	70,011,218	6,696,908
Other long-term liabilities:					
Compensated absences	3,967,805	-	20,746	3,947,059	365,153
Unearned revenue	2,545,262	-	158,730	2,386,532	-
Lease liability	4,041,320	-	188,323	3,852,997	196,661
Total long-term liabilities	$ 86,555,669	$ -	$ 6,357,863	$ 80,197,806	$ 7,258,722

Long-term liability activities for the years ended December 31, 2022 are as follows:

	Balance January 1, 2022	Additions	Reductions	Balance December 31, 2022	Current Portion
Long-term bonds and loans:					
Bonds payable	$ 69,040,000	$ -	$ 5,510,000	$ 63,530,000	$ 5,820,000
Notes payable	14,918,308	4,700,000	7,147,026	12,471,282	845,117
Total long-term bonds and loans	83,958,308	4,700,000	12,657,026	76,001,282	6,665,117
Other long-term liabilities:					
Compensated absences	4,063,380	-	95,575	3,967,805	352,339
Unearned revenue	2,671,343	-	126,081	2,545,262	-
Lease liability	4,221,659	-	180,339	4,041,320	188,323
Reserve fund for note receivable	144,374	-	144,374	-	-
Total long-term liabilities	$ 95,059,064	$ 4,700,000	$ 13,203,395	$ 86,555,669	$ 7,205,779

In addition to the liabilities above. Information on the net pension liability and the net OPEB liability is provided in Notes 10 and 11, respectively.

Revenue Debt

The Department has pledged future revenues, net of certain operating expenses to repay revenue bonds. Proceeds from the bonds provided financing for improvements to the Hadley Falls generating station. The bonds are payable solely from revenues generated by the power purchase agreement with MMWEC through 2032. Annual principal and interest payments on the bonds are expected to require 100% of the Clean Energy Coop future gross revenues from MMWEC. The principal and interest remaining to be paid on the bonds is $65,726,870. Principal and interest paid in 2023 and 2022 were $6,325,372 and $6,217,064, respectively. Total customer net revenues in 2023 and 2022 were $6,410,098 and $8,491,278, respectively. Customer revenues began in 2015 to coincide with the first bond principal payment due.

Certain maturities on previously issued bonds have been refunded prior to their call date. The proceeds used to refund these bonds are deposited in an irrevocable trust with an escrow agent to provide future debt service payments. As a result the bonds are considered defeased and the liability of these bonds has been removed from the statement of net position. The amount defeased as of December 31, 2023 and 2022 was $0 and $33,309,000, respectively.

9. Blended Component Units

The following schedules provide details of the blended component units' balances, activities and eliminations.

Combining Schedule of Net Position
December 31, 2023

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Assets					
Current assets:					
Cash and investments	$ 14,593,444	$ 15,982,884	$ 4,481	$ -	$ 30,580,809
Restricted assets:					
Redemption account	-	-	4,242,067	-	4,242,067
Customer accounts receivable, net	8,211,678	11,592	-	-	8,223,270
Note receivable, current portion	359,734	-	-	-	359,734
Materials and supplies	5,701,646	-	-	-	5,701,646
Fuel for electric generation and gas in storage	845,084	-	-	-	845,084
Prepaid expense	3,530,281	-	45,062,799	(45,062,799)	3,530,281
Other receivables	1,110,017	8,047	-	-	1,118,064
Total current assets	34,351,884	16,002,523	49,309,347	(45,062,799)	54,600,955
Noncurrent assets:					
Restricted assets:					
Accounts required under bond indenture/note payable	-	-	13,847,064	-	13,847,064
Customers' deposits	1,787,555	-	-	-	1,787,555
Net OPEB Asset	1,414,455	-	-	-	1,414,455
Other receivables, after one year	3,796,883	-	-	-	3,796,883
Customer energy conservation assistance	1,704,004	-	-	-	1,704,004
Advances to other funds	431,000	8,666,583	-	(9,097,583)	-
Other assets:					
Purchased power accounts	371,258	-	-	-	371,258
Rate stabilization accounts	40,415,008	-	-	-	40,415,008
Regulatory asset debt issuance cost	-	-	586,766	-	586,766
Costs recoverable in future, pollution	80,410	-	-	-	80,410
Other investments	188,390	-	-	-	188,390
Lease receivable	1,116,634	-	-	-	1,116,634
Intangible assets	529,999	-	-	-	529,999
Capital assets:					
Plant, property and equipment in service	304,596,326	-	-	-	304,596,326
Right of use asset	4,410,245	-	-	-	4,410,245
Construction in progress	6,373,933	-	-	-	6,373,933
Total capital assets	315,380,504	-	-	-	315,380,504
Less accumulated depreciation	(132,311,314)	-	-	-	(132,311,314)
Net capital assets	183,069,190	-	-	-	183,069,190
Total noncurrent assets	234,904,787	8,666,583	14,433,830	(9,097,583)	248,907,617
Total assets	269,256,617	24,669,106	63,743,177	(54,160,382)	303,508,572
Deferred Outflows of Resources					
OPEB related amounts	1,442,294	-	-	-	1,442,294
Pension related amounts	9,931,157	-	-	-	9,931,157
Total deferred outflows	11,373,451	-	-	-	11,373,451

Combining Schedule of Net Position
December 31, 2023

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Liabilities					
Current liabilities:					
Accounts payable	$ 6,360,059	$ 4,463	$ -	$ -	$ 6,364,522
Accrued liabilities	910,378	-	-	-	910,378
Current portion, accrued compensated absences	365,153	-	-	-	365,153
Current portion, accrued environmental costs	80,410	-	-	-	80,410
Current portion, leases	196,661	-	-	-	196,661
Current portion, notes payable	-	876,908	-	-	876,908
Liabilities payable from restricted assets:					
Current portion, bonds and notes payable	-	-	5,820,000	-	5,820,000
Customers' deposits	1,759,461	-	-	-	1,759,461
Accrued interest	-	-	573,568	-	573,568
Total current liabilities	9,672,122	881,371	6,393,568	-	16,947,061
Long-term liabilities:					
Bonds payable, long term	-	-	52,565,000	-	52,565,000
Notes payable, long-term	-	10,749,310	-	-	10,749,310
Leases payable, long-term	3,656,336	-	-	-	3,656,336
Accrued compensated absences	3,581,906	-	-	-	3,581,906
Unearned revenue	47,449,331	-	-	(45,062,799)	2,386,532
Advances from other funds	8,666,583	-	431,000	(9,097,583)	-
Net pension liability	28,179,670	-	-	-	28,179,670
Total long-term liabilities	91,533,826	10,749,310	52,996,000	(54,160,382)	101,118,754
Total liabilities	101,205,948	11,630,681	59,389,568	(54,160,382)	118,065,815
Deferred Inflows of Resources					
Regulatory deferral	11,036,133	-	-	-	11,036,133
Pension related amounts	638,985	-	-	-	638,985
Lease related amounts	1,359,249	-	-	-	1,359,249
OPEB related amounts	2,652,040	-	-	-	2,652,040
Rate stabilization reserve	40,415,009	-	-	-	40,415,009
Gain on refunding	-	-	1,208,321	-	1,208,321
Total deferred inflows of resources	56,101,416	-	1,208,321	-	57,309,737
Net Position					
Net investment in plant, property and equipment	183,069,190	-	-	(64,307,660)	118,761,530
Restricted for debt service	-	-	3,890,322	-	3,890,322
Restricted OPEB	1,414,455	-	-	-	1,414,455
Restricted for purchase of future power capacity	-	-	7,805,241	(7,805,241)	-
Unrestricted (deficit)	(61,160,887)	13,038,425	(8,550,275)	72,112,901	15,440,164
Total net position (deficit)	$ 123,322,758	$ 13,038,425	$ 3,145,288	$ -	$ 139,506,471

Combining Schedule of Revenues, Expenses and Changes in Net Position Year Ended December 31, 2023

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Consolidated Total
Operating Revenues	$ 88,679,652	$ 587,034	$ 6,410,098	$ (6,997,132)	$ 88,679,652
Operating Expenses					
Operation and maintenance	65,182,564	173,930	5,008,298	(6,997,132)	63,367,660
Amortization, right of use asset	188,323	-	-	-	188,323
Depreciation, plant and equipment	8,387,423	-	-	-	8,387,423
Total operating expenses	73,758,310	173,930	5,008,298	(6,997,132)	71,943,406
Operating income	14,921,342	413,104	1,401,800	-	16,736,246
Nonoperating Other Revenues (Expenses)					
Investment income, net of fees	2,449,729	862,210	495,260	(449,301)	3,357,898
Net gain (loss) on investments	3,133,480	875,922	343,131	-	4,352,533
Interest expense	(626,230)	(449,301)	(1,094,693)	449,301	(1,720,923)
Miscellaneous income (expense)	1,214,346	1,533	-	(258,884)	956,995
Amortization of intangible assets	(66,667)	-	-	-	(66,667)
Net gain (loss), disposal of assets	(736,573)	-	-	-	(736,573)
Net gain (loss), merchandise jobbing	(6,606)	-	-	-	(6,606)
Taxes, other	(338,652)	-	-	258,884	(79,768)
Total other revenues (expenses)	5,022,827	1,290,364	(256,302)	-	6,056,889
Change in net position before transfers	19,944,169	1,703,468	1,145,498	-	22,793,135
Transfers					
Payments in lieu of taxes, City of Holyoke	(1,194,569)	-	-	-	(1,194,569)
Change in net position	18,749,600	1,703,468	1,145,498	-	21,598,566
Net Position (Deficit), Beginning	104,573,158	11,334,957	1,999,790	-	117,907,905
Net Position (Deficit), Ending	$ 123,322,758	$ 13,038,425	$ 3,145,288	$ -	$ 139,506,471

Condensed Combining Schedule of Cash Flows
Year Ended December 31, 2023

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Net Cash Flows From (Used in)					
Operating activities	$ 15,591,237	$ 50,701	$ 6,352,966	$ -	$ 21,994,904
Investing activities	2,975,964	1,351,754	2,684,311	-	7,012,029
Noncapital financing activities	(1,194,569)	-	-	-	(1,194,569)
Capital and related financing activities	(14,756,748)	(1,321,506)	(7,390,843)	-	(23,469,097)
Net increase (decrease) in cash and cash equivalents	2,615,884	80,949	1,646,434	-	4,343,267
Cash and Cash Equivalents, Beginning	51,702,089	14,119,192	11,967,747	-	77,789,028
Cash and Cash Equivalents, Ending	$ 54,317,973	$ 14,200,141	$ 13,614,181	$ -	$ 82,132,295

Combining Schedule of Net Position
December 31, 2022

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Assets					
Current assets:					
Cash and investments	$ 10,287,513	$ 15,164,274	$ 21,521	$ -	$ 25,473,308
Restricted assets:					
Redemption account	-	-	3,787,167	-	3,787,167
Customer accounts receivable, net	8,603,373	12,075	-	-	8,615,448
Note receivable, current portion	330,848	-	-	-	330,848
Materials and supplies	5,306,054	-	-	-	5,306,054
Fuel for electric generation and gas in storage	1,140,846	-	-	-	1,140,846
Prepaid expense	3,272,353	-	48,948,493	(48,948,481)	3,272,365
Other receivables	2,040,741	3,094	-	-	2,043,835
Total current assets	30,981,728	15,179,443	52,757,181	(48,948,481)	49,969,871
Noncurrent assets:					
Restricted assets:					
Accounts required under bond indenture/note payable	-	-	14,484,411	-	14,484,411
Customers' deposits	1,654,299	-	-	-	1,654,299
Other receivables, after one year	4,163,482	-	-	-	4,163,482
Customer energy conservation assistance	1,216,976	-	-	-	1,216,976
Advances to other funds	431,000	8,639,495	-	(9,070,495)	-
Other assets:					
Purchased power accounts	387,898	-	-	-	387,898
Rate stabilization accounts	40,415,008	-	-	-	40,415,008
Regulatory asset debt issuance cost	-	-	651,963	-	651,963
Costs recoverable in future, pollution	77,300	-	-	-	77,300
Other investments	188,390	-	-	-	188,390
Lease receivable	1,359,249	-	-	-	1,359,249
Intangible assets	596,666	-	-	-	596,666
Capital assets:					
Plant, property and equipment in service	294,920,993	-	-	-	294,920,993
Right of use asset	4,410,245	-	-	-	4,410,245
Construction in progress	3,564,634	-	-	-	3,564,634
Total capital assets	302,895,872	-	-	-	302,895,872
Less accumulated depreciation	(125,701,816)	-	-	-	(125,701,816)
Net capital assets	177,194,056	-	-	-	177,194,056
Total noncurrent assets	227,684,324	8,639,495	15,136,374	(9,070,495)	242,389,698
Total assets	258,666,052	23,818,938	67,893,555	(58,018,976)	292,359,569
Deferred Outflows of Resources					
OPEB related amounts	2,964,891	-	-	-	2,964,891
Pension related amounts	8,086,659	-	-	-	8,086,659
Total deferred outflows	11,051,550	-	-	-	11,051,550

Combining Schedule of Net Position
December 31, 2022

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Liabilities					
Current liabilities:					
Accounts payable	$ 10,522,664	$ 12,646	$ -	$ -	$ 10,535,310
Accrued liabilities	869,209	-	-	-	869,209
Current portion, accrued compensated absences	352,339	-	-	-	352,339
Current portion, accrued environmental costs	77,300	-	-	-	77,300
Current portion, leases	188,323	-	-	-	188,323
Current portion, notes payable	-	845,117	-	-	845,117
Liabilities payable from restricted assets:					
Current portion, bonds and notes payable	-	-	5,145,000	-	5,145,000
Customers' deposits	1,686,891	-	-	-	1,686,891
Accrued interest	-	-	590,186	-	590,186
Total current liabilities	13,696,726	857,763	5,735,186	-	20,289,675
Long-term liabilities:					
Bonds payable, long term	-	-	58,385,000	-	58,385,000
Notes payable, long-term	-	11,626,218	-	-	11,626,218
Leases payable, long-term	3,852,997	-	-	-	3,852,997
Accrued compensated absences	3,615,466	-	-	-	3,615,466
Net OPEB liability	443,781	-	-	-	443,781
Unearned revenue	51,493,743	-	-	(48,948,481)	2,545,262
Advances from other funds	8,639,495	-	431,000	(9,070,495)	-
Net pension liability	16,856,396	-	-	-	16,856,396
Total long-term liabilities	84,901,878	11,626,218	58,816,000	(58,018,976)	97,325,120
Total liabilities	98,598,604	12,483,981	64,551,186	(58,018,976)	117,614,795
Deferred Inflows of Resources					
Regulatory deferral	10,689,939	-	-	-	10,689,939
Pension related amounts	10,804,798	-	-	-	10,804,798
Lease related amounts	1,591,619	-	-	-	1,591,619
OPEB related amounts	3,044,475	-	-	-	3,044,475
Rate stabilization reserve	40,415,009	-	-	-	40,415,009
Gain on refunding	-	-	1,342,579	-	1,342,579
Total deferred inflows of resources	66,545,840	-	1,342,579	-	67,888,419
Net Position					
Net investment in plant, property and equipment	177,194,056	-	-	(69,023,531)	108,170,525
Restricted for debt service	-	-	4,006,529	-	4,006,529
Restricted OPEB	-	-	-	-	-
Restricted for purchase of future power capacity	-	-	8,529,863	(8,529,863)	-
Unrestricted (deficit)	(72,620,898)	11,334,957	(10,536,602)	77,553,394	5,730,851
Total net position (deficit)	$ 104,573,158	$ 11,334,957	$ 1,999,790	$ -	$ 117,907,905

Combining Schedule of Revenues, Expenses and Changes in Net Position Year Ended December 31, 2022

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Consolidated Total
Operating Revenues	$ 84,941,702	$ 567,228	$ 8,491,278	$ (9,058,506)	$ 84,941,702
Operating Expenses					
Operation and maintenance	69,461,553	189,517	5,008,543	(9,058,506)	65,601,107
Amortization, right of use asset	180,339	-	-	-	180,339
Depreciation, plant and equipment	8,216,115	-	-	-	8,216,115
Total operating expenses	77,858,007	189,517	5,008,543	(9,058,506)	73,997,561
Operating income	7,083,695	377,711	3,482,735	-	10,944,141
Nonoperating Other Revenues (Expenses)					
Investment income, net of fees	3,008,044	832,803	161,439	(411,328)	3,590,958
Net gain (loss) on investments	(11,089,775)	(1,745,005)	(195,893)	-	(13,030,673)
Interest expense	(618,832)	(516,129)	(1,127,180)	411,328	(1,850,813)
Miscellaneous income (expense)	1,187,011	1,535	-	(220,089)	968,457
Amortization of intangible assets	(66,667)	-	-	-	(66,667)
Net gain (loss), disposal of assets	(853,950)	-	-	-	(853,950)
Net gain (loss), merchandise jobbing	27,583	-	-	-	27,583
Taxes, other	(299,856)	-	-	220,089	(79,767)
Total other revenues (expenses)	(8,706,442)	(1,426,796)	(1,161,634)	-	(11,294,872)
Change in net position before transfers	(1,622,747)	(1,049,085)	2,321,101	-	(350,731)
Transfers					
Payments in lieu of taxes, City of Holyoke	(1,195,613)	-	-	-	(1,195,613)
Change in net position	(2,818,360)	(1,049,085)	2,321,101	-	(1,546,344)
Net Position (Deficit), Beginning	107,391,518	12,384,042	(321,311)	-	119,454,249
Net Position (Deficit), Ending	$ 104,573,158	$ 11,334,957	$ 1,999,790	$ -	$ 117,907,905

Condensed Combining Schedule of Cash Flows
Year Ended December 31, 2022

	HGE	Holyoke Solar	Mass Clean Energy	Eliminations	Total
Net Cash Flows From (Used in)					
Operating activities	$ 8,043,540	$ 106,812	$ 8,433,901	$ -	$ 16,584,253
Investing activities	(9,776,228)	6,377,749	(6,359,807)	-	(9,758,286)
Noncapital financing activities	(1,195,613)	-	-	-	(1,195,613)
Capital and related financing activities	(9,364,002)	(3,290,565)	(7,805,127)	-	(20,459,694)
Net increase (decrease) in cash and cash equivalents	(12,292,303)	3,193,996	(5,731,033)	-	(14,829,340)
Cash and Cash Equivalents, Beginning	63,994,392	10,925,196	17,698,780	-	92,618,368
Cash and Cash Equivalents, Ending	$ 51,702,089	$ 14,119,192	$ 11,967,747	$ -	$ 77,789,028

10. Retirement Plan

General Information About the Pension Plan

Substantially all full-time employees participate in the Holyoke Contributory Retirement System, a cost sharing multiple employer defined benefit public employee retirement system. The system is partially funded by employee contributions. The Plan provides pension benefits, deferred allowances and death and disability benefits. Retirement allowance is based on the following factors: age, length of creditable service, level of salary and group classification. Age at retirement and group classification determine a benefit rate. Percentages are specified in Chapter 32 of the Massachusetts General Laws. Participants may elect to receive their retirement in one of three optional forms of payment.

Member employers are required by state statutes to make contributions to the Plan. Contributions are determined by the Commonwealth of Massachusetts Division of Public Employee Retirement Administrative Commission (PERAC).

Covered employees are required by state statute to contribute a fixed percentage of their earnings into the Plan. The percentage varies from 5 to 9% depending upon date of hire. All employees hired after January 1, 1979 contribute an additional 2% on all gross regular earnings over $30,000 per year.

Members hired on or after April 2, 2012 are covered by the provisions of Chapter 32 as amended by Chapter 176 of the Acts of 2011 and Chapter 139 of the Acts of 2012.

The Plan issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained by writing or calling the Plan as follows: Attn: Anthony Dulude, Executive Director, Holyoke Retirement Board, City Hall Annex - Room 207, Holyoke, Massachusetts 01040, 413 534 2179.

Pension Liabilities, Pension Expense and Deferred Outflows of Resources Related to Pensions

At December 31, 2023, the Department reported a liability of $28,179,670, for its proportionate share of the net pension liability. The net pension liability was measured as of December 31, 2022 and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of January 1, 2022. No material changes in the assumptions or benefit terms occurred between the actual valuation date and the measurement date. The Department's proportion of the net pension liability was based on the Department's share of appropriations of the pension plan relative to the appropriations of all participating employers. At December 31, 2022, the Department's proportion was 22.964945% which was a decrease of 0.015826% from its proportion measured as of January 1, 2022.

At December 31, 2022, the Department reported a liability of $16,856,396, for its proportionate share of the net pension liability. The net pension liability was measured as of December 31, 2021 and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of January 1, 2022. No material changes in the assumptions or benefit terms occurred between the actual valuation date and the measurement date. The Department's proportion of the net pension liability was based on the Department's share of appropriations of the pension plan relative to the appropriations of all participating employers. At December 31, 2021, the Department's proportion was 22.980771% which was an increase of 0.379986% from its proportion measured as of January 1, 2021.

For the year ended December 31, 2023 and 2022, the Department recognized pension expense of $3,598,564 and $418,584, respectively.

At December 31, 2023, the Department reported deferred outflows and deferred inflows of resources from the following sources:

	2023	
	Deferred Outflows of Resources	**Deferred Inflows of Resources**
Net differences between projected and actual earnings on pension plan	$ 3,377,495	$ -
Differences between projected and actual experiences	-	385,766
Changes of actuarial assumptions	1,722,143	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	547,919	253,219
Employer contributions subsequent to the measurement date	4,283,600	-
Total	$ 9,931,157	$ 638,985

At December 31, 2022, the Department reported deferred outflows and deferred inflows of resources from the following sources:

	2022	
	Deferred Outflows of Resources	**Deferred Inflows of Resources**
Net differences between projected and actual earnings on pension plan	$ -	$ 9,638,484
Differences between projected and actual experiences	-	806,695
Changes of actuarial assumptions	2,848,670	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,083,674	359,619
Employer contributions subsequent to the measurement date	4,154,315	-
Total	$ 8,086,659	$ 10,804,798

Deferred outflows related to pension resulting from the Department's employer contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended December 31, 2023. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pension will be recognized in pension expense as follows:

Years Ending December 31:	
2024	$ (180,283)
2025	638,896
2026	1,843,710
2027	2,706,249
Thereafter	-
Total	$ 5,008,572

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of January 1, 2022, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.25%
Salary increases	4:00-4.50%
Investment rate of return	7.00% (2023 and 2022)
Cost of living adjustments	3% of first $14,000
Pre-retirement	RP-2014 Blue Collar Employee Mortality Table set forward one year for females projected generationally using Scale MP-2021 (2023 and 2022)
Healthy retiree	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally using Scale MP-2021 (2023 and 2022)
Disabled retiree	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally using Scale MP-2021 (2023 and 2022)

The long term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2023 and 2022 are summarized in the following table:

Asset Class	2023 Long-Term Expected Real Rate of Return	2022 Long-Term Expected Real Rate of Return
Domestic equity	6.59 %	6.11 %
International developed markets equity	6.87	6.49
International emerging markets equity	8.30	8.12
Core fixed income	1.53	0.38
High yield fixed income	4.01	2.48
Real estate	3.44	3.72
Hedge fund, GTAA, risk parity	3.06	2.63
Private equity	9.49	9.93
Private credit	6.01	-

Discount Rate

The discount rate used to measure the total pension liability was 7.00% for December 31, 2023 and 2022. The projection of cash flows used to determine the discount rate assumed Plan member contributions will be made at the current contribution rate and the City of Holyoke Retirement system contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current Plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the Department, calculated using the discount rate of 7.00% for 2023 and 2022, as well as what the Department's net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the current rate.

The sensitivity analysis as of December 31, 2023 follows:

	1% Decrease to Discount Rate (6.00%)	Current Discount Rate (7.00%)	1% Increase to Discount Rate (8.00%)
The Department's proportionate share of the net position liability	$ 41,094,382	$ 28,179,670	$ 17,301,728

The sensitivity analysis as of December 31, 2022 follows:

	1% Decrease to Discount Rate (6.00%)	Current Discount Rate (7.00%)	1% Increase to Discount Rate (8.00%)
The Department's proportionate share of the net position liability	$ 29,526,693	$ 16,856,396	$ 6,181,188

11. Other Postemployment Benefits, Holyoke Gas and Electric

General Information About the OPEB Plan

Plan Description

As part of the Department's Fiduciary Funds, the Department's policy is to provide certain healthcare and life insurance benefits to eligible retirees, their dependents or their survivors through the City of Holyoke's single employer postemployment welfare benefit plan.

The Department created a trust in 2014 to administer these benefits. The trust accounts for the portions of the active members retirees' premiums paid by the Department for health insurance, dental coverage and life insurance. Since the Department has established a separate trust to segregate assets to fund their portion of the City of Holyoke's single employer plan, the disclosures that follow, are consistent with an agent multiemployer plan.

Benefits Provided

Medical and prescription drug benefits are provided to all eligible retirees through a variety of Plans offered by Blue Cross Blue Shield of Massachusetts and Health New England. The Holyoke Gas and Electric Department also pays 50% of the retiree life insurance premium and 50% of the dental premium (non-Medicare retirees only).

Employees covered by benefit terms at December 31, 2023 and 2022, the following employees were covered by the benefit terms:

	2023	2022
Inactive plan members or beneficiaries currently receiving benefit payments	191	191
Active plan members	155	155
Total members	346	346

Contributions

For the year ended December 31, 2023 and 2022, the Department's average contribution rate was 5.88 and 4.32% of covered-employee payroll. Plan members are not required to contribute to the Plan, other than paying their portion of the health, dental and life insurance premiums.

Investments

Investment Policy

It is the policy of the Department to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. Investments are limited to investing in assets as a prudent investor would, by considering purposes, terms, distribution requirements and other circumstances of the trust. The following were the Department's investment allocations as of December 31, 2023 and 2022:

Asset Class	2023 Allocation	2022 Allocation
Mutual funds, ETFs and closed-end funds	63.5 %	99.90 %
Other/Undefined	8.6	-
Fixed Income	27.5	-
Cash and cash equivalents	0.4	0.10
Total	100.00 %	100.00 %

Net OPEB Liability (Asset)

The Department's net OPEB liability (asset) was measured as of December 31, 2023 and 2022 and the total OPEB liability used to calculate the net OPEB liability (asset) was determined by an actuarial valuation as of December 31, 2022 and December 31, 2021, respectively.

The components of the net OPEB liability (asset) of the Department at December 31, 2023 and 2022, were as follows:

	2023	2022
Total OPEB liability	$ 20,450,857	$ 19,394,303
Plan fiduciary net position	(21,865,312)	(18,950,522)
Department's net OPEB liability (asset)	$ (1,414,455)	$ 443,781
Plan fiduciary net position as a percentage of the total OPEB liability (asset)	106.92%	97.71%

Actuarial Assumptions

The total OPEB liability (asset) was determined by an actuarial valuation as of December 31, 2022, using the following actuarial assumptions, applied to all periods included in the measurement:

Discount rate	6.25%
Salary increases	Service-related increases for Group 1: 6.0% per year decreasing over 9 years to 4.25% per year Service-related increases for Group 4: 7.0% per year decreasing over 6 years to 4.75% per year
Investment rate of return	6.25%
Non-Medicare medical/prescription drug cost Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.04% per year
Medicare medical/prescription drug cost Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.04% per year
Dental/administrative Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.04% per year
Mortality rates	PubG.H-2010 Mortality Table with MP-2021 Projection Scale

Below are the actuarial assumptions from the December 31, 2022 actuarial valuation.

Discount rate	6.25%
Salary increases	Service-related increases for Group 1: 6.0% per year decreasing over 9 years to 4.25% per year Service-related increases for Group 4: 7.0% per year decreasing over 6 years to 4.75% per year
Investment rate of return	6.25%
Non-Medicare medical/prescription drug cost Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.14% per year
Medicare medical/prescription drug cost Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.14% per year
Dental/administrative Healthcare cost trend rates	6.50% per year graded down by the Getzen model to an ultimate rate of 4.14% per year
Mortality rates	PubG.H-2010 Mortality Table with MP-2021 Projection Scale

The long term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2023 and 2022 are summarized in the following table:

Asset Class	2023 Long-Term Expected Real Rate of Return	2022 Long-Term Expected Real Rate of Return
Closed-end funds	6.25 %	6.25 %

Discount Rate

The discount rate is a blend of the long-term expected rate of return on OPEB Trust assets and a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rate of AA/Aa or higher as shown in the S&P Municipal Bond 20-Year High Grade Obligation Index 4.00 and 4.31% as of December 31, 2023, and 2022, respectively. The blending is based on the sufficiency of projected assets to make projected benefit payments.

Changes in Net OPEB Liability (Asset)

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
Balance at December 31, 2022	$ 19,394,303	$ 18,950,522	$ 443,781
Changes for the year:			
Service cost	690,712	-	690,712
Interest	1,182,608	-	1,182,608
Differences between expected and actual experience	(316,267)	-	(316,267)
Changes in assumptions	80,662	-	80,662
Contributions, employer	-	931,160	(931,160)
Contributions, employee	397,464	397,464	-
Net investment income	-	2,635,440	(2,635,440)
Benefit payments	(978,625)	(978,625)	-
Administrative expense	-	(70,649)	70,649
Net changes	1,056,554	2,914,790	(1,858,236)
Balance at December 31, 2023	$ 20,450,857	$ 21,865,312	$ (1,414,455)

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
Balance at December 31, 2021	$ 20,407,069	$ 22,303,231	$ (1,896,162)
Changes for the year:			
Service cost	580,937	-	580,937
Interest	1,247,108	-	1,247,108
Differences between expected and actual experience	(2,789,519)	-	(2,789,519)
Changes in assumptions	523,075	-	523,075
Contributions, employer	-	656,916	(656,916)
Contributions, employee	402,958	402,958	-
Net investment income	-	(3,365,237)	3,365,237
Benefit payments	(977,325)	(977,325)	-
Administrative expense	-	(70,021)	70,021
Net changes	(1,012,766)	(3,352,709)	2,339,943
Balance at December 31, 2022	$ 19,394,303	$ 18,950,522	$ 443,781

Sensitivity of the Net OPEB Liability (Asset) to Changes in the Discount Rate

The following presents the net OPEB liability (asset) of the Department, as well as what the Department's net OPEB liability (asset) would be if it were calculated using a discount rate that is 1-percentage point lower (5.25%) or 1-percentage-point higher (7.25%) than the current discount rate:

The sensitivity analysis as of December 31, 2023 follows:

	1% Decrease (5.25%)	Discount Rate (6.25%)	1% Increase (7.25%)
Net OPEB liability (asset)	$ 1,105,940	$ (1,414,455)	$ (3,505,521)

The sensitivity analysis as of December 31, 2022 follows:

	1% Decrease (5.25%)	Discount Rate (6.25%)	1% Increase (7.25%)
Net OPEB liability (asset)	$ 2,874,286	$ 443,781	$ (1,569,150)

Sensitivity of the Net OPEB Liability (Asset) to Changes in the Healthcare Cost Trend Rates

The following presents the net OPEB liability (asset) of the Department, as well as what the Department's net OPEB liability (asset) would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rates:

The sensitivity analysis as of December 31, 2023 follows:

	1% Decrease (5.50%)	Healthcare Cost Trend Rates (6.50%)	1% Increase (7.50%)
Net OPEB liability (asset)	$ (3,956,581)	$ (1,414,455)	$ 1,740,219

The sensitivity analysis as of December 31, 2022 follows:

	1% Decrease (5.50%)	Healthcare Cost Trend Rates (6.50%)	1% Increase (7.50%)
Net OPEB liability (asset)	$ (1,833,299)	$ 443,781	$ 3,262,926

OPEB Expense and Deferred Outflows of Resources Related to OPEB

For the year ended December 31, 2023 and 2022, the Department recognized OPEB expense of $203,086 and $501,842. At December 31, 2023 and 2022, the Department reported deferred outflows and inflows of resources related to OPEB from the following sources.

	2023 Deferred Outflows of Resources	2023 Deferred Inflows of Resources
Net differences between projected and actual earnings on pension plan	$ 20,624	$ 2,440,580
Changes of actuarial assumptions	455,276	211,458
Net differences between projected and actual investment earnings on pension plan investment	966,394	-
Total	$ 1,442,294	$ 2,652,040

	2022 Deferred Outflows of Resources	2022 Deferred Inflows of Resources
Net differences between projected and actual earnings on pension plan	$ 65,365	$ 2,752,050
Changes of actuarial assumptions	544,158	292,425
Net differences between projected and actual investment earnings on pension plan investment	2,355,368	-
Total	$ 2,964,891	$ 3,044,475

Deferred outflows of resources related to OPEB will be recognized in OPEB expense as follows:

Years Ending December 31:	
2024	$ (353,016)
2025	(165,677)
2026	124,643
2027	(695,938)
2028	(119,758)
Thereafter	-
Total	$ (1,209,746)

Funding Policy

The Department is not required to provide funding for OPEB, other than the pay-as-you go amount necessary to provide current benefits to retirees and eligible beneficiaries/dependents. The cost of providing these benefits, paid by the Department and the retirees, was $978,625 for 191 retirees in 2023 and $977,325 in 2022 for 191 retirees. In 2023 and 2022, the Department contributed assets into a separate legal trust, Holyoke Gas and Electric OPEB Trust, for the payment of future OPEB obligations. Contributions were $351,799 in 2023 and $82,547 in 2022.

12. Related-Party Transactions

The Massachusetts Clean Energy Cooperative (Clean Energy Coop) signed a power sales contract in April 2013 with its member Massachusetts Wholesale Electric Company (MMWEC). Through this contract, MMWEC will purchase the net electrical capacity of the Hadley Falls Facility from the Clean Energy Coop at a monthly charge as defined in the contract. There were no sales to MMWEC during 2023 and 2022.

There is also an agency contract between the Clean Energy Coop and MMWEC, whereby MMWEC will act as agent for the Clean Energy Coop in the performance of its administrative obligations.

The Department transacted business with Tighe & Bond for engineering services in the amount of $92,425 in 2023 and $8,333 in 2022. One of the Department's commissioners has a financial interest in this company, requiring disclosure.

13. Commitments and Contingences

Purchased Power Contracts

Short-Term Power

On a continuing basis, the Department enters into several short-term power supply contracts for either the purchase or sale of capacity, energy, renewable certificates, or ancillary services with various suppliers. This includes bilateral purchases to meet Department's shortfall position during the summer months of 2024 through 2026, where commitments were made by the end of 2023 in the amount of $317,320 for 2024 and $162,699 for the period from 2025-2026.

Massachusetts Renewable Energy Certificates (RECs)

On a continuing basis, the Department enters into REC contracts for the sale of Massachusetts Class I, Massachusetts Class II and Maine Existing RECs from its hydro units. These commitments were made by the end of 2023. The summary of the resulting revenues to the Department by year and based on the total certificates sold is shown in the table below:

	2023		2024		2025	
Contract Date	Revenues	Total Certificates	Revenues	Total Certificates	Revenues	Total Certificates
2020 - 2023	$ 3,013,750	149,000	$ 1,606,563	54,550	$ 281,250	7,500

Canal Hydro Power

In November 2013, the Department entered into an agreement to provide electricity to the Open Square facility and purchase any excess electricity from the operation of the Open Square D and G wheels at a monthly charge as defined in the agreement. The Department does not have any liability associated with these energy purchases as any excess energy beyond contract water rights is at Department discretion under terms with the customer. The customer sold his property in December 2022 and assigned the contract to Open Square Reality LLC. The terms of this contract expired in December 2023.

Solar Power

In December 2010, the Department, through its subsidiary Holyoke Solar Cooperative, signed a 20-year solar Power Purchase Agreement (PPA) with Holyoke Solar, LLC. The Department has agreed to purchase the electricity produced by two grid-connected solar power facilities and for the remaining years to the contract, the total future commitment is $2,940,207. After the initial term, this agreement can be renewed for two consecutive five-year terms. In conjunction with this PPA, the Department is leasing, to Holyoke Solar, LLC, the property on which the solar power facility is located at $100 per usable acre per year for the first 20 years. After the initial term under the PPA, the rate shall be $3,000 per usable acre per year subject to a 2.5% annual escalation.

In June 2011, the Department signed a 20-year solar Power Sales Agreement with Rivermoor Citizens Holyoke, LLC beginning in February 2013. The Department agreed to purchase the electricity produced by the photovoltaic solar electric generation system and for the remaining years to the contract, the total future commitment is $586,130. After the initial term, this agreement shall automatically renew for successive one-year terms, up to a maximum of 10 such renewal terms, unless terminated by either party.

In December 2014, the Department signed a 25-year solar Power Sales Agreement with Healthy Planet Partners, LLC. beginning October 2015. For the remaining years to the contract, the total future commitment is $1,104,671.

The Department contracted for several 20-year solar PPA's during 2015 and 2016 with various solar developers and executed interconnection only agreements with a few others. Two C2 Special Solutions Group solar projects had COD of December 2016 under 20-year PPA's signed in October 2015. For the remaining years to the contract, the total future commitment is $1,216,020. The Department contracted for several 20-year solar PPA's with various solar developers. Below is a summary for each solar project, which became commercial in 2017 or 2018.

Date of PPA	System Name	Annual Energy Payment	Commercial Operation Date
July 2016	Mt. Tom Solar	$ 4,306,549	02/03/17
October 2016	AEGIS	674,154	01/04/17
October 2016	Gary Rome	515,824	01/06/17
December 2016	Conklin	652,696	02/24/17
January 2017	Riverside Roof	137,978	05/08/17
June 2017	Walnut Roof	108,063	11/22/17
June 2017	Hadley Mills	341,614	12/29/17
September 2017	Jackson Street	122,759	03/15/18
November 2017	Boys & Girls Club	161,607	04/20/18
October 2015 and reassigned December 2017	Kelly Way 2	504,364	06/04/18
March 2018	YMCA	164,610	12/21/18

Long-Term Power Transactions

In August 2018, the Department signed an eight-year contract through December 2029 with NextEra Energy Power Marketing to purchase on-peak physical energy and clean nuclear tags each year at a remaining future commitment cost of $12,170,794. In November 2020, the Department extended this contract for another six years from January 2030 through December 2035 at an estimated cost of $11,846,265.

In November 2020, the Department executed a four-year contract starting November 1, 2022 and ending October 31, 2026 with NextEra Energy Power Marketing for around-the-clock energy. The total future commitment is $4,037,828. At the same time, the Department executed a four-year Second Amendment to the above contract with the Massachusetts Green High Performance Computing Center, Inc. locking in the Energy Only piece of the rate and extending the term to cover this transaction.

In October 2020, the Department executed a five-year around-the-clock physical power and Hydro Quebec System Mix clean energy Tags contract starting November 2020 and ending October 2025 with Hydro Quebec through MMWEC. The annual energy payment will be around $835,706 and for the 22 months remaining to the contract, the total future commitment is $1,671,412.

In December 2013, the Department signed a 25-year PPA for energy and capacity out of the Hancock Wind Project, located in Hancock County, Maine. The annual energy payment will be about $813,200 for this project that had an estimated commercial operation date of December 2016.

In October 2015, the Department contracted with MMWEC to participate in a new MMWEC owned simple cycle 55 MW peaking unit located in Peabody, MA through the Predevelopment phase. All requirements have been completed in order to participate in the ISO-NE 2021/22 Forward Capacity Auction (FCA) which was held on February 5, 2018. The Department contracted with MMWEC in 2017 prior to the FCA to participate in this project for up to the life of unit with expected Commercial Operation Date (COD) beginning April 2024. HG&E's estimated portion of construction costs is approximately $3,300,000. As the project is MMWEC owned, the Department will not carry project debt on its books. The annual total costs will vary between $290,832 and $322,269 over the estimated 30-year life of unit.

In December 2015, the Department contracted with Scuderi Clean Energy, LLC under a 20-year PPA for output from a natural gas generating facility. Expected Commercial Operation is unknown at this time. The Department mitigated market and development risk by ensuring interconnection costs are born by other party and that rates under PPA are discounted to full wholesale energy and resulting load reduction cost savings (where and if applicable).

In September 2017, the Department contracted with Mt. Tom Solar, LLC under a 20-year PPA for a lithium-ion battery-based energy storage system (ESS) located at the Mt Tom Solar facility. Testing and limited operation was completed in 2018 with fixed capacity payments beginning in June 2018. The Commercial Operation date was achieved in March 2019 after all City permitting. The annual fixed capacity payment will be $360,000 and for the 14 years and five months remaining to the contract, the total future commitment is $5,190,000. See Note 4 for more information.

In February 2020, HG&E contracted with Holyoke BESS, LLC under a 15-year PPA. This is our second utility-scale energy storage project totaling 4.99 MW/12 MWh with a commercial operation date in August 2021. This will be located across from our North Canal Substation. This will act as a load reducer to lower capacity and transmission costs. The annual capacity and transmission savings will be split between parties. The annual Department Payment will be around $650,964 and the total future commitment will be around $8,497,651.

In June 2021, HG&E contracted with Holyoke Energy Storage 1, LLC under a 15-year PPA. This will be our third utility scale energy storage project totaling 4.80 MW/14.40 MWh with an expected commercial operation date in fall of 2024. This will be located on Cabot Street and will act as a load reducer to lower capacity and transmission costs. The annual capacity and transmission savings will be split between parties. The annual Department Payment will be around $809,541 and the total future commitment will be around $16,190,815.

In October 2021, HG&E contracted with Holyoke Energy Storage 2, LLC under a 20-year PPA. This will be our fourth utility scale energy storage project totaling 4.80 MW/14.40 MWh and will act as a load reducer to lower capacity and transmission costs. No sight has been selected and the COD is uncertain at this time. The annual capacity and transmission savings will be split between parties. The annual Department Payment will be around $728,660 and the total future commitment will be around $14,573,207.

In March 2023, the Department contracted with NextEra Energy Power Marketing through MMWEC under a fourteen (14) year Power Purchase Agreement for ten (10) MWs of around-the-clock energy and clean nuclear tags each year. The agreement starts January 1, 2036 and ends December 31,2049 at a future commitment cost of $109,476,079.

Long-Term Capacity Transaction

In January 2016, the Department contracted with PSEG through MMWEC under a five-year Capacity Load Obligation Transfer contract. This capacity hedge began June 1, 2019, ends May 31, 2024 and protects against rising capacity costs in ISO-NE's Rest of System capacity zone in which the Department is located. The capacity payment will be $116,250 per month for the five months remaining to the contract, the total future commitment is $581,250.

Massachusetts Municipal Wholesale Electric Company

The Department is a Participant in certain Projects of the Massachusetts Municipal Wholesale Electric Company (MMWEC), a public corporation and a political subdivision of the Commonwealth of Massachusetts, created as a means to develop a bulk power supply for its Members and other utilities. MMWEC is authorized to construct, own or purchase ownership interests in, and to issue revenue bonds to finance, electric facilities (Projects). MMWEC has acquired ownership interests in electric facilities operated by other entities and also owns and operates its own electric facilities. MMWEC operates the Stony Brook Intermediate Project and the Stony Brook Peaking Project, both fossil-fueled power plants.

MMWEC has the Nuclear Mix No 1 Project, Nuclear Project Three, Nuclear Project Four, Nuclear Project Five and Project Six, which comprise an 11.6% ownership interest in the Seabrook Station nuclear generating unit operated by NextEra Energy Seabrook, LLC and a 4.8% ownership interest in the Millstone Unit 3 nuclear unit, operated by Dominion Nuclear Connecticut, Inc. The operating license for Seabrook Station extends to March 15, 2050. The operating license for the Millstone Unit 3 nuclear unit extends to November 25, 2045.

The Department is also a Participant in MMWEC Project 2015A, a capacity reliability resource in Peabody, Massachusetts. Project 2015A is under construction as of December 31, 2023. As of December 31, 2023, the Light Department has contributed $471,186 for design and construction costs for Project 2015A.

MMWEC sells all of the capability (Project Capability) of each of its Projects to its Members and other utilities (Project Participants) under Power Sales Agreements (PSAs). The Department has entered into PSAs with MMWEC. Under the PSAs the Department is required to make certain payments to MMWEC payable solely from Municipal Light Department revenues. Among other things, the PSAs require each Project Participant to pay its pro rata share of MMWEC's costs related to the Project, which costs include debt service on the revenue bonds issued by MMWEC to finance the Project. In addition, should a Project Participant fail to make any payment when due, other Project Participants of that Project may be required to increase (step-up) their payments and correspondingly their Participant's share of that Project's Project Capability. Project Participants have covenanted to fix, revise and collect rates at least sufficient to meet their obligations under the PSAs. Each Participant is unconditionally obligated to make payments due to MMWEC whether or not the Project(s) is completed or operating and notwithstanding the suspension or interruption of the output of the Project(s).

Pursuant to the PSAs, the MMWEC Project Participants are liable for their proportionate share of the costs associated with decommissioning the plants, which are funded through monthly Project billings, as needed. Also, the Millstone and Seabrook Project Participants are liable for their proportionate share of the uninsured costs of a nuclear incident that might be imposed under the Price-Anderson Act (Act). Originally enacted in 1957, the Act has been renewed several times. In July 2005, as part of the Energy Policy Act of 2005, Congress extended the Act until the end of 2025.

MMWEC is involved in various legal actions. In the opinion of management, the outcome of such litigation or claims will not have a material adverse effect on the financial position of the company.

The total capital expenditures and annual capacity, fuel and transmission costs (which include debt service and decommissioning expenses as discussed above) and amount of required debt service payments (if applicable) under the PSAs associated with the Department's Project Capability of the Projects in which it participates for the years ended December 31, 2023 and 2022, respectively, are listed in the table(s) below:

Projects	Percentage Share	Total Capital Expenditures 2023	Capacity, Fuel and Transmission Billed 2023	Capacity, Fuel and Transmission Billed 2022
Stony Brook Peaking Project	2.8342 %	$ 1,788,602	$ 163,810	$ 151,888
Nuclear Mix No. 1, Seabrook	7.2615	755,814	35,122	34,820
Nuclear Mix No. 1, Millstone	7.2615	4,683,555	415,484	431,421
Nuclear Project No. 3, Millstone	6.3500	9,901,515	720,628	749,720
Nuclear Project No. 4, Seabrook	6.1180	18,804,246	777,218	772,065
Nuclear Project No. 5, Seabrook	2.9821	2,478,696	98,067	97,582
Project 2015A-Capacity Resources	3.8790	2,824,956	16,033	-
		$ 41,237,384	$ 2,226,362	$ 2,237,496

Years Ended:	Total Project 2015A Debt Service 4.5200%
2024	$ 166,319
2025	166,026
2026	165,850
2027	165,814
2028	165,604
2029-2033	826,301
2034-2038	826,239
2044-2048	824,285
2044-2048	822,188
2049-2051	491,826
Total	$ 4,620,452

Long-Term Power Transactions - In March 2023, the Department contracted with MMWEC to participate in a long-term power contract beginning in January 2036 and ending December 2049 with NextEra Energy Power Marketing providing the power and clean nuclear tags. The Department will purchase up to 10 MW of around-the-clock physical energy and associated clean nuclear tags each year. The annual energy payment will start at $6,783,004 in 2036 and grow two (2) percent per year to $8,594,436 in 2049. The total future commitment is $104,537,049.

Telecommunications Contracts

The Department has entered into long-term contracts for dedicated point-to-point data lines and Internet Access services from several companies. These contracts have three-year terms.

In 2023, The Department entered into a three-year contract with Lumen and Verizon to provide 50Gig of Internet services. The Department also entered into a three-year contract with Comcast to provide 30Gig of Internet services. The Department also entered into a five-year contract renewal with a commercial customer to increase their Internet from 200M to 300M.

In 2022, The Department co-termed an existing three-year contract with Lumen to increase Internet speeds from 20Gig to 30Gig.

In 2021, The Department entered into a three-year contract with Lumen to provide 20Gig of Internet Services. The Department also entered into a five-year contract with WG&E to provide point-to-point services to a commercial customer. The Department entered into a three-year contract with Fiber Sonic to provide point-to-point services to multiple locations.

In 2020, The Department entered into a five-year contract with a commercial customer to provide Colocation Services. The Department also entered into a five-year contract renewal with a commercial customer to increase their Internet from 100M to 200M.

In 2019, The Department entered into a five-year contract renewal with Cross Roads a division of Chicopee Electric Light to increase wholesale internet from 2 gigs to 3 gigs. The Department also entered into a five-year contract renewal with a commercial customer to provide router management.

In 2018, the Department entered into a five-year contract with Cross Roads a division of Chicopee Electric Light and a one-year contract with Fiber Sonic a division of South Hadley Electric Light.

In 2017, the Department entered into a five-year contract with Fiber Connect, LLC to provide network operator services.

In 2002, the Department entered into a lease with Fiber Technologies Networks, LLC (Fibertech) for use of the Department's fiber optic lines. The lease provides for an annual payment per route mile for 20 years with an option to renew for an additional five years. That lease was extended in 2022 for a five year period.

The Department has long-term contracts which range from one to five years with customers for telecommunications services.

Environmental Protection and Other Issues

In 1990, the Massachusetts Department of Environmental Protection (MDEP) sent a notice of responsibility to the Department and other parties regarding the presence of coal tar on property known as the gas works, adjacent to the Connecticut River. An investigation of the site has revealed concentrations of contaminants on the site and MDEP classified the area as a priority site. A second notice of responsibility was issued in September 1993 for gas tar deposits in the Connecticut River, effectively separating the gas works into a land site and a river site.

The current estimate for the remaining clean-up of only the land site is approximately $80,410. No estimate is currently available for the river site. However, the cost of clean-up may be significant and material to the financial statements. The measurement of the accrual for remediation costs is subject to uncertainty, including the evolving nature of environmental regulations and the difficulty in estimating the extent and type of remediation activity that will be utilized. The utility is also in negotiations with another counterparty under a similar order to fund part of the clean-up efforts. A final agreement as to the cost-sharing methodology between the parties has not been reached. The impact of these negotiations may be material to the financial statements but cannot be estimated.

Sources of Labor Supply

Fifty-eight percent of the Department's labor force is covered under a collective bargaining agreement between the City of Holyoke Gas and Electric Department and the Holyoke Municipal Gas, Light & Power Guild, Inc. The agreement expires March 31, 2024.

Line of Credit, Margin Account

As of December 31, 2023 and 2022, the Department had a balance of $0.00 on an open line of credit facility (securitized by portfolio assets on deposit) from our investment adviser, LPL Financial. While currently at $0, the Department does, from time to time, access this line if and where beneficial. The current interest rate on the line of credit is 6%, which is a negotiated 2.5% discount versus Wall Street Journal Prime and a 0.75% discount versus LPL's rack rates. Note this is a variable rate and moves in line with the Fed.

14. Risk Management

Claims and Judgments

The Department is exposed to various risks of loss related to torts; theft of, damage to or destruction of assets; errors and omissions; workers compensations; and health care of its employees. The Department participates in a public entry risk pool called the PUMIC to provide coverage for the above-mentioned risks except for workers compensation. The following details the coverage through the PUMIC. Settled claims have not exceeded the risk pool coverage in any of the past three years. There were no significant reductions in coverage compared to the prior year.

Public Entity Risk Pool

Public Utility Mutual Insurance Company (PUMIC)

The PUMIC is a liability insurance company, which is owned by its members. The PUMIC was formed in 1997 to provide general insurance to members of the Public Utility Risk Management Association (PURMA). PURMA is a 501(c)(6) not-for-profit association whose members include municipal utilities and rural cooperatives.

The PUMIC is self-insured up to a maximum of $1,000,000 of each insurance risk. Losses paid by the PUMIC plus administrative expenses will be recovered through premiums to the participating pool of municipal utilities and rural cooperatives.

Management of each organization consists of a board of directors comprised of representatives elected by the participants. The Department has an employee participating as a board member in each of the organizations.

Financial statements of PUMIC and PURMA can be obtained directly from PUMIC's offices.

The initial investment in PUMIC is refundable upon withdrawal from the organization and has been reported at the original amount of $168,000.

For general liability purposes, the Department is self-insured up to $50,000, has self-insurance trust coverage in the amount of $500,000 and general liability insurance through the risk pool for $500,000 to $25,000,000 per occurrence. The Department was also self-insured for workers compensation up to $250,000 per occurrence through December 31, 2014. The Department has since moved to commercial insurance for workers compensation.

15. Subsequent Events

The Department evaluated subsequent events through April 24, 2024, the date that the financial statements were available to be issued, for events requiring recording or disclosure in the financial statements.

The Department closed on a $17,800,000 commercial line of credit with Peoples Bank through the Solar Cooperative on March 26, 2024 to fund three multiyear capital projects. The line of credit will be interest only for a period of two years and will have an annual term out at the loan closing anniversary date. The interest rate during the interest only period will be floating monthly at the tax-exempt equivalent of the Wall Street Journal prime rate. The term loans will have a term and amortization of 15 years.

REQUIRED SUPPLEMENTARY INFORMATION

Holyoke Gas and Electric

Schedule of Proportionate Share of the Net Pension Liability (Unaudited) -
City of Holyoke Retirement System
Last 10 Fiscal Years*

The required supplementary information presented below represents the proportionate information for the enterprise funds included in this report.

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Holyoke Gas and Electric's proportion of the net pension liability	22.9600000%	22.9807710%	22.6007850%	23.0413940%	22.7516170%	21.8667720%	21.0663720%	20.7392330%	20.4671670%
Holyoke Gas and Electric's proportionate share of the net pension liability	$ 28,179,670	$ 16,856,396	$ 22,849,646	$ 67,888,419	$ 34,387,346	$ 25,930,197	$ 30,715,656	$ 30,700,334	$ 27,426,467
Holyoke Gas and Electric's covered employee payroll	14,003,339	13,370,925	12,794,112	12,976,188	12,629,315	11,779,347	11,381,012	10,862,753	10,776,026
Plan fiduciary net position as a percentage of the total pension liability	75.59%	85.04%	78.57%	71.79%	64.90%	71.67%	64.26%	62.55%	64.47%

* The amounts presented for each fiscal year were determined as of the calendar year-end that occurred within the fiscal year.

Schedule of Contributions - Pension
City of Holyoke Retirement System
Last 10 Fiscal Years *

The required supplementary information presented below represents the proportionate information for the enterprise funds included in this report.

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Contractually required contributions	$ 4,217,718	$ 4,094,911	$ 3,907,249	$ 3,983,422	$ 3,958,373	$ 3,856,839	$ 3,711,165	$ 3,596,091	$ 3,526,919
Contributions in relation to the contractually required contributions	(4,217,718)	(4,094,911)	(3,907,249)	(3,983,422)	(3,958,373)	(3,856,839)	(3,711,165)	(3,596,091)	(3,526,919)
Contributions deficiency (excess)	-	-	-	-	-	-	-	-	-
Holyoke Gas and Electric's covered-employee payroll	15,160,385	14,003,339	13,370,925	12,794,112	12,976,188	12,629,315	11,779,347	11,381,012	10,862,753
Contributions as a percentage of covered-employee payroll	27.82%	29.24%	29.22%	31.13%	30.50%	30.54%	31.51%	31.60%	32.47%

* The amounts presented for each fiscal year were determined as of the calendar year-end that occurred within the fiscal year.

See notes to required supplementary information

Holyoke Gas and Electric

Schedule of Changes of the Net OPEB Liability (Asset) (Unaudited) -
City of Holyoke Retirement System
Last 10 Fiscal Years *

	2023	2022	2021	2020	2019	2018	2017
Total OPEB Liability (Asset)							
Service cost	$ 690,712	$ 580,937	$ 570,324	$ 500,313	$ 518,484	$ 594,872	$ 526,946
Interest cost	1,182,608	1,247,108	1,211,804	1,162,953	1,119,602	1,008,278	998,426
Differences between expected and actual experience	(316,267)	(2,789,519)	(285,049)	(269,324)	(222,610)	289,069	-
Changes of assumptions	80,662	523,075	(356,356)	(50,171)	(83,641)	463,399	-
Benefit payments, including refunds of member contributions	(581,161)	(574,367)	(575,849)	(589,998)	(579,319)	(574,584)	(824,241)
Net change in total OPEB lability	1,056,554	(1,012,766)	564,874	753,773	752,516	1,781,034	701,131
Total OPEB Liability, Beginning	19,394,303	20,407,069	19,842,195	19,088,422	18,335,906	16,554,872	15,853,741
Total OPEB Liability, Ending	$ 20,450,857	$ 19,394,303	$ 20,407,069	$ 19,842,195	$ 19,088,422	$ 18,335,906	$ 16,554,872
Contribution, employer	$ 931,160	$ 656,916	$ 3,396,100	$ 2,708,768	$ 2,559,063	$ 1,774,584	$ 2,024,241
Net investment income (loss)	2,564,791	(3,435,258)	2,341,288	1,742,116	1,866,028	(593,694)	840,362
Benefit payments, including refunds of member contributions	(581,161)	(574,367)	(575,849)	(589,998)	(579,319)	(574,584)	(824,241)
Net change in fiduciary net position	2,914,790	(3,352,709)	5,161,539	3,860,886	3,845,772	606,306	2,040,362
Plan Fiduciary Net Position, Beginning	18,950,522	22,303,231	17,141,692	13,280,806	9,435,034	8,828,728	6,788,366
Plan Fiduciary Net Position, Ending	$ 21,865,312	$ 18,950,522	$ 22,303,231	$ 17,141,692	$ 13,280,806	$ 9,435,034	$ 8,828,728
Net OPEB Liability (Asset)							
Net OPEB liability (asset)	$ (1,414,455)	$ 443,781	$ (1,896,162)	$ 2,700,503	$ 5,807,616	$ 8,900,872	$ 7,726,144
Plan's fiduciary net position as a percentage of the total OPEB liability	106.92%	97.71%	109.29%	86.39%	69.58%	51.46%	53.33%
Covered-employee payroll	15,843,824	15,213,927	14,508,827	13,698,697	13,115,000	12,520,427	12,187,515
Net OPEB liability (asset) as a percentage of covered-employee payroll	-8.93%	2.92%	-13.07%	19.71%	44.28%	71.09%	63.39%

* The amounts presented for each fiscal year were determined as of the calendar year-end that occurred within the fiscal year.
GASB Statement No. 74 was implemented effective January 1, 2017, and therefore only four years are available for disclosure.

See notes to required supplementary information

Holyoke Gas and Electric

Schedule of Contributions - Other Postemployment Benefits (Unaudited)
City of Holyoke Retirement System
Last 10 Fiscal Years *

	2023	2022	2021	2020	2019	2018	2017
Actuarially determined contribution	$ 755,677	$ 919,281	$ 580,935	$ 1,279,538	$ 1,732,455	$ 1,974,179	$ 1,978,662
Contributions in relation to the actuarially determined contribution	931,160	656,914	3,396,100	2,708,768	2,559,063	1,774,584	2,024,241
Contribution deficiency (excess)	$ (175,483)	$ 262,367	$ (2,815,165)	$ (1,429,230)	$ (826,608)	$ 199,595	$ (45,579)
Covered-employee payroll	$ 15,843,824	$ 15,213,927	$ 14,508,827	$ 13,698,697	$ 13,115,000	$ 12,520,427	$ 12,187,515
Contributions as a percentage of covered-employee payroll	5.88%	4.32%	23.41%	19.77%	19.51%	14.17%	16.61%
Annual Weighted Rate of Return on OPEB plan investments	13.81%	-15.08%	13.02%	12.52%	18.32%	-5.97%	11.37%

* The amounts presented for each fiscal year were determined as of the calendar year-end that occurred within the fiscal year.
GASB Statement No. 74 was implemented effective January 1, 2017, and therefore only four years are available for disclosure.

See notes to required supplementary information

Changes of benefit terms: Effective January 1, 2020 the Cost of Living Adjustment (COLA) base was increased from $12,000 to $14,000. There were no changes of benefit terms for any participating employer in the City of Holyoke Retirement System for the years 2015-2019.

Changes of assumptions:

The following changes were effective January 1, 2023:

- None

The following changes were effective January 1, 2022:

- The investment return assumption was lowered from 7.25% to 7.00
- The mortality improvement scale was updated from MP-2017 to MP2021

The following changes were effective January 1, 2021:

- None

The following changes were effective January 1, 2020:

- The investment return assumption was lowered from 7.50% to 7.25

The following changes were effective January 1, 2018:

- Salary increases was lowered from 4.25%-4.75% to 4.00%-4.50%
- The inflation assumption was lowered from 3.50%-3.25%
- The investment return assumption was lowered from 7.625% to 7.50%
- The mortality assumption for healthy retirees changed from RP-2000 Healthy Annuitant Mortality Table projected using Scale BB2D from 2009, to RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally using Scale MP-2017
- The mortality assumption for disabled retirees changed from the RP-2000 Healthy Annuitant Mortality Table projected generationally using Scale BB2D from 2015, to RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally using Scale MP- 2017

The following changes were effective January 1, 2016:

- The investment return assumption was lowered from 7.75% to 7.625%
- The mortality assumption for nondisabled participants was changed from the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale AA from 2010 to the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale BB2D from 2009
- The mortality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward three years for males only projected generationally using Scale AA from 2010 to the RP-2000 Healthy Annuitant Mortality Table projected generationally using Scale BB2D from 2015.

Factors significantly affecting trends in the amounts reported:

Inflation	3.50% for FY2023-FY2017
Salary increases	Service-related increases for Group 1: 6.0% per year decreasing over 9 years to 4.25% per year for FY2023-FY2017 Service-related increases for Group 4: 7.0% per year decreasing over 6 years to 4.75% per year for FY2023-FY2017
Investment rate of return	6.25% for FY2023-FY2017
Healthy Mortality Rates	PubG.H-2010 Mortality Table with MP-2021 Mortality Scale for FY2023-FY2021. PubG.H-2010 Mortality Table with MP-2020 Projection Scale for FY2020. PubG.H-2010 Mortality Table with MP-2018 Mortality Scale for FY2019 and FY2018.RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009 for FY2017.

Significant Methods and assumptions used in calculating actuarially determined contributions:

Valuation Date	Actuarially determined contribution for the fiscal year ending December 31, 2022 and 2023 were both determined with the December 31, 2022 actuarial valuation. The fiscal years ending December 31, 2021 and 2020 were both determined with the December 31, 2020 actuarial valuation. The fiscal year ending December 31, 2019 and 2018 were both determined with the December 31, 2018 actuarial valuation. The fiscal year ending December 31, 2017 was determined with the June 30, 2015 actuarial valuation.
Actuarial cost method	Entry Age Actuarial Cost Method for FY2023-FY2018. Projected Unit Credit Method for FY2017.
Amortization method	Level percent of payroll for FY2023-FY2017
Remaining amortization period	6 years from December 31, 2022 for FY2022 and FY2023. 6 years from December 31, 2020 for FY2021 and FY2020. 6 years from December 31, 2018 for FY2019 and FY2018. 7 years from December 31, 2015 for FY2017.
Asset valuation method	Market value for FY2023-FY2017
Discount rate	6.25% for FY2023-FY2017
Inflation	3.50% for FY2023-FY2017
Health care trend rates* *Non-Medicare medical/prescription drug*	6.5% per year graded down by the Getzen model to an ultimate rate of 4,04% per year for FY2023. 6.5% per year graded down by the Getzen model to an ultimate rate of 4.14% per year for FY2022. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.94% per year for FY2021. 5.5% per year graded down by the Getzen model to an ultimate rate of 4.04% per year for FY2020. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.84% per year for FY2019. 6.50% per year graded down by the Getzen model to an ultimate rate of 3.84% per year for FY2018. 10.0%, then 7.5% decreasing by 0.5% for 5 years to an ultimate level of 5.0% per year for FY2017.

Medicare medical/prescription drug	6.5% per year graded down by the Getzen model to an ultimate rate of 4,04% per year for FY2023. 6.5% per year graded down by the Getzen model to an ultimate rate of 4.14% per year for FY2022. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.94% per year for FY2021. 5.5% per year graded down by the Getzen model to an ultimate rate of 4.04% per year for FY2020. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.84% per year for FY2019. 5.5%, then 7.5% decreasing by 0.5% for 5 years to an ultimate level of 5.0% per year for FY2018. 10.0%, then 7.5% decreasing by 0.5% for 5 years to an ultimate level of 5.0% per year for FY2017.
Dental/Administrative	6.5% per year graded down by the Getzen model to an ultimate rate of 4,04% per year for FY2023. 6.5% per year graded down by the Getzen model to an ultimate rate of 4.14% per year for FY2022. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.94% per year for FY2021. 5.5% per year graded down by the Getzen model to an ultimate rate of 4.04% per year for FY2020. 6.00% per year graded down by the Getzen model to an ultimate rate of 3.84% per year for FY2019. 5.0% for FY2018 and FY2017.
Contributions	Retiree contributions for medical and prescription drug coverage are expected to increase with medical trend for FY2023-FY2017.

**Trends reflect known increases for the first year*

SUPPLEMENTARY INFORMATION

Holyoke Gas and Electric

Schedules of Operating Revenues and Expenses - Gas Division
Years Ended December 31, 2023 and 2022

	2023	2022
Operating Revenues		
Residential	$ 12,006,133	$ 12,238,475
Commercial	10,541,977	12,090,722
Industrial	2,969,063	3,127,328
Municipal	896,006	935,535
Departmental sales	80,131	87,246
Sales for resale	544,079	652,211
Uncollectible accounts	(99,305)	(89,612)
Total operating revenues	$ 26,938,084	$ 29,041,905
Cost of Gas Sold		
Purchases, natural gas	$ 11,532,760	$ 14,394,235
Liquid natural gas processed	338,823	809,164
Supplies and expenses	211,110	206,594
Total cost of gas sold	$ 12,241,412	$ 15,536,077
Distribution		
Salaries and wages:		
System control and load dispatch	$ 411,374	$ 402,955
Supervision and engineering	548,095	470,480
Customer installation	636,034	644,139
Operation	577,203	690,718
Maintenance	1,291,956	1,260,160
Supplies and expenses	1,762,134	1,258,674
Total distribution	$ 5,226,796	$ 4,727,126
Customer Accounts		
Salaries and wages:		
Meter reading	$ 25,855	$ 39,643
Accounting and collection	177,071	163,418
Supplies and expenses	108,410	107,652
Total customer accounts	$ 311,336	$ 310,713
General and Administrative		
Salaries	$ 1,113,998	$ 1,062,196
Pensions and benefits	1,784,190	892,621
Insurance	162,141	141,300
General supplies and expenses	990,425	866,402
Total general and administrative	$ 4,050,754	$ 2,962,519

Holyoke Gas and Electric

Schedules of Operating Revenues and Expenses - Electric and Telecommunications Divisions
Years Ended December 31, 2023 and 2022

	2023	2022
Operating Revenues		
Electric sales:		
Residential	$ 16,785,415	$ 15,359,645
Commercial	29,534,978	26,814,760
Industrial	5,169,646	4,946,765
Municipal	2,560,803	2,880,053
Interdepartmental	299,596	307,660
Water	6,300	6,300
Renewable energy revenue	3,670,412	2,236,608
Cobble Mountain operation, net	544,569	564,361
Telecommunication sales	3,341,193	2,967,441
Uncollectible accounts, electric/hydro	(171,906)	(182,937)
Uncollectible accounts, telecommunications	562	(859)
Total operating revenues	$ 61,741,568	$ 55,899,797
Cost of Electricity/Steam/Water Sold		
Purchases, electricity	$ 11,466,412	$ 15,836,388
Salaries and wages:		
Production	1,489,094	1,363,268
Maintenance	1,818,182	1,704,999
Supplies and expenses	3,638,841	4,610,411
Cost of water sold	419,337	440,851
Total cost of electricity/steam/water sold	$ 18,831,866	$ 23,955,917
Electric Transmission		
Salaries and wages	$ 970,793	$ 961,014
Supplies and expenses	290,983	451,227
Transmission by others	3,285,673	3,347,005
Total electric transmission	$ 4,547,449	$ 4,759,246
Distribution		
Electric:		
Salaries and wages:		
Lines, equipment and street lights	$ 3,614,399	$ 3,472,325
Customer installations	252,673	255,810
Supplies and expenses	3,971,825	4,203,803
Telecommunications distribution	2,051,730	1,824,080
Total distribution	$ 9,890,627	$ 9,756,018
Customer Accounts		
Salaries and wages:		
Meter reading	$ 44,656	$ 77,513
Accounting and collection	382,157	330,786
Supplies and expenses	196,215	194,343
Total customer accounts	$ 623,028	$ 602,642
General and Administrative		
Electric:		
Salaries	$ 2,055,402	$ 1,883,664
Pensions and benefits	3,560,287	1,748,859
Insurance	721,842	650,557
General supplies and expenses	2,409,448	2,056,454
Telecommunications general and administrative	712,317	511,761
Total general and administrative	$ 9,459,296	$ 6,851,295