UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)
☑ ANNUAL REPORT PURSUANT TO SECTION 13 or 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

Or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission File number 1-6659

ESSENTIAL UTILITIES, INC.
(Exact name of registrant as specified in its charter)

Pennsylvania (State or other jurisdiction of incorporation or organization)	23-1702594 (I.R.S. Employer Identification No.)
762 W Lancaster Avenue, Bryn Mawr, Pennsylvania (Address of principal executive offices)	19010-3489 (Zip Code)

(610) 527-8000
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value $0.50 per share	**WTRG**	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. ☑ Yes ☐ No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. ☐ Yes ☑ No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☑ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☑ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "small reporting company," and "emerging growth company" in Rule 12(b)-2 of the Exchange Act.:

Large accelerated filer ☑ Accelerated filer ☐
Non-accelerated filer ☐ Small reporting company ☐
Emerging growth company ☐
If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D.1(b) . ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). ☐ Yes ☑ No

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30,2022: $12,000,477,582

The number of shares outstanding of the registrant's common stock as of February 17, 2023: 264,141,265

DOCUMENTS INCORPORATED BY REFERENCE

(1) Portions of the definitive Proxy Statement, relating to the 2023 annual meeting of shareholders of registrant, to be filed within 120 days after the end of the fiscal year covered by this Form 10-K, have been incorporated by reference into Part III of this Form 10-K

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report on Form 10-K, or this Annual Report are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 that are made based upon, among other things, our current assumptions, expectations, plans, and beliefs concerning future events and their potential effect on us. These forward-looking statements involve risks, uncertainties and other factors, many of which are outside our control that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. In some cases you can identify forward-looking statements where statements are preceded by, followed by or include the words "believes," "expects," "estimates", "anticipates," "plans," "future," "potential," "probably," "predictions," "intends," "will," "continue," "in the event" or the negative of such terms or similar expressions. Please refer to the Summary in Item 1A – Risk Factors in this Annual Report for a description of the types of forward-looking statements in this Annual Report. These factors are not necessarily all of the important factors that could cause actual results to differ materially from those expressed in any of our forward-looking statements. Other unknown or unpredictable factors could also have material adverse effects on future results.

Given these risks and uncertainties, you should not place undue reliance on any forward-looking statements. You should read this Annual Report completely and with the understanding that our actual future results, performance and achievements may be materially different from what we expect. These forward-looking statements represent assumptions, expectations, plans, and beliefs only as of the date of this Annual Report. Except for our ongoing obligations to disclose certain information under the federal securities laws, we are not obligated, and assume no obligation, to update these forward-looking statements, even though our situation may change in the future. For further information or other factors which could affect our financial results and such forward-looking statements, see Item 1A – Risk Factors. We qualify all of our forward-looking statements by these cautionary statements.

PART I

Item 1. *Business*

The Company

Essential Utilities, Inc. (formerly known as Aqua America, Inc.) (referred to as Essential Utilities, Essential, the Company, we, us, or our), a Pennsylvania corporation, is the holding company for regulated utilities providing water, wastewater, or natural gas services to an estimated five million people in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, Virginia, West Virginia, and Kentucky under the Aqua and Peoples brands. One of our largest operating subsidiaries, Aqua Pennsylvania, Inc., (Aqua Pennsylvania) accounted for approximately 56% of operating revenues and approximately 73% of income for our Regulated Water segment in 2022. As of December 31, 2022, Aqua Pennsylvania provided water or wastewater services to approximately one-half of the total number of water and wastewater customers we serve. Aqua Pennsylvania's service territory is located in the suburban areas in counties north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. Our other regulated water or wastewater utility subsidiaries provide similar services in seven additional states. Additionally, commencing on March 16, 2020 with the completion of the Peoples Gas Acquisition, the Company began to provide natural gas distribution services to customers in western Pennsylvania, Kentucky, and West Virginia. Approximately 93% of the total number of natural gas utility customers we serve are in western Pennsylvania. The Company also operates non-regulated market-based activities that are supplementary and complementary to our regulated utility businesses. Aqua Resources offers, through a third-party, water and sewer line protection solutions and repair services to households. Other non-regulated subsidiaries of Peoples provide utility service line protection services to households and operate gas marketing and production businesses.

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For many years, starting in the early 1990s, our business strategy was primarily directed toward the regulated water and wastewater utility industry, where we have more than quadrupled the number of regulated customers we serve, and have extended our regulated operations from southeastern Pennsylvania to include our current regulated utility operations throughout Pennsylvania and in seven additional states. On March 16, 2020, we completed our acquisition of a natural gas distribution company consisting of Peoples Natural Gas Company LLC, Peoples Gas Company LLC, Peoples Gas WV LLC, Peoples Gas KY LLC, PNG Gathering LLC, and Delta Natural Gas Company Inc., expanding the Company's regulated utility business to include natural gas distribution. This acquisition is referred to as the "Peoples Gas Acquisition," and collectively these businesses are referred to as "Peoples." Peoples serves approximately 750,000 gas utility customers in western Pennsylvania, West Virginia, and Kentucky. During 2010 through 2013, we sold our utility operations in six states, pursuant to a portfolio rationalization strategy, to focus our operations in areas where we have critical mass and economic growth potential. During the fourth quarter of 2022, the Company signed an agreement to sell its regulated natural gas utility assets in West Virginia, which represent approximately two percent of the Company's regulated natural gas customers. Currently, the Company seeks to acquire businesses in the U.S. regulated sector, which includes water and wastewater utilities and other regulated utilities, and to pursue growth ventures in market-based activities, such as infrastructure opportunities that are supplementary and complementary to our regulated utility businesses.

The descriptions of our business and operations, financial results, and operational data included in this Annual Report do not include historical results for Peoples prior to the acquisition date of March 16, 2020.

The following table reports our operating revenues, by principal state, for our Regulated Water segment, which includes both water and wastewater utility services, Regulated Natural Gas segment, and Other and eliminations for the year ended December 31, 2022:

	Operating Revenues (000's)	Operating Revenues (%)
Pennsylvania	$ 610,964	26.7%
Ohio	118,245	5.2%
Texas	86,802	3.8%
Illinois	92,545	4.0%
North Carolina	71,713	3.1%
Other states (1)	102,703	4.5%
Regulated Water segment total	1,082,972	47.3%
Pennsylvania	1,071,119	46.8%
Other states (2)	72,243	3.2%
Regulated Natural Gas segment total	1,143,362	50.0%
Other and eliminations	61,698	2.7%
Consolidated	$ 2,288,032	100.0%

(1) Includes our water operating subsidiaries in the following states: New Jersey, Indiana, and Virginia.
(2) Includes our natural gas operating subsidiaries in West Virginia and Kentucky.

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The Company has identified twelve operating segments and has two reportable segments, the Regulated Water segment and the Regulated Natural Gas segment. The Regulated Water segment is comprised of eight operating segments for our water and wastewater regulated utility companies, aligned with the states where we provide these services. These operating segments are aggregated into one reportable segment since each of the Company's operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution or wastewater collection methods, and the nature of the regulatory environment. The Regulated Natural Gas segment is comprised of one operating segment representing natural gas utility companies, acquired in the Peoples Gas Acquisition, for which the Company provides natural gas distribution services. In addition to the Company's two reportable segments, the Company includes three of its operating segments in "Other". These businesses represent our non-regulated water, wastewater, and natural gas operations, which are not quantitatively significant to be reportable and therefore are included as a component of "Other". In addition, "Other" and eliminations include corporate costs that have not been allocated to the Regulated Water and Regulated Natural Gas segments, because they would not be recoverable as a cost of utility service, and intersegment eliminations. Information concerning revenues, net income, identifiable assets and related financial information for the Regulated Water and Regulated Natural Gas segments and Other and eliminations for 2022, 2021, and 2020, is set forth in *Management's Discussion and Analysis of Financial Condition and Results of Operations* and in Note 18 – *Segment Information* in the Notes to Consolidated Financial Statements which is contained in Item 8 of this Annual Report.

The following table summarizes our operating revenues, by utility customer class, for the Regulated Water and Regulated Natural Gas segments and Other and eliminations for the year ended December 31, 2022:

	Operating Revenues (000's)	Operating Revenues (%)
Residential water	$ 607,473	26.6%
Commercial water	168,460	7.4%
Fire protection	38,970	1.7%
Industrial water	32,581	1.4%
Other water	55,389	2.4%
Total water	902,873	39.5%
Wastewater	165,383	7.2%
Customer rate credits	-	0.0%
Other utility	14,716	0.6%
Regulated Water segment total	1,082,972	47.3%
Residential gas	720,490	31.5%
Commercial gas	149,653	6.6%
Industrial gas	5,636	0.2%
Gas transportation	205,825	9.0%
Customer rate credits	-	0.0%
Other utility	61,758	2.7%
Regulated Natural Gas segment total	1,143,362	50.0%
Other and eliminations	61,698	2.7%
Consolidated	$ 2,288,032	100.0%

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Customers

Our water utility customer base is diversified among residential water, commercial water, fire protection, industrial water, other water, wastewater customers, and other utility customers (consisting of contracted services that are associated with the utility operations). Residential water and wastewater customers make up the largest component of our water utility customer base, with these customers representing approximately 68%, 69%, and 71%, of our water and wastewater revenues for 2022, 2021, and 2020, respectively. Substantially all of our water utility customers are metered, which allows us to measure and bill for our customers' water consumption. Water consumption per customer is affected by local weather conditions during the year, especially during late spring, summer, and early fall. In general, during these seasons, an extended period of dry weather increases consumption, while above-average rainfall decreases consumption. Also, an increase in the average temperature generally causes an increase in water consumption. On occasion, abnormally dry weather in our service areas can result in governmental authorities declaring drought warnings and imposing water use restrictions in the affected areas, which could reduce water consumption. See "Business – *Water Utility Supplies, and Facilities and Wastewater Utility Facilities*" for a discussion of water use restrictions that may impact water consumption during abnormally dry weather. The geographic diversity of our water utility customer base reduces the effect of our exposure to extreme or unusual weather conditions in any one area of our service territories. Water usage is also affected by changing consumption patterns by our customers, resulting from such causes as increased water conservation and the installation of water saving devices and appliances that can result in decreased water usage. It is estimated that, in the event we experience a 0.50% decrease in residential water consumption, it would result in a decrease in annual residential water revenue of approximately $3,000,000, which would likely be partially offset by a reduction in incremental water production expenses such as chemicals and power.

Our natural gas utility customer base is diversified among residential gas, commercial gas, industrial gas, gas transportation, and other utility. Substantially all of our natural gas utility customers are metered, which allows us to measure and bill for our customers' natural gas usage. Natural gas usage per customer is affected by local weather conditions during the year, especially during the fall, winter, and early spring. These patterns reflect the higher demand for natural gas for heating purposes during the colder months. Our regulated natural gas revenues and expenses are also affected by the cost of gas. We are generally able to pass the cost of gas through to our customers using a purchased gas adjustment clause; therefore, fluctuations in the cost of purchased gas impact revenues on a dollar-for-dollar basis. Since regulated natural gas revenues are affected by the cost of gas, higher gas costs, as well as general economic conditions, may cause customers to conserve usage, or seek alternative energy sources. In addition, higher gas costs result in an increase to our purchased gas inventory, which requires additional borrowings under credit facilities, resulting in higher interest expense.

The Company's growth in revenues over the past five years is primarily a result of the 2020 Peoples Gas Acquisition, increases in water and wastewater rates, increase in the cost of natural gas in 2021 and 2022, and customer growth. See *Economic Regulation* for a discussion of water, wastewater, and natural gas rates. The increase in our utility customer base has been due to customers added through acquisitions, partnerships with developers, and organic growth (excluding dispositions) as shown below:

Year	Utility Customer Growth Rate
2022	1.7%
2021	1.2%
2020	42.9%
2019	2.1%
2018	2.3%

In 2022, 2021, and 2020, our customer count increased by 31,537, 21,246, and 772,099 customers, respectively, primarily due to the water and wastewater utility systems that we acquired, organic growth, and in 2020, due to the Peoples Gas Acquisition that resulted to the addition of approximately 750,000 natural gas utility customers. Overall, for the five year period of 2018 through 2022, our utility customer base, adjusted to exclude customers associated with utility system dispositions, increased at an annual compound rate of 13.5%. During the five year period ended December 31, 2022, our utility customer base including customers associated with utility system acquisitions and dispositions increased from 982,849 at January 1, 2018 to 1,851,586 at December 31, 2022.

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Acquisitions and Other Growth Ventures

We believe that acquisitions will continue to be an important source of customer growth for us. We intend to continue to pursue acquisitions of government-owned and regulated water and wastewater systems that provide services in areas near our existing service territories or in new service areas. We engage in continuing activities with respect to potential acquisitions, including calling on prospective sellers, performing analyses of and due diligence on acquisition candidates, making preliminary acquisition proposals, and negotiating the terms of potential acquisitions. Further, we are also seeking other potential business opportunities, including but not limited to, partnering with public and regulated utilities to invest in infrastructure projects, growing our market-based activities by acquiring businesses that provide water and wastewater or other utility-related services, and investing in infrastructure projects.

Based on the 2021 U.S. Census American Housing Survey, approximately 89% of the U.S. population obtains its water from public or private water utility systems, and 11% of the U.S. population obtains its water from individual wells. With approximately 50,000 public or private water systems in the U.S. (81% of which serve less than 3,300 customers), the water industry is the most fragmented of the major utility industries (telephone, natural gas, electric, water and wastewater). The majority of these community water systems are government-owned. The nation's water systems range in size from large government-owned systems, such as the New York City water system, which serves approximately 8.8 million people, to small systems, where a few customers share a common well. In the states where we operate regulated water utilities, we believe there are approximately 14,000 public or private water utility systems of widely-varying size, with the majority of the population being served by government-owned water systems.

Although not as fragmented as the water industry, the wastewater industry in the U.S. also presents opportunities for consolidation. Based on the 2021 U.S. Census American Housing Survey, approximately 84% of the U.S. population relies on public or private sewer systems, and 16% of the U.S. population relies on septic tank, cesspool or other sewer options. A majority of wastewater facilities are government-owned rather than regulated utilities. In the states where we operate regulated water utilities, we believe there are approximately 4,000 wastewater facilities in operation, with the majority of the population being served by government-owned wastewater systems.

Because of the fragmented nature of the water and wastewater utility industries, we believe there are many potential water and wastewater system acquisition candidates throughout the U.S. We believe the factors driving consolidation of these systems are:

- the benefits of economies of scale;
- the increasing cost and complexity of environmental regulations;
- the need for substantial capital investment;
- the need for technical and managerial expertise;
- the desire to improve water quality and service;
- limited access to cost-effective financing;
- the monetizing of public assets to support, in some cases, the declining financial condition of municipalities; and
- the use of system sale proceeds by a municipality to accomplish other public purposes.

We are actively exploring opportunities to expand our utility operations through acquisitions or other growth ventures. During the five-year period ended December 31, 2022, we expanded our utility operations by completing 28 acquisitions of water or wastewater utilities or other similar assets. Additionally, in March 2020, we completed our acquisition of Peoples, which expanded the Company's regulated utility business to include natural gas distribution.

Supply and Facilities

Water Utility Supplies and Facilities and Wastewater Utility Facilities - Our water utility operations obtain their water supplies from surface water sources, underground aquifers, and water purchased from other water suppliers. Our water supplies are primarily self-supplied and processed at twenty-three surface water treatment plants located in five states, and numerous well stations located in the states in which we conduct business. Approximately 5.9% of our water supplies are provided through water purchased from other water suppliers. It is our policy to obtain and maintain the permits necessary to obtain and treat the water we distribute.

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In September 2021, Hurricane Ida made landfall in Pennsylvania, and the Company had to temporarily shut down two of its water treatment plants, in Chester County, Pennsylvania, which had been damaged due to heavy rainfall, flooding and loss of power. These plants serve a significant portion of Aqua Pennsylvania's service territory in southeastern Pennsylvania. The Company was able to maintain supply to most of its customers by ramping up production at some of its other treatment plants. However, due to low water pressure in some locations, Aqua Pennsylvania asked customers to adopt voluntary water conservation measures during a two-week period. The damage to the facilities occurred despite our prior efforts to shore up the facilities to prevent such floodwater occurrences.

We believe that the capacities of our sources of supply, and our water treatment, pumping and distribution facilities, are generally sufficient to meet the present requirements of our customers under normal conditions. We plan system improvements and additions to capacity in response to normal replacement and renewal needs, changing regulatory standards, changing patterns of consumption, and increased demand from customer growth. The various state utility commissions have generally recognized the operating and capital costs associated with these improvements in setting water and wastewater rates.

On occasion, drought warnings and water use restrictions are issued by governmental authorities for portions of our service territories in response to extended periods of dry weather conditions. The timing and duration of the warnings and restrictions can have an impact on our water revenues and net income. In general, water consumption in the summer months is more affected by drought warnings and restrictions because discretionary and recreational use of water is at its highest during the summer months. At other times of the year, warnings and restrictions generally have less of an effect on water consumption. Drought warnings and watches result in the public being asked to voluntarily reduce water consumption.

We believe that our wastewater treatment facilities are generally adequate to meet the present requirements of our customers under normal conditions. Additionally, we own several wastewater collection systems that convey the wastewater to municipally-owned facilities for treatment. Changes in regulatory requirements can be reflected in revised permit limits and conditions when permits are renewed, typically on a five year cycle, or when treatment capacity is expanded. Capital improvements are planned and budgeted to meet normal replacement and renewal needs, anticipated changes in regulations, needs for increased capacity related to projected growth, and to reduce inflow and infiltration to collection systems. The various state utility commissions have generally recognized the operating and capital costs associated with these improvements in setting wastewater rates for current and new customers. It is our policy to obtain and maintain the permits necessary for the treatment of the wastewater that we return to the environment.

Natural Gas Supply and Transportation Facilities - Our natural gas supply strategy is to ensure a dependable gas supply that is economically priced and which is available for delivery when needed. We purchase natural gas from intrastate, interstate and local sources, and transport natural gas supplies through various intrastate and interstate pipelines under contracts with remaining terms, including extensions, varying from one month to 15 years. We anticipate that these gas supply and transportation contracts will be renewed or replaced prior to their expiration.

The regulations of the states in which we operate natural gas utilities allow us to pass through changes in the cost of natural gas to our customers under purchased gas adjustment provisions in our tariffs. Depending upon the jurisdiction, the purchased gas adjustment factors are updated periodically, ranging from quarterly to annually. The changes in the cost of gas billed to customers are subject to review by the applicable regulatory bodies.

We use various third-party storage services or owned natural gas storage facilities to meet peak-day requirements and to manage the daily changes in demand due to changes in weather.

We own and operate underground natural gas storage facilities with capacity of 10.5 billion cubic feet (Bcf). Total working capacity is 5.2 Bcf for use during the heating season with a maximum daily withdrawal rate of 115.5 million cubic feet (MMcf). Additionally, we have contracted for off-system storage from interstate pipelines. The total amount of off-system storage under contract is 35.6 Bcf with a maximum daily withdrawal rate of 598.6 MMcf.

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On an ongoing basis, we enter into contracts to provide sufficient supplies and pipeline capacity to meet our customers' natural gas requirements. However, it is possible for limited service disruptions to occur from time to time due to weather conditions, transportation constraints, and other events. As a result of these factors, supplies of natural gas may become unavailable from time to time, or prices may increase rapidly in response to temporary supply constraints or other factors. We enter into firm agreements with suppliers, including major producers and marketers, intended to provide flexibility to meet the temperature-sensitive needs of its customers. In Pennsylvania, our distribution system is connected to six interstate pipelines, where we maintain capacity we believe is sufficient to meet our customers' gas requirements. In Kentucky, our distribution system is connected to four interstate pipelines, where we maintain capacity we believe is sufficient to meet our customers' gas requirements. In West Virginia, our distribution system is connected to one interstate pipeline, as well as local production, where we maintain capacity we believe is sufficient to meet our customers' gas requirements.

Natural Gas Gathering - Our Pennsylvania Regulated Natural Gas service territory is situated in the Marcellus Shale production region. Approximately 28% of the natural gas supply on the system is from locally produced gas, which we gather and transport into our distribution system. Our gathering system is regulated by the Pennsylvania Public Utility Commission which includes various safety, environmental and, in some circumstances, anti-discrimination requirements, and in some instances complaint-based rate regulation. Our gathering operations may be subject to ratable take and common purchaser statutes in the states in which we operate.

Our Regulated Natural Gas gathering operations could be adversely affected should they be subject in the future to the application of state or federal regulation of rates and services. Our gathering operations could also be subject to additional safety and operational regulations relating to the design, construction, testing, operation, replacement, and maintenance of gathering facilities. We cannot predict what effect, if any, such changes might have on our operations, but our Regulated Natural Gas segment could be required to incur additional capital expenditures and increased costs depending on future legislative and regulatory changes. Refer to further discussion below in the *Environmental, Health and Safety Regulation and Compliance* section.

Economic Regulation

Most of our utility operations are subject to regulation by their respective state utility commissions, which have broad administrative power and authority to regulate billing rates, determine franchise areas and conditions of service, approve acquisitions, and authorize the issuance of securities. The utility commissions also establish uniform systems of accounts and approve the terms of contracts with affiliates and customers, business combinations with other utility systems, and loans and other financings. The policies of the utility commissions often differ from state to state, and may change over time. A small number of our water and wastewater utility operations are subject to rate regulation by county or city governments. The profitability of our utility operations is influenced to a great extent by the timeliness and adequacy of rate allowances we are granted by the respective utility commissions or authorities in the various states in which we operate.

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Rate Case Management Capability – We maintain a rate case management capability, the objective of which is to provide that the tariffs of our utility operations reflect, to the extent practicable, the timely recovery of increases in costs of operations, capital expenditures, interest expense, taxes, energy, materials, and compliance with environmental regulations as well as a return on equity. We file rate increase requests to recover and earn a fair return on the infrastructure investments that we make in improving or replacing our facilities and to recover expense increases. In the states in which we operate, we are primarily subject to economic regulation by the following state utility commissions:

State	Utility Commission
Pennsylvania	Pennsylvania Public Utility Commission
Ohio	Public Utilities Commission of Ohio
North Carolina	North Carolina Utilities Commission
Texas	Public Utility Commission of Texas
Illinois	Illinois Commerce Commission
New Jersey	New Jersey Board of Public Utilities
Kentucky	Public Service Commission of Kentucky
Virginia	Virginia State Corporation Commission
Indiana	Indiana Utility Regulatory Commission
West Virginia	Public Service Commission of West Virginia

Our water and wastewater operations are comprised of 47 rate divisions, and our natural gas operations are comprised of four rate divisions. Each of our utility rate divisions require a separate rate filing for the evaluation of the cost of service, including the recovery of investments, in connection with the establishment of rates for that rate division. When feasible and beneficial to our utility customers, we will seek approval from the applicable state regulatory commission to consolidate rate divisions to achieve a more even distribution of costs over a larger customer base. All of the states in which we operate permit us to file a revenue requirement for some form of consolidated rates for all, or some, of the rate divisions in that state.

In Ohio, Virginia, North Carolina, and Kentucky, we may bill our utility customers, in certain circumstances, in accordance with a rate filing that is pending before the respective regulatory commission, which would allow for interim rates. As of December 31, 2022, we have no billings under interim rate arrangements for rate case filings in progress. Furthermore, some utility commissions authorize the use of expense deferrals and amortization in order to provide for an impact on our operating income by an amount that approximates the requested amount in a rate request. In these states, the additional revenue billed and collected prior to the final regulatory commission ruling is subject to refund to customers based on the outcome of the ruling. The revenue recognized and the expenses deferred by us reflect an estimate as to the final outcome of the ruling. If the request is denied completely or in part, we could be required to refund to customers some or all of the revenue billed to date and write-off some or all of the deferred expenses.

Revenue Surcharges – Eight states in which we operate water and wastewater utilities, and two states, Pennsylvania and Kentucky, in which we operate natural gas utilities permit us to add an infrastructure rehabilitation surcharge to their respective bills to offset the additional depreciation and capital costs associated with capital expenditures related to replacing and rehabilitating infrastructure systems. Without this surcharge, a utility absorbs all of the depreciation and capital costs of these projects between base rate increases. The gap between the time that a capital project is completed and the recovery of its costs in rates is known as regulatory lag. This surcharge is intended to substantially reduce regulatory lag, which could act as a disincentive for utilities to rehabilitate their infrastructure. In addition, our subsidiaries in some states use a surcharge or credit on their bills to reflect changes in costs, such as changes in state tax rates, other taxes and purchased water costs, until such time as the new cost levels are incorporated into base rates.

The infrastructure rehabilitation surcharge typically adjusts periodically based on additional qualified capital expenditures completed or anticipated in a future period, and is capped at a percentage of base rates, generally at 5% to 12.75%, and is reset to zero when new base rates that reflect the costs of those additions become effective or when a utility's earnings exceed a regulatory benchmark. These surcharges provided revenues of $26,902,294 in 2022, 33,771,486 in 2021, and $13,038,555 in 2020.

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In the majority of our natural gas service territories, the public utility commissions have authorized bare steel and cast-iron replacement programs. In Pennsylvania, we filed a Long-Term Infrastructure Replacement program with the Pennsylvania Public Utility Commission where we have committed to the replacement of bare steel and cast-iron pipe. On February 14, 2012, the Governor of Pennsylvania signed into law Act 11 of 2012, which provided a Distribution System Improvement Charge (DSIC) mechanism for certain utilities to recover costs related to repair, replacement or improvement of eligible distribution property that has not previously been reflected in rates or rate base. Through this Pennsylvania DSIC, subject to an earnings test, a utility may recover the fixed costs of eligible infrastructure incurred during the three months ended one month prior to the effective date of the charge, thereby reducing the historical regulatory lag associated with cost recovery through the traditional rate-making process. In Kentucky, we have a pipe replacement program tariff, which allows adjustment of regulated rates annually to earn a return on capital expenditures incurred subsequent to our last rate case which were associated with the replacement of bare steel and vintage plastic pipe.

Gas costs incurred to serve our natural gas customers represent a significant operating expense. Our regulated natural gas rates, in all jurisdictions, contain a Purchased Gas Adjustment (PGA), which is reflected in our tariffs. The PGA allows us to timely charge for changes in the cost of purchased gas, inclusive of unaccounted for gas expense based on actual experience. PGA procedures involve periodic filings and hearings before the state regulatory commissions to establish price adjustments for a designated future period. The procedures also provide for inclusion in later periods of any variances between actual recoveries representing the estimated costs and actual costs incurred. The PGA is subject to periodic review and audit by the state regulatory commissions who also have the authority to disallow previously incurred costs.

In Pennsylvania, the gas cost component of uncollectible accounts expense, gas procurement costs, and certain costs to maintain a supplier choice program, where customers can elect their natural gas supplier, are recovered by mechanisms outside of typical base rate recovery. Additionally, in Pennsylvania, we recover the costs related to universal service programs, whereby customers who meet certain income guidelines receive assistance toward paying their monthly bill, weatherization services, and other programs. In Kentucky, the gas cost component of uncollectible accounts expense is recovered by a recovery mechanism outside of base rate recovery.

Income Tax Accounting Change – In 2012, Aqua Pennsylvania adopted an income tax accounting method change, implemented on Essential Utilities' 2012 federal income tax return. This accounting method change allows a tax deduction for qualifying utility asset improvements that were formerly capitalized for tax purposes, and was implemented in response to a June 2012 rate order issued by the Pennsylvania Public Utility Commission. The Pennsylvania rate order requires use of the flow-through method of income tax benefits which results in a reduction in current income tax expense through the recognition of income tax benefits resulting from the accounting method change. In the first rate order since 2012, Aqua Pennsylvania received a 2019 rate case order that provided for $158,864,688 of income tax deductions, for its water customers, annually, from the flow-through recognition of the Aqua Pennsylvania income tax accounting change, subject to a collar of $3,000,000 above or below; with the cumulative differences either refunded or recovered in the subsequent rate case. In May 2022, Aqua Pennsylvania received a rate case order that provided for a base rate increase that provides a target deduction of $159,060,000 and a collar-mechanism of $4,000,000.

On March 16, 2020, the Company completed the Peoples Gas Acquisition. In March 2020 and June 2022, the Company changed the method of tax accounting for certain qualifying infrastructure investments at its Peoples Natural Gas and Peoples Gas subsidiaries, respectively. In the fourth quarter of 2022, the Company made a similar change for its Aqua New Jersey subsidiary, beginning with the current tax year. These changes allow a tax deduction for qualifying utility asset improvement costs that were formerly capitalized for tax purposes. Consistent with the Company's accounting for differences between book and tax expenditures for its Aqua Pennsylvania subsidiary, the Company is utilizing the flow-through method to account for this timing difference. For Peoples Natural Gas, the Company calculated the income tax benefits for qualifying capital expenditures made prior to March 16, 2020 (catch-up adjustment) and has recorded a regulatory liability for $160,655,000 for these income tax benefits. In May 2021, the Pennsylvania Public Utility Commission approved a settlement petition that allows Peoples Natural Gas to continue to use flow-through accounting for the current tax repair benefit and allows for the catch-up adjustment be given to its customers. These benefits are being provided back to customers over a five-year period through a credit on customer bills which commenced in August 2021. In addition, the settlement petition required the contribution of $500,000 to a customer-bill payment assistance program, completed in July 2021, and $5,000,000 in relief to past-due accounts for natural gas customers impacted by the COVID-19 pandemic, completed in December 2021. For Peoples Gas, the Company calculated the catch-up

adjustment

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from the periods prior to the 2021 tax year and recognized a regulatory liability of $13,808,000 for these income tax benefits. The Company will maintain this regulatory liability on its consolidated balance sheet until accounting treatment is determined in its next base rate case.

Fair Market Value Legislation – In April 2016, Pennsylvania enacted legislation allowing the public utility commission to utilize fair market value to set ratemaking rate base instead of the depreciated original cost of water or wastewater assets for certain qualifying municipal acquisitions. The legislation includes a process for engaging two independent utility valuation experts to perform appraisals that are filed with the public utility commission and then averaged and compared to the purchase price. The ratemaking rate base is the lower of the average of the appraisals or the purchase price and is subject to regulatory approval. Illinois, Indiana, New Jersey, North Carolina, Ohio, Virginia, and Texas also have legislation that allows the use of fair market value under varying rules and circumstances. We believe that this legislation encourages consolidation in the water and wastewater industry, providing municipalities with an option for exiting the business if they are dealing with challenges associated with their aging, deteriorating water and wastewater assets, do not have the expertise or technical capabilities to continue to comply with ever-increasing environmental regulations, or simply want to focus on other community priorities.

Revenue Stability Mechanisms – Revenue stability mechanisms separate the volume of water sold from our ability to meet our cost of service and infrastructure costs. These mechanisms allows us to recognize revenue based on a target amount established in the last rate case, and then record either a regulatory asset or liability based on the cumulative difference over time, which results in either a refund due to customers or a payment from customers. In Illinois, our operating subsidiary utilizes a revenue stability mechanism. Additionally, a weather-normalization adjustment (WNA) mechanism is in place for our natural gas customers served in Kentucky. The WNA serves to minimize the effects of weather on the Company's results for its residential and small commercial natural gas customers. This regulatory mechanism adjusts revenues earned for the variance between actual and normal weather and can have either positive (warmer than normal) or negative (colder than normal) effects on revenues. Customer bills are adjusted in the December through April billing months, with rates adjusted for the difference between actual revenues and revenues calculated under this mechanism billed to the customers.

Competition

In general, we believe that Essential Utilities and its water, wastewater, and natural gas subsidiaries have valid authority, free from unduly burdensome restrictions, to enable us to carry on our business as presently conducted in the franchised or contracted areas we now serve. The rights to provide water, wastewater, or natural gas service to customers in a particular franchised service territory are generally non-exclusive, although the applicable utility commissions usually allow only one regulated utility to provide service to customers in a given area. In some instances, another water utility provides service to a separate area within the same political subdivision served by one of our subsidiaries. Additionally, our larger natural gas customers may bypass gas distribution services by gaining distribution directly from interstate pipelines, other gas distributors, or other energy sources. As a regulated utility, we believe there is little competition for the daily water, wastewater, and natural gas service we provide to our customers.

Although our natural gas subsidiaries are not currently in significant direct competition with any other distributors of natural gas in its service areas, we do compete with suppliers of other forms of energy such as fuel oil, electricity, propane, coal, wind, and solar. Competition can be intense among the energy sources with price being the primary consideration. This is particularly true for industrial customers who have the ability to switch to alternative fuels. Natural gas generally benefits from a competitive price advantage over oil, electricity, and propane. Competition from renewable energy sources such as solar and wind is likely to increase as the political environment currently favors these energy sources through incentives or by placing restrictions on emissions from the burning of fossil fuels.

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Water and wastewater utilities may compete for the acquisition of other water and wastewater utilities or for acquiring new customers in new service territories. Competition for these acquisitions generally comes from nearby utilities, either other regulated utilities or municipal-owned utilities, and sometimes from strategic or financial purchasers seeking to enter or expand in the water and wastewater industry. We compete for new service territories and the acquisition of other utilities on the following bases:

- economic value;
- economies of scale;
- our ability to provide quality water, wastewater, and natural gas service;
- our existing infrastructure network;
- our ability to perform infrastructure improvements;
- our ability to comply with environmental, health, and safety regulations;
- our technical, regulatory, and operational expertise;
- our ability to access capital markets; and
- our cost of capital.

The addition of new service territories and the acquisition of other utilities by regulated utilities such as the Company are generally subject to review and approval by the applicable state utility commissions.

In a very small number of instances in one of our southern states, where there are municipally-owned water or wastewater systems near our operating divisions, the municipally-owned system may either have water distribution or wastewater collection mains that are located adjacent to our division's mains or may construct new mains that parallel our mains. In these rare circumstances, the municipally-owned system may attempt to voluntarily offer service to customers who are connected to our mains, resulting in our mains becoming surplus or underutilized without compensation.

In the states where our water subsidiaries operate, it is possible that portions of our subsidiaries' operations could be acquired by municipal governments by one or more of the following methods:

- eminent domain;
- the right of purchase given or reserved by a municipality or political subdivision when the original franchise was granted; and,
- the right of purchase given or reserved under the law of the state in which the subsidiary was incorporated or from which it received its permit.

The price to be paid upon such an acquisition by the municipal government is usually determined in accordance with applicable law under eminent domain. In other instances, the price may be negotiated, fixed by appraisers selected by the parties, or computed in accordance with a formula prescribed in the law of the state or in the particular franchise or charter. We believe that our operating subsidiaries would be entitled to fair market value for any assets that are condemned, and we believe the fair market value would be in excess of the book value for such assets.

Despite maintaining a program to monitor condemnation interests and activities that may affect us over time, one of our primary strategies continues to be to acquire additional water and wastewater systems, to maintain our existing systems where there is a business or a strategic benefit, and to actively oppose unilateral efforts by municipal governments to acquire any of our operations, particularly for less than the fair market value of our operations or where the municipal government seeks to acquire more than it is entitled to under the applicable law or agreement. On occasion, we may voluntarily agree to sell systems or portions of systems in order to help focus our efforts in areas where we have more critical mass and economies of scale or for other strategic reasons.

Environmental, Health and Safety Regulation and Compliance

The Company's mission is "to sustain life and improve economic prosperity by safely and reliably delivering Earth's most essential resources to customers and communities". We are committed to protecting the environment and the health and safety of our employees, customers, and the public and continue to adhere to applicable regulatory standards. We

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integrate environmental, health, and safety requirements into planning, decision-making, construction, operating, and maintenance activities that we perform.

Provision of water and wastewater services is subject to regulation under the federal Safe Drinking Water Act, the Clean Water Act, and related state laws, and under federal and state regulations issued under these laws. These laws and regulations establish criteria and standards for drinking water and for wastewater discharges. Environmental, health and safety, and water quality regulations are complex and may vary from state to state. In some instances, a state has adopted a standard that is more stringent than the federal standard. For example, while the EPA has announced the intention to propose drinking water regulations for two PFAS compounds (perfluorooctanoic acid, or PFOA, and perfluorooctane sulfonic acid, or PFOS) and issued non-enforceable lifetime and Interim Health Advisory Levels for PFOA, PFOS and two other PFAS compounds, the New Jersey Department of Environmental Protection has already established enforceable drinking water standards for three PFAS compounds (PFOA, PFOS, and perfluorononanoic acid, or PFNA) and the Pennsylvania Department of Environmental Protection also recently enacted enforceable drinking water standards for PFOA and PFOS in advance of the federal EPA proposed regulations. In addition, we are subject to federal and state laws and other regulations relating to solid waste disposal, dam safety, and other aspects of our operations. Capital expenditures and operating costs required as a result of water quality standards and environmental requirements have been traditionally recognized by state utility commissions as appropriate for inclusion in establishing rates.

From time to time, Essential Utilities has acquired, and may acquire, systems that have environmental compliance issues. Environmental compliance issues also arise in the course of normal operations or as a result of regulatory changes. Essential Utilities attempts to align capital budgeting and expenditures to address these issues in due course. We believe that the capital expenditures required to address outstanding environmental compliance issues in our water and wastewater systems have been budgeted in our capital program and represent approximately $118,984,000, or less than 5% of our expected total water and wastewater capital expenditures over the next five years (2023-2027). We are parties to agreements with regulatory agencies in Pennsylvania, Texas, Virginia, and Illinois under which we have committed to make improvements for environmental compliance. These agreements are intended to provide the regulators with assurance that problems covered by these agreements will be addressed, and the agreements generally provide protection from fines, penalties, and other actions while corrective measures are being implemented. We are working with state environmental officials in Pennsylvania, Texas, Virginia, and Illinois to implement or amend regulatory agreements as necessary.

Our Regulated Natural Gas utility operations are subject to stringent and complex laws and regulations pertaining to the environment. Legislative and regulatory actions to address climate change are in various phases of review or implementation in the United States. These measures could include emissions limits, reporting requirements, carbon taxes, and incentives or mandates to conserve energy or use renewable energy sources. As an owner or operator of natural gas pipelines, distribution systems and storage, and the facilities that support these systems, we must comply with these laws and regulations at the federal, state, and local levels. Failure to comply with these laws and regulations may trigger a variety of administrative, civil, and criminal enforcement measures, including the assessment of monetary penalties, the imposition of remedial actions, and the issuance of orders enjoining future operations. Certain environmental statutes impose strict, joint and several liability for costs required to assess, clean up, and restore sites where hazardous substances have been stored, disposed or released.

Safe Drinking Water Act - The Safe Drinking Water Act establishes criteria and procedures for the U.S. Environmental Protection Agency (EPA) to develop national quality standards for drinking water. Regulations issued pursuant to the Safe Drinking Water Act set standards regarding the amount of microbial and chemical contaminants and radionuclides in drinking water. Current requirements under the Safe Drinking Water Act are not expected to have a material impact on our business, financial condition, or results of operations as we have made and are making investments to meet existing water quality standards. We may, in the future, be required to change our method of treating drinking water at some sources of supply and make additional capital investments if additional regulations become effective.

Clean Water Act - The Clean Water Act regulates discharges from drinking water and wastewater treatment facilities into lakes, rivers, streams, and groundwater. It is our policy to obtain and maintain all required permits and approvals for the discharges from our water and wastewater facilities, and to comply with all conditions of those permits and other regulatory requirements. A program is in place to monitor facilities for compliance with permitting, monitoring and reporting for wastewater discharges. From time to time, discharge violations may occur which may result in fines. These

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fines and penalties, if any, are not expected to have a material impact on our business, financial condition, or results of operations. We are also parties to agreements with regulatory agencies in several states where we operate while improvements are being made to address wastewater discharge issues. The EPA has identified leveraging wastewater discharge permitting and application of biosolids, or sewage sludge, containing PFAS as areas of focus in its PFAS Strategic Roadmap.

Solid Waste Disposal - The handling and disposal of waste generated from water and wastewater treatment facilities is governed by federal and state laws and regulations. A program is in place to monitor our facilities for compliance with regulatory requirements, and we are not aware of any significant environmental remediation costs necessary from our handling and disposal of waste material from our water and wastewater operations.

Dam Safety - Our subsidiaries own 30 dams, of which 14 are classified as high hazard dams that are subject to the requirements of the federal and state regulations related to dam safety, which undergo regular inspections and an annual engineering inspection. After a thorough review and inspection of our dams by professional outside engineering firms, we believe that all 14 dams are structurally sound and well-maintained, except as described below. These inspections provide recommendations for ongoing rehabilitation which we include in our capital improvement program. The Company has approximately $25,680,000 in capital improvements budgeted between 2023 and 2027 for dam improvements.

We performed studies of our dams that identified five high hazard dams in Pennsylvania and one high hazard dam in Ohio requiring capital improvements. These capital improvements result from the adoption by state regulatory agencies of revised formulas for calculating the magnitude of a possible maximum flood event. The most significant capital improvement remaining to be performed in our dam improvement program is on one dam in Pennsylvania at a total estimated cost of $10,290,000. Design for this dam commenced in 2013 and construction is expected to be completed in 2027.

A previously-owned Ohio dam requiring capital improvements was no longer used for water supply and was sold to a third party in December 2020. In connection with the sale, we contractually agreed to complete certain dam capital improvements after the sale for an estimated cost of $2,100,000. The repairs were completed in 2022.

Lead and Copper Rule – The events in Flint, Michigan, which commenced in 2014, and other communities have brought attention to the issue of lead in drinking water from home plumbing. Lead in drinking water can come from lead that leaches from service lines, home plumbing solder, and fixtures or faucets. Since the Lead and Copper Rule in 1992, we have been working to prevent lead leaching from home plumbing sources by reducing water corrosivity and adding chemicals that can prevent leaching of lead in pipes and homes. We have a program to evaluate all changes in water sources and/or treatment prior to initiating a change in water supply. We also focus on identifying and removing lead service lines and encouraging customers to replace the customer-owned portion of the service line if it is lead as they are identified during our main replacement program or during other maintenance activities. We support the recommendations of The Lead Service Line Replacement Collaborative, a collaborative of leading water industry, housing, and health organizations that has recommended full replacement of lead service lines as a “best practice” to reduce lead in drinking water, but we generally only have control over the company-owned portion of each service line. In cases where we are replacing a company-owned lead service line, our standard approach is to replace the company-owned portion and advise and encourage the customer to replace the customer-owned portion of the service line, all the way to the customer’s home. In Pennsylvania, we have the legal and regulatory authority to replace the customer-owned portion of the service line and will attempt to obtain customer permission to do so. We also advise customers of the potential health impacts of lead in drinking water, and conduct lead testing at homes following replacement of a lead service line.

On January 15, 2021 the EPA published the Lead and Copper Rule Revisions (LCRR) that included deadlines for lead service line inventories and replacement plans, and then signed a final rule on June 10, 2021 to extend the effective date of the LCRR to December 16, 2021. This action extends the LCRR requirement to submit a lead service line inventory and a lead service line replacement plan to the respective states or agencies by October 16, 2024. We are continuing to enhance our lead service line inventory and refine our lead service line replacement plans which we expect to complete by the deadline. Additionally, EPA is developing a new regulation, the Lead and Copper Rule Improvements (LCRI), to better protect communities from exposure to lead in drinking water. The LCRI is expected to delay the due dates for lead service line replacement plans and result in modifications to other parts of the LCRR. We are executing an implementation plan to comply with the initial LCRR requirement to complete a lead service line inventory. Capital

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expenditures and operating costs associated with compliance with any of these rule revisions will be determined once the EPA finalizes the rule.

Partnership for Safe Water Program – Essential Utilities is a proud participant in the American Water Works Association's (AWWA) Partnership for Safe Water Program. This voluntary program is a commitment to excellence within the drinking water community above and beyond EPA's stringent treatment goals. All of our active surface water treatment plants (within Pennsylvania, Ohio, Illinois, and Virginia) maintain good standing in the program which includes many awards of achievement. The honors include the "Director's Award" (achieved at seven systems) which recognizes plants that have: 1) completed a comprehensive self-assessment report, 2) created an action plan for continuous improvement, and 3) provided several evaluations of performance demonstrating operational excellence. Several of our systems have met these criteria annually and have received 5, 10, 15, and 20 year subscriber awards. Furthermore, our Roaring Creek Pennsylvania treatment plant has received the Phase IV Excellence Award, the highest honor achieved in the Partnership Program.

Safety Standards - Our facilities and operations may be subject to inspections by representatives of the Occupational Safety and Health Administration from time to time. We maintain safety policies and procedures to comply with the Occupational Safety and Health Administration's rules and regulations, but violations may occur from time to time, which may result in fines and penalties, which are not expected to have a material impact on our business, financial condition, or results of operations. We endeavor to correct such violations promptly when they come to our attention.

Pipeline Safety Improvement Act- In December 2006, Congress enacted the Pipeline, Inspection, Protection, Enforcement and Safety Act of 2006 (2006 Act), which reauthorized the programs adopted under the Pipeline Safety Improvement Act of 2002 (2002 Act). These programs included several requirements related to ensuring pipeline safety, and a requirement to assess the integrity of pipeline transmission facilities in areas of high population concentration.

Pursuant to the 2006 Act, the Pipeline and Hazardous Materials Safety Administration (PHMSA), an agency of the US Department of Transportation (DOT), issued regulations, effective February 12, 2010, requiring operators of gas distribution pipelines to develop and implement integrity management programs similar to those required for gas transmission pipelines, but tailored to reflect the differences in distribution pipelines. Operators of natural gas distribution systems were required to write and implement integrity management programs by August 2, 2011. Peoples' natural gas distribution systems met this deadline.

Pursuant to the 2002 Act and the 2006 Act, PHMSA has adopted a number of rules concerning, among other things, distinguishing between gathering lines and transmission facilities, requiring certain design and construction features in new and replaced lines to reduce corrosion, and requiring pipeline operators to amend existing written operations and maintenance procedures and operator qualification programs. PHMSA also updated its reporting requirements for natural gas pipelines effective January 1, 2011.

In December 2011, Congress passed the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (2011 Act). This act increased the maximum civil penalties for pipeline safety administrative enforcement actions; required the DOT to study and report on the expansion of integrity management requirements and the sufficiency of existing gathering line regulations to ensure safety; required pipeline operators to verify their records on maximum allowable operating pressure; and imposed new emergency response and incident notification requirements. In 2016, the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016 (2016 Act) reauthorized PHMSA's pipeline safety programs through 2019 and provided limited new authority, including the ability to issue emergency orders, to set inspection requirements for certain underwater pipelines and to promulgate minimum safety standards for natural gas storage facilities, as well as to provide increased transparency into the status of as-yet-incomplete PHMSA actions required by the 2011 Act.

In June 2021, PHMSA issued an advisory bulletin to address a self-executing mandate as part of the 2016 Act. This Leak Detection and Reduction (LDAR) bulletin requires operators to update standard operating procedures to address leaks and gas releases which may be hazardous to public safety and the environment.

In November 2021, PHMSA published the final gathering line rule, with a tentative effective date of May 2022. This rule will require preventative and mitigative measures on gathering lines of certain diameters and operating pressures.

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Compliance with PHMSA's regulations, performance of the remediation activities by our natural gas distribution companies and intrastate pipelines and verification of records on maximum allowable operating pressure will continue to require increases in both capital expenditures and operating costs. The level of expenditures will depend upon several factors, including age, location and operating pressures of the facilities. In particular, the cost of compliance with the DOT's integrity management rules will depend on integrity testing and the repairs found to be necessary by such testing. Changes to the amount of pipe subject to integrity management, whether by expansion of the definition of the type of areas subject to integrity management procedures or of the applicability of such procedures outside of those defined areas, may also affect incurred costs. Implementation of the 2011 and 2016 Acts by PHMSA may result in other regulations or the reinterpretation of existing regulations that could impact compliance costs. In addition, we may be subject to the DOT's enforcement actions and penalties if it fails to comply with pipeline regulations.

Inflation Reduction Act - On August 16, 2022, the Inflation Reduction Act of 2022 ("IRA") was enacted into law, which among other things, includes a provision to implement an annual waste emissions charge beginning with calendar year 2024 (to be paid in 2025) on applicable oil and gas facilities that exceed certain methane emission thresholds. Currently, the Company has gathering facility assets that could exceed the minimum thresholds and potentially be subject to the waste emissions charge. We are continuing to assess the future impact of the provisions of the IRA on our consolidated financial statements and on the Company's gathering assets. As a regulated utility, required capital expenditures and operating costs, including taxes, have been traditionally recognized by state utility commissions as appropriate for inclusion in establishing rates.

Security

We maintain security measures at our facilities, and collaborate with federal, state and local authorities and industry trade associations regarding information on possible threats and security measures for water, wastewater, and natural gas utility operations. The costs incurred are expected to be recoverable in customer rates and are not expected to have a material impact on our business, financial condition, or results of operations.

We also maintain cyber security protection measures with respect to our information technology, including our customer data, and, in some cases, the monitoring and operation of our treatment, storage, pumping, and pipeline infrastructure. We rely on our information technology systems in connection with the operation of our business, especially with respect to customer service and billing, accounting and, in some cases, the monitoring and operation of our treatment, storage, pumping, and pipeline infrastructure. In addition, we rely on our systems to track our utility assets and to manage maintenance and construction projects, materials and supplies, and our human resource functions.

Environmental Sustainability

The way we do business at Essential reflects our commitment to a sustainable, safe, and healthy environment for all our stakeholders. Sustainability is deeply engrained in our business strategy. We integrate environmental requirements into the planning, decision-making, engineering, construction, operating, and maintenance activities that we perform.

We understand the urgency of the Paris Agreement and the United Nations Intergovernmental Panel on Climate Change's science-based target of limiting the global temperature increase to well below 2 degrees Celsius. Of our Scope 1 and 2 GHG emissions, 79% are driven by our gas distribution business. Early in 2021, we announced that by 2035 we will reduce our Scope 1 and 2 GHG emissions by 60% from our 2019 baseline. This is consistent with the rate of reduction necessary through 2035 to keep on track with the Paris Agreement. This will be achieved by extensive gas pipeline replacement, renewable energy purchasing, accelerated methane leak detection and repair, and various other currently planned initiatives that are highly feasible with proven technology. In 2021, we have achieved 6% emissions reduction from our 2019 baseline. Subsequently, in 2022, we began procuring nearly 100% renewable electricity for our water and wastewater operations in Illinois, New Jersey, Ohio, and Pennsylvania.

The Company's environmental sustainability initiatives and strategy are discussed further in our environmental, social, and governance reporting, which can be found on our website at www.esg.essential.co. Such reports are not incorporated by reference and should not be considered part of this Form 10-K.

Human Capital Management

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The Company values its workforce as one of its most important assets. The Company is dedicated to creating a sustainable working atmosphere for its employees to attract and retain the best employees. Human capital measures and objectives that the Company focuses on in managing its business include the health and safety of its employees, succession planning, voluntary attrition rate, and diversity, equity and inclusion initiatives.

As of December 31, 2022, we employed a total of 3,187 full-time employees. Our subsidiaries are parties to 20 labor agreements with labor unions covering 1,619 employees. The labor agreements expire at various times up until 2027.
Health and Safety - Safety is the foundation of our business and guides all our employees' actions. The Company continues to invest in safety improvements, implement policies and procedures, develop technical training and guidelines for our employees, and leverage new tools and technology to improve our maps, records and infrastructure performance. The Company's Safety Council leads our safety efforts and is supported by state and facility committees and leaders that operate at the local site level. Hazards in the workplace are actively identified, and management tracks incidents so remedial actions can be taken to improve workplace safety. To encourage managers to promote a safe environment, related metrics are incorporated in management's incentive compensation plans.

The Company provides access to a variety of innovative, flexible, and convenient employee health and wellness programs. We proactively conduct communications outreach to our employees and their family members on relevant health topics. With the focus on mental health becoming more of a central part of an employee's well-being, we have added additional resources and counseling access for employees and their families to utilize to ensure they take care of themselves.

Employee Development and Training - The Company continues to invest in training and development programs for employees so that they may evolve and enhance their skills in their areas of expertise. We also offer tuition reimbursement to all regular, full-time employees. At Essential, we believe in an integrated talent development approach. We utilize the "70/20/10 model" for development, which holds that 70% of learning happens on the job through stretch goals and critical assignments, 20% of learning occurs through mentoring and coaching and involvement in professional and industry related activities, and 10% of learning occurs within a virtual or live learning environment. We align our development model to support our vision, mission, and competencies, with a balanced approach to developing our workforce that leads us to the development of a confident, committed, and high-performance culture.

Succession Planning - Under the Company's Corporate Governance Guidelines, the Board of Directors is responsible for the development and periodic review of a management succession plan for the Chief Executive Officer and other executives. Annually, the Board of Directors reviews the Company's succession planning process for the Chief Executive Officer and the named executive officers. During this review, the directors review succession candidates on an immediate basis and more developmental candidates to ensure that the Company is well-prepared for the future.

Voluntary Attrition and Turnover - The Company measures turnover rates of its employees in assessing the Company's overall human capital. The Company's voluntary attrition rate (not including retirements) for 2022 was 3% at the executive and senior management level, 9% at the mid-level manager level, 14% at the professional level, and 9% across all other employees. These voluntary attrition rates increased from 2021. We believe issues related to the COVID-19 pandemic, a strong labor market, and the large national increase in employee retirements and attrition impacted us as well as other companies. We are working to develop programs focused on retaining our workforce.

Diversity, Equity and Inclusion - Diversity of backgrounds, ideas, thoughts, and experiences is essential to our culture and the way we do business. Creating an environment where our differences are valued and where every person feels a sense of belonging and engagement supports a thriving organization that cares about our customers and ensures our continued long-term success. In order to promote a culture of diversity and inclusion, we have conducted educational workshops to foster better understanding of different points of view and how pre-conceived notions impact relationships at work. We also support diverse segments of our workforce through employee resource groups, such as the Black Resource Group, LGBTQ+ Pride Resource Group, and Women's Resource Group. These groups welcome participation from all employees in order to learn from a cultural perspective and support each other through allyship.

Diversifying the workforce continues to be a focus at all levels of the Company. Beginning in 2021, we added an employee diversity component (5% weighting) to our short term incentive plan. Our focus on attracting and retaining diverse talent has resulted in growth in the number of our diverse employees from 15% in 2021 to 16% in 2022.
Diversity

at the management level has also remained steady in 2022, with 10% of the management team comprised of minorities, and 22% of the management team comprised of women by the end of 2022. We have a range of diverse recruitment tactics and believe we can achieve our multiyear plan of reaching 17% employees of color.

We also believe diversity in our Board of Directors is critical for effective governance. Candidates for nomination to the Board are considered by the Corporate Governance Committee based on their personal abilities, qualifications, independence, knowledge, judgment, character, leadership skills, education, background (including, but not limited to race, gender, and national origin), and their expertise and experience in fields and disciplines relevant to the Company. In October 2021, we were recognized as a Champion of Board Diversity by The Forum of Executive Women for having one-third of our board comprised of women. In June, 2022, we were named a 2022 Vibrant Pittsburgh Champion being recognized as one of the exceptional organizations who is leading the way in diversity and inclusion in the region.

Communication and Engagement –We believe that our employees are critical to our business, and it is essential to have an environment of high engagement and inclusivity in which employees thrive. We value feedback from our employees, as it helps us gain a deeper understanding of areas where we are doing well and where we need improvement. In 2022, we have invited all employees to participate in a bi-annual culture assessment by completing an anonymous survey. We have worked with various functional areas to create and implement action plans to address areas of employee concern. Executive management also regularly conducts town hall-style meetings with employees, where they have the opportunity to ask questions, voice opinions, and share feedback.

Citizenship – As a mission-based organization, we are driven to improve the quality of life and livelihood of our customers and the communities we serve. Through our charitable giving program, employees are encouraged to engage in philanthropy through the United Way campaign and matching gift program. At various times throughout the year, the Company supports its employees in volunteering their time and talents to give back to their communities.

Supplier Diversity

We acknowledge that supplier diversity is critical for our communities as well as for our business. We are committed to increasing our work with qualified and certified diverse suppliers from the communities and neighborhoods where we live, work, and operate each day and suppliers that use reasonable efforts to minimize pollution and improve environmental protection and sustainability. As such, we announced a multi-year plan to increase diverse supplier spend to 15% of controllable spend, which excludes spend where there is no opportunity to include diverse suppliers or spend that cannot be sourced from a diverse supplier due to a policy or law (items like power, purchased water and some one-time payments). Beginning in 2021, we added a supplier diversity component (5% weighting) to our short-term incentive plan. We also have a Supplier Code of Conduct that defines the basic requirements for suppliers of goods and services and their responsibilities to the environment and their stakeholders. We also expect our suppliers to subscribe to the principles of nondiscrimination, follow high standards of business ethics and professional conduct and adhere to our Human Rights Policy.

Management and Board Oversight

Our Board of Directors has various committees including an audit committee, an executive compensation committee, a corporate governance committee, and a risk mitigation and investment policy committee. Each of these committees has a formal charter. We also have Corporate Governance Guidelines and a Code of Ethical Business Conduct. Copies of these charters, guidelines, and codes can be obtained free of charge from our *Investor Relations* page on our web site, www.essential.co. In the event we amend or waive any portion of the Code of Ethical Business Conduct that applies to any of our directors, executive officers, or senior financial officers, we will post that information on our web site.

Available Information

We file annual, quarterly, current reports, proxy statements, and other information with the Securities and Exchange Commission (SEC). You may obtain our SEC filings from the SEC's web site at www.sec.gov.

Our internet web site address is www.essential.co. We make available free of charge through our web site's *Investor Relations* page all of our filings with the SEC, including our annual report on Form 10-K, quarterly reports on Form 10-Q,

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current reports on Form 8-K, and other information. These reports and information are available as soon as reasonably practicable after such material is electronically filed with the SEC.

In addition, you may request a copy of the foregoing filings, at no cost by writing or telephoning us at the following address or telephone number:

Investor Relations Department
Essential Utilities, Inc.
762 W. Lancaster Avenue
Bryn Mawr, PA 19010-3489
Telephone: 610-527-8000

The references to our web site and the SEC's web site are intended to be inactive textual references only, and the contents of those web sites are not incorporated by reference herein and should not be considered part of this or any other report that we file with or furnish to the SEC.

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Item 1A. *Risk Factors*

In addition to the other information included in this Annual Report, the following factors should be considered in evaluating our business and future prospects. Any of the following risks, either alone or taken together, could materially harm our business, financial condition, and results of operations. If one or more of these or other risks or uncertainties materialize, or if our underlying assumptions prove to be incorrect, our business, financial condition, and results of operations could be materially harmed.

Risk Factor Summary

Our business is subject to many risks and uncertainties. The following are the types of forward-looking statements we make throughout this Annual Report, including in these Risk Factors, and a summary of the types of risks that could impact us and cause actual results to differ from those described in such forward-looking statements:

- opportunities for future acquisitions, both within and outside the water and wastewater industries, the success of pending acquisitions and the impact of future acquisitions;
- acquisition-related costs and synergies;
- the sale of water, wastewater, and gas subsidiaries;
- the impact of conservation awareness of customers and more efficient fixtures and appliances on water and natural gas usage per customer;
- the impact of our business on the environment, and our ability to meet our climate change goals;
- our authority to carry on our business without unduly burdensome restrictions;
- our capability to pursue timely rate increase requests;
- the capacity of our water supplies, water facilities, wastewater facilities, and natural gas supplies and storage facilities;
- the impact of decisions of governmental and regulatory bodies, including decisions to raise or lower rates and decisions regarding potential acquisitions;
- the impact of public health threats, such as the COVID-19 pandemic, or the measures implemented by the Company as a result of these threats;
- developments, trends and consolidation in the water, wastewater, and natural gas utility and infrastructure industries;
- the impact of changes in and compliance with governmental laws, regulations and policies, including those dealing with the environment, health and water quality, taxation, and public utility regulation;
- the development of new services and technologies by us or our competitors;
- the availability of qualified personnel;
- the condition of our assets;
- recovery of capital expenditures and expenses in rates;
- projected capital expenditures and related funding requirements;
- the availability and cost of capital financing;
- dividend payment projections;
- the impact of geographic diversity on our exposure to unusual weather;
- the continuation of investments in strategic ventures;
- our ability to obtain fair market value for condemned assets;
- the impact of fines and penalties;
- the impact of legal proceedings;
- general economic conditions, including inflation;
- the impairment of goodwill resulting in a charge to earnings;
- the impact of federal and/or state tax policies and the regulatory treatment of the effects of those policies; and
- the amount of income tax deductions for qualifying utility asset improvements and the Internal Revenue Service's ultimate acceptance of the deduction methodology.

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Because forward-looking statements involve risks and uncertainties, there are important factors that could cause actual results to differ materially from those expressed or implied by these forward-looking statements, including but not limited to:

- the success in the closing of, and the profitability of future acquisitions;
- changes in general economic, business, credit and financial market conditions;
- our ability to manage the expansion of our business;
- changes in environmental conditions, including the effects of climate change;
- our ability to integrate and otherwise realize all of the anticipated benefits of businesses, technologies or services which we may acquire;
- the decisions of governmental and regulatory bodies, including decisions on regulatory filings, including rate increase requests and decisions regarding potential acquisitions;
- our ability to file rate cases on a timely basis to minimize regulatory lag;
- the impact of inflation on our business and on our customers;
- abnormal weather conditions, including those that result in water use restrictions or reduced or elevated natural gas consumption;
- the seasonality of our business;
- our ability to treat and supply water or collect and treat wastewater;
- our ability to source sufficient natural gas to meet customer demand in a timely manner;
- the continuous and reliable operation of our information technology systems, including the impact of cyber security attacks or other cyber-related events, and risks associated with new systems implementation or integration;
- impacts from public health threats, such as the COVID-19 pandemic, including on consumption, usage, supply chain, and collections.
- changes in governmental laws, regulations and policies, including those dealing with taxation, the environment, health and water quality, and public utility regulation;
- the extent to which we are able to develop and market new and improved services;
- the effect of the loss of major customers;
- our ability to retain the services of key personnel and to hire qualified personnel as we expand;
- labor disputes;
- increasing difficulties in obtaining insurance and increased cost of insurance;
- cost overruns relating to improvements to, or the expansion of, our operations;
- inflation in the costs of goods and services;
- the effect of natural gas price volatility, including the potential impact of high commodity prices on usage or rate case outcomes;
- civil disturbance or terroristic threats or acts;
- changes to the rules or our assumptions underlying our determination of what qualifies for an income tax deduction for qualifying utility asset improvements;
- changes in, or unanticipated, capital requirements;
- changes in our credit rating or the market price of our common stock;
- changes in valuation of strategic ventures;
- changes in accounting pronouncements;
- litigation and claims; and
- restrictions on our subsidiaries' ability to make dividends and other distributions.

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Risks Related to Acquisitions

One of the important elements of our growth strategy is the acquisition of regulated utility systems. Any acquisition we decide to undertake may involve risks. Further, competition for acquisition opportunities from other regulated utilities, governmental entities, and strategic and financial buyers may hinder our ability to grow our business. Lastly, competition and industry trends could impact our ability to retain existing customers or acquire new customers, which could have an adverse impact on our business, results of operations and financial condition.

One important element of our growth strategy is the acquisition and integration of regulated utility systems in order to broaden our service areas. We will not be able to acquire other businesses if we cannot identify suitable acquisition opportunities or reach mutually agreeable terms with acquisition candidates. It is our intent, when practical, to integrate any businesses we acquire with our existing operations. Investing in and integrating acquisitions could require us to incur significant costs and cause diversion of our management's time and resources, and we may be unable to successfully integrate our business with acquired businesses or to realize anticipated benefits of acquisitions. Acquisitions by us could also result in:

- dilutive issuances of our equity securities;
- incurrence of debt, contingent liabilities, and environmental liabilities;
- unanticipated capital expenditures;
- failure to maintain effective internal control over financial reporting;
- recording goodwill and other intangible assets for which we may never realize their full value and may result in an asset impairment that may negatively affect our results of operations;
- fluctuations in quarterly results;
- other acquisition related expenses; and
- exposure to unknown or unexpected risks and liabilities.

Some or all of these items could harm our business, financial condition, results of operations, and cash flows, and our ability to finance our business and to comply with regulatory requirements. The businesses we acquire may not achieve sales and profitability that would justify our investment, and any difficulties we encounter in the integration process, including in the integration of processes necessary for internal control and financial reporting, could interfere with our operations, reduce our operating margins and harm our internal controls.

Some states in which we operate allow the respective public utility commissions to use fair market value to set ratemaking rate base instead of the traditional depreciated original cost of water or wastewater assets for certain qualifying municipal acquisitions. Depending on the state, there are varying rules and circumstances in which fair value is determined. A number of states' regulations allow ratemaking rate base to equal the lower of the average of the appraisals or the purchase price, subject to regulatory approval. There may be situations where we may pay more than the ultimate fair value of the utility assets as set by the regulatory commission, despite the fair value legislation suggesting its full recovery. In these situations, goodwill may be recognized to the extent there is an excess purchase price over the fair value of net tangible and identifiable intangible assets acquired through a business acquisition. Our financial condition and results of operations could be harmed by an inability to earn a return on, and recover our purchase price as a component of rate base. Regulatory actions or changes in significant assumptions, including discount and growth rates, utility sector market performance and comparable transaction multiples, projected operating and capital cash flows, and fair value of debt, could also potentially result in future impairments which could be material.

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We compete with governmental entities, other regulated utilities, and strategic and financial buyers, for acquisition opportunities. As consolidation becomes more prevalent in the utility industry and competition for acquisitions increases, the prices for suitable acquisition candidates may increase to unacceptable levels and limit our ability to grow through acquisitions. In addition, our competitors may impede our growth by purchasing utilities near our existing operations, thereby preventing us from acquiring them. Governmental entities or environmental / social activist groups have challenged, and may in the future challenge our efforts to acquire new service territories, particularly from municipalities or municipal authorities. Additionally, on occasion we have entered into agreements to acquire water or wastewater utility systems that have been challenged by municipalities or other parties, or where referenda are required, which may impact our ability to complete the acquisition. Higher purchase prices and resulting rates may limit our ability to invest additional capital for system maintenance and upgrades in an optimal manner. Our growth could be hindered if we are not able to compete effectively for new companies and/or service territories with other companies or strategic and financial buyers that have lower costs of operations or capital, or that submit more attractive bids. Any of these risks may harm our business, financial condition, and results of operations.

We face the risk that large natural gas customers may bypass gas distribution services by gaining distribution directly from interstate pipelines, other gas distributors, or other energy sources. Increased competition or other changes in legislation, regulation, or policies could have a material adverse effect on our business, financial condition, or results of operations. Moreover, changes in wholesale natural gas prices compared with prices for electricity, fuel oil, coal, propane, or other energy sources may affect the retention of natural gas customers and may adversely impact our future financial condition and results of operations.

The integration of acquisitions can be a multi-year activity depending upon the complexity and significance of the acquisition.

One element of our strategic plans is our growth through acquisition strategy. Acquisitions in the utility industry are time consuming and complex, with the number of regulatory approvals needed. A significant acquisition can require significant time and resources, including devotion of management time, to integrate the acquired business.

Risks Related to Health and Safety and Environmental Concerns

Some scientific experts are predicting a worsening of weather volatility in the future, possibly created by climate change due to greenhouse gases. Changing severe weather patterns could require additional expenditures to reduce the risk associated with any increasing storm, flood, and drought occurrences.

The issue of climate change is receiving ever increasing attention worldwide. Many climate change predictions, if true, present several potential challenges to utilities, such as: increased frequency and duration of droughts, increased precipitation and flooding, potential degradation of water quality, and changes in demand for services. We maintain an ongoing facility planning process, and this planning or the enactment of new standards may result in the need for additional capital expenditures or raise our operating costs. Because of the uncertainty of weather volatility related to climate change, we cannot predict its potential impact on our business, financial condition, or results of operations. Although any potential expenditures and operating costs may be recovered in the form of higher rates, there can be no assurance that the various state utility commissions that govern our business would approve rate increases to enable us to recover such expenditures and costs. Without adequate rate recovery, our costs of complying with climate change weather related measures may negatively impact our business, financial condition, or results of operations.

Climate change laws and regulations have been passed and are being proposed that require compliance with greenhouse gas emissions standards, as well as other climate change initiatives, which could impact our business, financial condition or results of operations.

Climate change is receiving ever increasing attention worldwide. Many scientists, legislators, and others attribute global warming to increased levels of greenhouse gases (GHG), including carbon dioxide. Climate change laws and regulations enacted and proposed could limit and impose costs tied to GHG emissions from covered entities and require additional monitoring/reporting. They could also provide a cost advantage to alternative energy sources and impact the competitive position of natural gas. We produce an environmental, social, and governance report, which provides an overview of our energy usage and GHG emissions. At this time, the existing GHG laws and regulations are not expected to materially

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harm the Company's operations or capital expenditures; however, the uncertainty of future climate change regulatory requirements still remains. We cannot predict the potential impact of future laws and regulations on our business, financial condition, or results of operations. Although these future expenditures and costs for regulatory compliance may be recovered in the form of higher rates, there can be no assurance that the various state utility commissions that govern our business would approve rate increases to enable us to recover such expenditures and costs. Another potential risk related to climate change could be more frequent and more severe weather events, which could increase our costs to repair damaged facilities and restore service to our customers. If we are unable to provide utility services to our customers, our financial results would be impacted by lost revenues, and we would have to seek regulatory approval to recover restoration costs.

Climate change and other environmental, social, and governance matters are increasingly important to many investors, and we may fail to provide information desired by all investors or achieve our ESG goals.

Climate change and other environmental, social, and governance, or ESG, matters are increasingly important to many investors, including our current investors. We have focused attention on ESG matters and the communication of our ESG goals, targets, and activities to investors. These goals and targets reflect our current plans and aspirations. Our ability to achieve such goals and aspirations is subject to numerous risks and uncertainties, many of which rely on the collective efforts of others or may be outside of our control. As such, we cannot offer assurances that the results reflected or implied by any such statements will be realized or achieved. Moreover, standards and expectations for ESG matters continue to evolve and may be subject to varying interpretations, which may result in significant revisions to our goals or progress. We may also be unable to satisfactorily meet evolving standards, regulations, and disclosure requirements related to ESG. Any failure, or perceived failure, to meet evolving stakeholder expectations, additional regulations and industry standards and disclosures, or achieve our ESG goals and targets could have an adverse effect on our business, results of operations, financial condition, or stock price.

Our water supply, including water provided to our customers, is subject to various potential contaminants which may result in disruption in our services, additional costs, loss of revenue, fines, laws and/or regulations, and litigation which could harm our business, reputation, financial condition, and results of operations.

Our water supplies, including water provided to our customers, are subject to possible contaminants, including those from:

- naturally occurring compounds or man-made substances;
- chemicals and other hazardous materials;
- lead and other materials;
- pharmaceuticals and personal care products; and
- possible deliberate or terrorist attacks.

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Depending on the nature of the water contamination, we may have to interrupt the use of that water supply until we are able to substitute, where feasible, the flow of water from an uncontaminated water source, including if practicable, the purchase of water from other suppliers, or continue the water supply under restrictions on use for drinking or broader restrictions against all use except for basic sanitation and essential fire protection. We may experience a loss of revenue and incur significant costs, including, but not limited to, costs for water quality testing and monitoring, "do not consume" expenses, treatment of the contaminated source through modification of our current treatment facilities or development of new treatment methods, the purchase of alternative water supplies, or litigation related matters, including governmental enforcement actions. In addition, the costs we could incur to decontaminate a water source or our water distribution system and dispose of waste could also be significant. The costs resulting from the contamination may not be recoverable in rates we charge our customer, or may not be recoverable in a timely manner. Further, we may incur a loss of revenue in the event we elect to waive customers' water and wastewater charges. If we are unable to adequately treat the contaminated water supply or substitute a water supply from an uncontaminated water source in a timely or cost-effective manner, there may be an adverse effect on our business, reputation, financial condition, and results of operations. We could also be subject to:

- claims for consequences arising out of human exposure to contamination and/or hazardous substances in our water supplies, including toxic torts;
- claims for other environmental damage;
- claims for customers' business interruption as a result of an interruption in water service;
- claims for breach of contract;
- criminal enforcement actions;
- regulatory fines; or
- other claims.

We incur substantial costs on an ongoing basis to comply with all laws and regulations. New or stricter laws and/or regulations could increase our costs. Although we may seek to recover these costs through an increase in customer rates, there is no guarantee that the various state regulators would approve such an increase.

The events in Flint, Michigan, which commenced in 2014, and other communities have brought attention to the issue of lead in drinking water from home plumbing. We have been working to prevent lead leaching from home plumbing sources by reducing water corrosivity and adding chemicals that can prevent leaching of lead in pipes and homes. We have a program to evaluate all changes in water sources prior to initiating a change in water supply. We also focus on identifying and removing lead service lines and encouraging customers to replace the customer-owned portion of the service line if it is lead as they are identified during our main replacement program or during other maintenance activities. In 2019, we initiated a "do not consume" advisory for some of our customers served by our Illinois subsidiary, which resulted in a loss of revenues and increased operating costs and for which we anticipate an additional recovery of other costs and losses. The do not consume advisory was lifted in 2019 and, in 2022, the water system was determined to be in compliance with the federal Lead and Copper Rule. We filed a claim with our insurance carrier for costs and losses incurred in 2019 related to the do not consume advisory, for which we recovered a portion of the costs and losses and for which we anticipate an additional recovery of other costs and losses.

We are devoting our attention to various emerging contaminants, including the Per- and Polyfluoroalkyl Substances (PFAS) family of chemicals and other chemicals and substances that do not have any regulatory standard in drinking water. We comply with governmental agency guidance that recommends the standard of protection from these contaminants, and we monitor proposed standards and other governmental agency guidance regarding these contaminants. Additionally, commencing in 2020, we initiated a company-wide program to address these contaminants uniformly across our regulated water utilities by selecting standards adopted or proposed by New Jersey, which are the most stringent standards adopted in any state in which we do business. As a result, we are planning a capital program in the range of tens of millions of dollars over several years to install mitigation technology at our water treatment facilities where the source water is found to exceed the standard we have determined to follow. There is no guarantee that the various state regulators would approve the costs associated with our treatment of the emerging contaminants without the establishment of treatment standards by the appropriate governmental entities, or for standards set by other governmental entities. Accordingly, we have commenced legal action, and anticipate filing additional legal actions, aimed at recovering the costs associated with the treatment in our systems of emerging contaminants from polluting entities.

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We may incur costs to defend our position and/or incur reputational damage even if we are not liable for consequences arising out of human exposure to contamination and/or hazardous substances in our water supplies, other environmental damage, or our customer's business interruption. Our insurance policies may not be sufficient to cover the costs of our defense or, in the event we are liable, these claims, and losses incurred may make it difficult for us to secure insurance in the future at acceptable rates. Such claims or actions could harm our business, reputation, financial condition, and results of operations.

In the future, we expect Federal regulations establishing national limits on PFAS chemicals. If these limits are more stringent than our standards, we would expect to comply with the Federal regulations and file for recovery of any incremental capital or operating expenses in our routine regulatory proceedings.

Transporting, distributing and storing natural gas involves numerous risks that may result in accidents and other operating risks and costs.

Natural gas transportation, distribution and storage activities inherently involve a variety of hazards and operational risks, such as leaks, accidental explosions, damage caused by third parties and mechanical problems, which could cause substantial financial losses. These risks could result in serious personal injury, loss of human life, significant damage to property, environmental pollution, impairment of operations, and substantial losses. The location of pipelines and storage facilities near populated areas, including residential areas, commercial business centers and industrial sites, could increase the level of damages resulting from these risks. These activities may also subject the Company to litigation or administrative proceedings. Such litigation or proceedings could result in substantial monetary judgments, fines or penalties against the Company or otherwise be resolved on unfavorable terms.

We are subject to federal and state laws and regulations requiring the Company to maintain certain safety and system integrity measures by identifying and managing storage and pipeline risks. In addition, companies that supply and transport gas to Peoples are also subject to similar regulations and other restrictions related to their activities. Compliance with these laws and regulations, or future changes in these laws and regulations, may, directly or indirectly, result in increased capital, operating, and other costs which may not be recoverable in a timely manner or at all from customers in rates. In accordance with customary industry practices, we maintain insurance against a significant portion, but not all, of these risks and losses. To the extent any of these events occur or regulations change, it could adversely affect our business, reputation, financial condition, and results of operations.

Risks Related to the Operation and Regulation of our Business

General economic conditions may affect our financial condition and results of operations.

A general economic downturn may lead to a number of impacts on our business and may affect our financial condition and results of operations. Such impacts may include:

- a reduction in discretionary and recreational water use by our residential water customers, particularly during the summer months when such discretionary usage is normally at its highest;
- a reduction in natural gas use by our residential customers, particularly during the winter months when such usage is normally at its highest;
- a decline in usage by industrial and commercial customers as a result of decreased business activity or a shift to alternative energy sources;
- an increased incidence of customers' inability to pay or delays in paying their utility bills, or an increase in customer bankruptcies, which may lead to higher bad debt expense, increased financing costs, and reduced cash flow;
- a lower natural customer growth rate due to a decline in new housing starts; and
- a decline in the number of active customers due to housing vacancies.

General economic turmoil may also lead to an investment market downturn, which may result in our pension and other post-retirement plans' asset market values suffering a decline and significant volatility. A decline in our plans' asset market values could increase our required cash contributions to the plans and expense in subsequent years. Inflation

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levels in excess of historical levels could also lead to regulatory lag and thus impact our earned returns and financial results.

Moreover, inflation and rising interest rates have recently become areas of increasing economic concern. Changes in the cost of providing our products and services, including price increases in operating and capital costs, as well as increases in labor costs or borrowing costs, may negatively impact our financial condition and results of operations. We review the adequacy of our rates as approved by public utility commissions in relation to the increasing cost of providing services and the inherent regulatory lag in adjusting those rates. Rate increases are not retroactive and often lag increases in costs caused by inflation. On occasion, our regulated utility companies may enter into rate settlement agreements, which require us to wait for a period of time to file the next base rate increase request. These agreements may result in regulatory lag whereby inflationary increases in expenses or higher borrowing costs may not be reflected in rates, and may not yet be requested, or a gap may exist between when a capital project is completed and the start of its recovery in rates. Even during periods of moderate inflation, the effects of inflation can have a negative impact on our operating results. The ability to control operating expenses is an important factor that will influence future results.

The rates we charge our customers are subject to regulation. If we are unable to obtain government approval of our requests for rate increases or if approved rate increases are untimely or inadequate to recover and earn a return on our capital investments, to recover expenses or taxes, or to take into account changes in water, wastewater, or natural gas usage, our profitability may suffer.

The rates we charge our customers are subject to approval by utility commissions in the states in which we operate. We file rate increase requests, from time to time, to recover our investments in utility plant and expenses. Our ability to maintain and meet our financial objectives is dependent upon the recovery of, and return on, our capital investments and expenses through the rates we charge our customers. Once a rate increase petition is filed with a utility commission, the ensuing administrative and hearing process may be lengthy and costly, and our costs may not always be fully recoverable. The timing of our rate increase requests are therefore partially dependent upon the estimated cost of the administrative process in relation to the investments and expenses that we expect to recover through the rate increase. In addition, the amount or frequency of rate increases may be decreased or lengthened as a result of many factors including changes in regulatory oversight in the states in which we operate utilities and income tax laws, including regulations regarding tax-basis depreciation as it applies to our capital expenditures or qualifying utility asset improvements. We can provide no assurances that any future rate increase request will be approved by the appropriate utility commission; and, if approved, we cannot guarantee that these rate increases will be granted in a timely or sufficient manner.

In Virginia, North Carolina and Kentucky, we may bill our water utility customers, in certain circumstances, in accordance with a rate filing that is pending before the respective regulatory commission, which would allow for interim rates. Furthermore, some utility commissions authorize the use of expense deferrals and amortization in order to provide for an impact on our operating income by an amount that approximates the requested amount in a rate request. The additional revenue billed and collected prior to the final ruling is subject to refund to customers based on the outcome of the ruling. The revenue recognized and the expenses deferred by us reflect an estimate as to the final outcome of the ruling. If the request is denied completely or in part, we could be required to refund to customers some or all of the revenue billed to date, and write-off some or all of the deferred expenses.

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Changes in our earnings may differ from changes in our rate base.

Our business is capital intensive and requires significant capital investments for additions to or replacement of property, plant and equipment. These capital investments create assets that are used and useful in providing regulated utility service, and as a result, increase our rate base, on which we generate earnings through the regulatory process. Changes in our reported earnings, however, may differ from changes in our rate base in a given period due to several factors, including rate case timing and the terms of such rate cases; over-or under-earnings in a given period due to changes in operating costs; the effects of tax rates or tax treatment of capital investments, including the effect of repair tax; capital expenditures that are not eligible for a DSIC between rate cases; acquisitions which have not yet been included in rate base; and issuances of equity. We anticipate that we may experience periods in which growth in earnings is less than growth in rate base; such differences may be material and may persist over multiple reporting periods.

Our ability to meet customers' natural gas requirements may be impaired if contracted natural gas supplies and interstate pipelines services are not available, are not delivered in a timely manner or if federal regulations decrease its available capacity, which may result in a loss of customers and an adverse effect on our financial conditions and results of operations.

We are responsible for acquiring sufficient natural gas supplies, interstate pipeline capacity and storage capacity to meet current and future customers' peak, annual and seasonal natural gas requirements. We rely on third-party service providers, as we purchase a portion of our natural gas supply from interstate sources and rely on interstate pipelines to transport natural gas to our distribution system, in addition to local production that is delivered directly into our pipeline system. The Federal Energy Regulatory Commission (FERC) regulates the transportation of the natural gas received from interstate sources, and any change in regulatory policies could increase our transportation costs or decrease our available pipeline capacity. A decrease in interstate pipeline capacity available, an increase in competition for interstate pipeline transportation service or other interruptions to pipeline gas supplies could reduce our normal interstate supply of natural gas. Additionally, federal or state legislation could restrict or limit natural gas drilling, which could decrease the supply of available natural gas. If we are unable to maintain access to a reliable and adequate natural gas supply or sufficient pipeline capacity to deliver that supply, we may be unable to meet our customers' requirements, resulting in a loss of customers and an adverse effect on our financial conditions and results of operations.

Peoples has traditionally used local production as a source of supply to fulfill a portion of its supply requirements. In order to absorb local gas into its system, Peoples has in place a network of pipelines and related facilities that move the gas either to customers located where gas is produced or to the more populated areas of the service territory where the greatest level of consumption occurs, and, in summer months, to Peoples' on-system and off-system storage facilities. This network of facilities includes gathering lines, compressor stations, and transmission lines. Peoples has entered into gas purchase agreements with various producers to supply this local production. A decrease in this supply could occur, for example, if the local gas producers no longer drill wells to offset natural well production decline or if such producers decide to cease production or produce into another pipeline. State and federal legislation or regulations could also limit drilling activities and in turn limit gas supply. If supply is limited, we would be faced with purchasing gas supplies likely at a higher cost, may be unable to find alternative gas supply, and accordingly, may be unable to meet customer requirements, resulting in a loss of customers and an adverse effect on our financial condition and results of operations.

Any failure of our water and wastewater treatment plants, network of water and wastewater pipes, or water reservoirs could result in damages that may harm our business, financial condition, and results of operations.

Our operating subsidiaries treat water and wastewater, distribute water, and collect wastewater through an extensive network of pipes, and store water in reservoirs. A failure of a major treatment plant, pipe, or reservoir could result in claims for injuries or property damage. The failure of a major treatment plant, pipe, or reservoir may also result in the need to shut down some facilities or parts of our network in order to conduct repairs. Such failures and shutdowns may limit our ability to supply water in sufficient quality and quantities to our customers or collect and treat wastewater in accordance with standards prescribed by governmental regulators, including state utility commissions, and may harm our business, financial condition, and results of operations. Any business interruption or other losses might not be covered by insurance policies or be recoverable in rates, and such losses may make it difficult for us to secure insurance in the future at acceptable rates.

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Our facilities could be the target of a possible terrorist or other deliberate attack which could harm our business, financial condition and results of operations.

In addition to the potential contamination of our water supply or deliberate gas explosions as described in separate risk factors herein, we maintain security measures at our facilities and have heightened employee and public safety official awareness of potential threats to our utility systems. We have and will continue to bear increases in costs for security precautions to protect our facilities, operations, and supplies, most of which have been recoverable under state regulatory policies. While the costs of increases in security, including capital expenditures, may be significant, we expect these costs to continue to be recoverable in utility rates. Despite our security measures, we may not be in a position to control the outcome of terrorist events, or other attacks on our utility systems, should they occur. Such an event could harm our business, financial condition, and results of operations.

Our business is impacted by weather conditions and is subject to seasonal fluctuations, which could harm demand for water and natural gas services and our business, financial condition, and results of operations.

Demand for our water during the warmer months is generally greater than during cooler months due primarily to additional requirements for water in connection with irrigation systems, swimming pools, cooling systems, and other outside water use. Throughout the year, and particularly during typically warmer months, demand will vary with temperature, rainfall levels, and rainfall frequency. In the event that temperatures during the typically warmer months are cooler than normal, if there is more rainfall than normal, or rainfall is more frequent than normal, the demand for our water may decrease and harm our business, financial condition, and results of operations. In Illinois, our operating subsidiary has adopted a revenue stability mechanism which allows us to recognize state PUC authorized revenue for a period which is not based upon the volume of water sold during that period, and effectively reduces the impact of weather and consumption variability.

Peoples' revenues are seasonal and temperature sensitive and vary from year-to-year, depending on weather conditions, with a substantial portion of Peoples' revenue occurring in the first and fourth quarters of the year due to colder temperatures and increased heating needs. In 2022, this amounted to 74%, for the first and fourth quarters. This has the effect of reducing our quarterly revenues in the spring and summer months. In addition, warmer-than-normal-weather conditions can decrease the amount of natural gas Peoples sells in any year, which could adversely affect our business, financial condition, and results of operations. Finally, significantly colder-than-normal weather conditions can materially increase natural gas usage, resulting in challenges for our operations and our ability to serve our customers.

Decreased residential customer water and natural gas usage as a result of conservation efforts, and the impact of more efficient appliances and furnaces, may harm demand for our utility services and may reduce our revenues and earnings.

There has been a general decline in water usage per residential customer as a result of an increase in conservation awareness, and the impact of an increased use of more efficient plumbing fixtures and appliances. These gradual, long-term changes are normally taken into account by the utility commissions in setting rates, whereas short-term changes in water usage, if significant, may not be fully reflected in the rates we charge. We are dependent upon the revenue generated from rates charged to our residential customers for the volume of water used. If we are unable to obtain future rate increases to offset decreased residential customer water consumption to cover our investments, expenses, and return for which we initially sought the rate increase, our business, financial condition, and results of operations may be harmed.

In addition, over time, average customer gas consumption has declined, as more energy efficient appliances and furnaces have been installed and conservation programs have been implemented. If we are unable to compete effectively or if customers further reduce their gas needs, we may lose existing customers, sell less gas to our customers and/or fail to acquire new customers, which could have a material adverse effect on our business, financial condition, and results of operations.

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Drought conditions and government imposed water use restrictions may impact our ability to serve our current and future customers, and may impact our customers' use of our water, which may harm our business, financial condition, and results of operations.

We depend on an adequate water supply to meet the present and future demands of our customers. Drought conditions could interfere with our sources of water supply and could harm our ability to supply water in sufficient quantities to our existing and future customers. An interruption in our water supply could harm our business, financial condition, and results of operations. Moreover, governmental restrictions on water usage during drought conditions may result in a decreased demand for our water, even if our water supplies are sufficient to serve our customers during these drought conditions, which may harm our business, financial condition, and results of operations.

The failure of, or the requirement to repair, upgrade or dismantle any of our dams or reservoirs may harm our business, financial condition, and results of operations.

Several of our water systems include impounding dams and reservoirs of various sizes. Although we believe our dam review program, which includes regular inspections and other engineering studies, will ensure our dams are structurally sound and well-maintained, the failure of a dam could result in significant downstream damage and could result in claims for property damage or for injuries or fatalities. We periodically inspect our dams and purchase liability insurance to cover such risks, but depending on the nature of the downstream damage and cause of the failure, the policy limits of insurance coverage may not be sufficient, and losses incurred may make it difficult for us to secure insurance in the future at acceptable rates. A dam failure could also result in damage to, or disruption of, our water treatment and pumping facilities that are often located downstream from our dams and reservoirs. Significant damage to these facilities, or a significant decline in the storage of the raw water impoundment, could affect our ability to provide water to our customers until the facilities and a sufficient raw water impoundment can be restored. The estimated costs to maintain our dams are included in our capital budget projections and, although such costs to date have been recoverable in rates, there can be no assurance that rate increases will be granted in a timely or sufficient manner to recover such costs in the future, if at all.

Our operations are geographically concentrated in Pennsylvania, which make us susceptible to risks affecting Pennsylvania.

Although we operate water, wastewater, and natural gas utility infrastructure in a number of states, our operations are concentrated in Pennsylvania. As a result, our financial results are largely subject to political, resource supply, labor, utility cost and regulatory risks, economic conditions, natural disasters, and other risks affecting Pennsylvania.

Federal and state environmental laws and regulations impose substantial compliance requirements on our operations. Our operating costs could be significantly increased in order to comply with new or stricter regulatory standards imposed by federal and state environmental agencies.

Our water, wastewater, and natural gas services are governed by various federal and state environmental protection and health and safety laws and regulations, including the federal Safe Drinking Water Act, the Clean Water Act, Clean Air Act, Resource Conservation and Recovery Act and similar state laws, and federal and state regulations issued under these laws by the EPA and state environmental regulatory agencies. These laws and regulations establish, among other things, criteria and standards for drinking water and for discharges into the waters of the U.S. as well as dam safety, air emissions, and residuals management. Pursuant to these laws, we are required to obtain various environmental permits from environmental regulatory agencies for our operations. The Company routinely seeks to acquire wastewater systems, some of which may have combined wastewater and stormwater systems which may overflow and be subject to increased regulation by the U.S. EPA. We cannot assure you that we will be at all times in total compliance with these laws, regulations and permits. If we fail to comply with these laws, regulations or permits, we could be fined or otherwise sanctioned by regulators and such noncompliance could result in civil suits. Environmental laws and regulations are complex and change frequently. These laws, and the enforcement thereof, have tended to become more stringent over time. While we have budgeted for future capital and operating expenditures to comply with these laws and our permits, it is possible that new or stricter standards could be imposed that will require additional capital expenditures or raise our operating costs. Although these expenditures and costs may be recovered in the form of higher rates, there can be no assurance that the various state utility commissions that regulate our business would approve rate increases to enable us to

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recover such expenditures and costs. In summary, we cannot assure you that our costs of complying with, current and future environmental and health and safety laws will not harm our business, financial condition, and results of operations.

Additionally, following the Peoples Gas Acquisition, the discovery of presently unknown environmental conditions, including former manufactured gas plant sites, and claims under environmental laws and regulations may result in expenditures and liabilities, which could be material, and could materially harm our business, financial condition and results of operations.

We are increasingly dependent on the continuous and reliable operation of our information technology systems, including those of our third-party vendors, and a disruption of these systems, resulting from cyber security attacks, risks associated with new systems implementation or integration, or other events, could harm our business.

We rely on our information technology systems, including those of our third-party vendors, in connection with the operation of our business, especially with respect to customer service and billing, accounting and, in some cases, the monitoring and operation of our treatment, storage and pumping facilities, and our natural gas pipelines. In addition, we rely on our systems to track our utility assets and to manage maintenance and construction projects, materials and supplies, and our human resource functions. A loss of these systems, or major problems with the operation of these systems, could harm our business, financial condition, and results of operations. We could also be adversely affected by system or network disruptions if new or upgraded information technology systems are defective, not installed properly, or not properly integrated into operations. In addition, our information technology systems may be vulnerable to damage or interruption from the following types of cyber security attacks or other events:

- power loss, computer systems failures, and internet, telecommunications or data network failures;
- operator negligence or improper operation by, or supervision of, employees;
- physical and electronic loss of data;
- computer viruses, cyber security attacks, intentional security breaches, hacking, denial of service actions, misappropriation of data and similar events;
- difficulties in the implementation of upgrades or modification to our information technology systems; and
- hurricanes, fires, floods, earthquakes and other natural disasters.

Although we do not believe that our systems are at a materially greater risk of cyber security attacks than other similar organizations, our information technology systems may be vulnerable to damage or interruption from the types of cyber security attacks or other events listed above or other similar actions, and such incidents may go undetected for a period of time. Such cyber security attacks or other events may result in:

- the loss or compromise of customer, financial, employee, or operational data;
- disruption of billing, collections or normal field service activities;
- disruption of electronic monitoring and control of operational systems;
- delays in financial reporting and other normal management functions; and
- disruption in normal system operations.

Possible impacts associated with a cyber security attack or other events may include: remediation costs related to lost, stolen, or compromised data; repairs to data processing or physical systems; increased cyber security protection costs; adverse effects on our compliance with regulatory and environmental laws and regulation, including standards for drinking water; litigation; loss of revenue; and reputational damage. We maintain insurance to help defray costs associated with cyber security attacks or other events, but we cannot provide assurance that such insurance will provide coverage for any particular type of incident or event or that such insurance will be adequate, and losses incurred may make it difficult for us to secure insurance in the future at acceptable rates.

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We have a cyber security controls framework in place. We monitor our control effectiveness in an increasing threat landscape and continuously take action to improve our security posture. We cannot assure you that, despite such measures, a form of system failure or data security breach will not have a material adverse effect on our financial condition and results of operations.

Our water or wastewater utility systems may be subject to condemnations or other methods of taking by governmental entities.

In the states where our subsidiaries operate water or wastewater utility systems, it is possible that portions of our subsidiaries' operations could be acquired by municipal governments by one or more of the following methods:

- eminent domain;
- the right of purchase given or reserved by a municipality or political subdivision when the original franchise was granted; and
- the right of purchase given or reserved under the law of the state in which the subsidiary was incorporated or from which it received its permit.

The price to be paid upon such an acquisition by the municipal government is usually determined in accordance with applicable law under eminent domain. In other instances, the price may be negotiated, fixed by appraisers selected by the parties or computed in accordance with a formula prescribed in the law of the state or in the particular franchise or charter. We believe that our operating subsidiaries would be entitled to receive fair market value for any assets that are condemned. However, there is no assurance that the fair market value received for assets condemned would be in excess of book value.

In a very small number of instances, in one of our southern states where there are municipally-owned water or wastewater systems near our operating divisions, the municipally-owned system may either have water distribution or wastewater collection mains that are located adjacent to our division's mains or may construct new mains that parallel our mains. In these circumstances, on occasion, the municipally-owned system may attempt to offer service to customers who are connected to our mains, resulting in our mains becoming surplus or underutilized without compensation.

The final determination of our income tax liability may be materially different from our income tax provision.

Significant judgment is required in determining our provision for income taxes. Our calculation of the provision for income taxes is subject to our interpretation of applicable business tax laws in the jurisdictions in which we file. In addition, our income tax returns are subject to periodic examination by the Internal Revenue Service and other taxing authorities. In December 2012, Aqua Pennsylvania changed its tax method of accounting to permit the expensing of qualifying utility asset improvement costs that were previously being capitalized and depreciated for tax purposes. Subsequently, the Company's Ohio and North Carolina regulated subsidiaries similarly changed their tax method of accounting, in March 2020 Peoples Natural Gas changed its tax method of accounting, and in 2022 Peoples Gas Company and Aqua New Jersey changed their tax methods of accounting. Our determination of what qualifies as a capital cost versus a tax deduction for utility asset improvements is subject to subsequent adjustment and may impact the income tax benefits that have been recognized.

Although we believe our income tax estimates, including any tax reserves for uncertain tax positions or valuation allowances on deferred tax assets are appropriate, there is no assurance that the final determination of our income tax liability will not be materially different; either higher or lower, from what is reflected in our income tax provision. In the event we are assessed additional income taxes, our business, financial condition, and results of operations could be harmed.

Wastewater operations entail significant risks and may impose significant costs.

Wastewater collection and treatment involve various unique risks. If collection or treatment systems fail or do not operate properly, or if there is a spill, untreated or partially treated wastewater could discharge onto property or into nearby streams and rivers, causing various damages and injuries, including environmental damage. These risks are most acute during periods of substantial rainfall or flooding, which are the main causes of wastewater overflow and system failure.

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Liabilities resulting from such damages and injuries could harm our business, financial condition, and results of operations.

Work stoppages and other labor relations matters could harm our operating results.

Approximately 51% of our Regulated Water and Regulated Natural Gas segments' workforce are unionized under 20 labor contracts with labor unions, which expire between at various times up until 2027. In light of rising costs for healthcare and retirement benefits, contract negotiations in the future may be difficult. We are subject to a risk of work stoppages and other labor actions as we negotiate with the unions to address these issues, which could harm our business, financial condition, and results of operations. We cannot assure you that issues with our labor forces will be resolved favorably to us in the future or that we will not experience work stoppages.

Workforce-related risks may affect our results of operations.

We are subject to various workforce-related risks, including the risk that we will be unable to attract and retain qualified personnel for our water, wastewater, and natural gas operations, that we will be unable to effectively transfer the knowledge and expertise of an aging workforce to new personnel as those workers retire, and that we will be unable to reach collective bargaining arrangements with the unions that represent certain of our workers, which could result in work stoppages. Additionally, we rely on outside resources to supplement our workforce, including construction crews which are key to our infrastructure replacement program. We face the same risks associated with these outside resources as we do with our own workforce. As a result, we may be unable to hire or retain an adequate number of individuals who are knowledgeable about public utilities, water or the natural gas industry or face a lengthy time period associated with skill development and knowledge transfer. Failure to address these risks may result in increased operational and safety risks as well as increased costs. Even with reasonable plans in place to address succession planning and workforce training, we cannot control the future availability of qualified labor. If we are unable to successfully attract and retain an appropriately qualified workforce, it could adversely affect our financial condition and results of operations.

Significant or prolonged disruptions in the supply of important goods or services from third parties could harm our business, financial condition, and results of operations.

We are dependent on a continuing flow of important goods and services from suppliers for our businesses. A disruption or prolonged delays in obtaining important supplies or services, such as maintenance services, purchased water, chemicals, utility pipe, valves, hydrants, electricity, or other materials, could harm our utility services and our ability to operate in compliance with all regulatory requirements, which could harm our business, financial condition, and results of operations. In some circumstances, we rely on third parties to provide important services (such as customer bill print and mail activities, payment processing, or utility service operations in some of our divisions) and a disruption in these services could harm our business, financial condition, and results of operations. Some possible reasons for a delay or disruption in the supply of important goods and services include:

- our suppliers may not provide materials that meet our specifications in sufficient quantities;
- our suppliers may provide us with water that does not meet applicable quality standards or is contaminated;
- our suppliers may provide us with natural gas not meeting quality standards or is of insufficient volume or pressure;
- our suppliers may face production or shipping delays due to the COVID-19 pandemic, natural disasters, strikes, lock-outs, political disputes, or other such actions;
- one or more suppliers could make strategic changes in the lines of products and services they offer; and
- some of our suppliers, such as small companies, may be more likely to experience financial and operational difficulties than larger, well-established companies, because of their limited financial and other resources.

As a result of any of these factors, we may be required to find alternative suppliers for the materials and services on which we rely. Accordingly, we may experience delays in obtaining appropriate materials and services on a timely basis and in sufficient quantities from such alternative suppliers at a reasonable price, which could interrupt services to our customers and harm our business, financial condition, and results of operations.

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We depend significantly on the services of the members of our management team, and the departure of any of those persons could cause our operating results to suffer.

Our success depends significantly on the continued individual and collective contributions of our management team. The loss of the services of any member of our management team or the inability to hire and retain experienced management personnel could harm our business, financial condition, and results of operations.

We may incur significant costs and liabilities resulting from pipeline integrity and other similar programs and related repairs.

Certain of Peoples' pipeline operations are subject to pipeline safety laws and regulations. The Department of Transportation's Pipeline and Hazardous Materials Safety Administration has adopted regulations requiring pipeline operators to develop integrity management programs, including more frequent inspections and other measures, for transmission pipelines located in "high consequence areas," which are those areas where a leak or rupture could do the most harm. The regulations require pipeline operators, including Peoples, to, among other things:

- perform ongoing assessments of pipeline integrity;
- develop a baseline plan to prioritize the assessment of a covered pipeline segment;
- identify and characterize applicable threats that could impact a high consequence area;
- improve data collection, integration, and analysis;
- develop processes for performance management, record keeping, management of change and communication;
- repair and remediate pipelines as necessary; and
- implement preventative and mitigating action.

We are required to maintain pipeline integrity testing programs that are intended to assess pipeline integrity. Peoples is also required to establish and maintain a Distribution Integrity Management Program for all distribution assets. This program requires protocols for identifying risks and threats to the distribution systems. The program incorporates a relative risk model to measure risk reduction to these threats. Any repair, remediation, preventative or mitigating actions may require significant capital and operating expenditures. Should we fail to comply with applicable statutes and related rules, regulations and orders, we could be subject to significant penalties and fines.

Our liquidity and, in certain circumstances, results of operations may be adversely affected by the cost of purchasing natural gas during periods in which natural gas prices are rising significantly.

The Peoples' regulated companies purchase their natural gas supply primarily through a combination of requirements contracts, some of which contain minimum purchase obligations, monthly spot purchase contracts and forward purchase contracts. The price paid for natural gas acquired under forward purchase contracts is fixed prior to the delivery of the natural gas. Additionally, a portion of natural gas purchases is injected into natural gas storage facilities in the non-heating months and withdrawn from storage for delivery to customers during the heating months.

Our short-term borrowing requirements and liquidity are also significantly affected by the seasonal nature of the natural gas business. Changes in the price of natural gas due to, for example, extreme weather events, geopolitical forces, or regulatory policy changes, and the amount of natural gas needed to supply customers' needs due to, for example, colder than expected seasonal temperatures, could significantly affect the price and amount of natural gas we are required to purchase and the timing of such purchases, and, in turn, affect our borrowing requirements and liquidity position. If we fail to secure sufficient natural gas supplies at appropriate prices (due to, for example, more extreme winter conditions), we may be required to purchase additional natural gas supplies or purchase natural gas at elevated prices, which could adversely affect our borrowing levels, liquidity and financial condition.

Peoples' tariff rate schedules contain Purchased Gas Adjustment (PGA) clauses that permit filings for rate adjustments to recover the cost of purchased gas. Subject to regulatory approval, as described below, changes in the cost of purchased gas are flowed through to customers and may affect uncollectible amounts and cash flows and can therefore impact our financial condition and results of operations.

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The state regulatory commissions approve the PGA changes on an interim basis, subject to refund and the outcome of a subsequent audit and prudence review. Due to such review process, there is a risk of a disallowance of full recovery of these costs. We are also subject to regulations and standards regarding the amount of lost and unaccounted for gas that may be recovered from customers. Any material disallowance of purchased gas costs would adversely affect our financial condition and results of operations.

Increases in the prices that we charge for gas may also adversely affect our business because increased prices could lead customers to reduce usage and cause some customers to have difficulty paying the resulting higher bills. These higher prices may increase bad debt expenses and ultimately reduce earnings. Additionally, rapid increases in the price of purchased gas may result in an increase in short-term debt.

Our non-regulated natural gas operations purchase natural gas utilizing a combination of requirements contracts, some of which contain minimum purchase obligations, monthly spot purchase contracts and forward purchase contracts. Although price risk for the non-regulated companies is mitigated to a degree by efforts aimed at balancing supply and demand, there are practical limitations on the ability to accurately predict demand and any failure to do so could adversely affect our financial condition and results of operations.

An impairment in the carrying value of our goodwill could negatively impact our consolidated results of operations and net worth.

We have significant amounts of goodwill resulting from the acquisition of utility systems and businesses. As of December 31, 2022, the net carrying value of goodwill amounted to $2,340,792,000 or 15% of our total assets. Of the balance, $2,277,447,000 relates to our Regulated Natural Gas reporting unit. Goodwill is initially recorded at fair value, not amortized and reviewed for impairment at least annually or more frequently if impairment indicators arise. Indicators that are considered significant include changes in performance relative to expected operating results, significant negative industry or economic trends, including rising interest rates, or a significant decline in our stock price and/or market capitalization for a sustained period of time. If certain factors arise, we may be required to record a significant non-cash charge to earnings in our consolidated financial statements during the period in which an impairment of our goodwill is determined. Any such non-cash charge could have a material adverse impact on our results of operations and net worth.

Risk Related to Public Health Threats

Global or regional health pandemics, epidemics or similar public health threats, including the COVID-19 pandemic, could negatively impact our business, outlook, financial condition, results of operations and liquidity.

Public health threats, such as the COVID-19 pandemic, and the measures implemented to contain its spread, continue to have widespread impacts on the global economy, our employees, customers, and third-party business partners. Public health threats could, in the future, materially impact our business in numerous ways, including, but not limited to, those outlined below:

- reduced demand from our commercial customers and shifts in demand for our regulated utility services;
- delay the timeliness of our service to customers because of shutdowns and/or illness and travel restrictions among our employees or employees of other companies on whom we rely;
- negatively impact the financial condition of our customers and their ability to pay for our products and services, and our ability to disconnect service for non-payment may be limited, and state regulators may impose bill deferral programs;
- may limit or curtail significantly or entirely the ability of public utility commissions to approve or authorize applications and other requests we may make with respect to our regulated water and natural gas businesses; and
- delays in our supply chain and our ability to complete maintenance, repairs, and capital programs, which could result in disruptions and increased costs.

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These and other impacts of the COVID-19 pandemic or other global or regional health pandemics, epidemics or similar public health threats could also have the effect of heightening many of the other risks described in "Risk Factors" in this Annual Report and the other reports we file from time to time with the SEC. We might not be able to predict or respond to all impacts on a timely basis to prevent near- or long-term adverse impacts to our results of operations, financial condition and liquidity. The ultimate impact of public health threats, such as the COVID-19 pandemic, on our business depends on factors beyond our knowledge or control, including the duration and severity of the outbreak as well as third-party actions taken to contain its spread and mitigate its public health effects. Any of these factors could have a negative impact on our business, outlook, financial condition, and results of operations, which impact could be material.

Risks Related to the Company's Capital Needs and Common Stock

We have substantial indebtedness, as a result, it may be more difficult for the Company to pay or refinance its debts or take other actions, and the Company may need to divert cash to fund debt service payments.

The Company has incurred significant additional indebtedness to finance the Peoples Gas Acquisition and to fund the debt refinancing of the Company's outstanding existing debt (the Company Debt Refinancing). Additionally, in connection with the Peoples Gas Acquisition, the Company assumed approximately $1,106,000,000 of Peoples' indebtedness. As of December 31, 2022, we had $6,617,395,000 of long-term debt outstanding.

The substantial indebtedness could:

- make it more difficult and/or costly for the Company to pay or refinance its debts as they become due, particularly during adverse economic and industry conditions, because a decrease in revenues or increase in costs could cause cash flow from operations to be insufficient to make scheduled debt service payments;
- limit the Company's flexibility to pursue other strategic opportunities or react to changes in its business and the industry sectors in which it operates and, consequently, put the Company at a competitive disadvantage to its competitors that have less debt;
- require a substantial portion of the Company's available cash to be used for debt service payments, thereby reducing the availability of its cash to fund working capital, capital expenditures, development projects, acquisitions, dividend payments, and other general corporate purposes, which could harm the Company's prospects for growth;
- result in a downgrade in the credit ratings on the Company's indebtedness, which could limit the Company's ability to borrow additional funds on favorable terms or at all and increase the interest rates under its credit facilities and under any new indebtedness it may incur;
- make it more difficult for the Company to raise capital to fund working capital, make capital expenditures, pay dividends, pursue strategic initiatives or for other purposes;
- result in higher interest expense, which could be further increased in the event of increases in interest rates on the Company's current or future borrowings; and
- require that additional materially adverse terms, conditions or covenants be placed on the Company under its debt instruments, which covenants might include, for example, limitations on additional borrowings and specific restrictions on uses of its assets, as well as prohibitions or limitations on its ability to create liens, pay dividends, receive distributions from its subsidiaries, redeem or repurchase its stock or make investments, any of which could hinder its access to capital markets and limit or delay its ability to carry out its capital expenditure program or otherwise limit its flexibility in the conduct of its business and make it more vulnerable to economic downturns and adverse competitive and industry conditions.

Based on the current and expected results of operations and financial condition of the Company, the Company believes that its cash flows from operations, together with the proceeds from borrowings, and issuances of equity and debt securities in the capital markets will generate sufficient cash on a consolidated basis to make all of the principal and interest payments when such payments are due under the Company's and its current subsidiaries' existing credit facilities, indentures and other instruments governing their outstanding indebtedness. However, the Company's expectation is based upon numerous estimates and assumptions and is subject to numerous uncertainties.

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Our business requires significant capital expenditures that are partially dependent on our ability to secure appropriate funding. Disruptions in the capital markets may limit our access to capital. If we are unable to obtain sufficient capital, or if the cost of borrowing increases, it may harm our business, financial condition, results of operations, and our ability to pay dividends.

Our business is capital intensive. In addition to the capital required to fund customer growth through our acquisition strategy, on an annual basis, we invest significant sums for additions to or replacement of property, plant and equipment. We obtain funds for our capital expenditures from operations, contributions and advances by developers and others, debt issuances, and equity issuances. We have paid dividends consecutively for 78 years, and our Board of Directors recognizes the value that our common shareholders place on both our historical payment record and on our future anticipated dividend payments. Our ability to continue our growth through acquisitions and to maintain and meet our financial objectives is dependent upon the availability of adequate capital, and we may not be able to access the capital markets on favorable terms or at all. Additionally, if in the future, our credit facilities are not renewed or our short-term borrowings are called for repayment, we would need to seek alternative financing sources; however, there can be no assurance that these alternative financing sources would be available on terms acceptable to us. In the event we are unable to obtain sufficient capital, we may need to take steps to conserve cash by reducing our capital expenditures or dividend payments and our ability to pursue acquisitions may be limited. The reduction in capital expenditures may result in reduced potential earnings growth, affect our ability to meet environmental laws and regulations, and limit our ability to improve or expand our utility systems to the level we believe appropriate. There is no guarantee that we will be able to obtain sufficient capital in the future on reasonable terms and conditions for expansion, construction, and maintenance. In addition, delays in completing major capital projects could delay the recovery of the capital expenditures associated with such projects through rates.

If the cost of borrowing increases, we might not be able to recover increases in our cost of capital through rates. The inability to recover higher borrowing costs through rates, or the regulatory lag associated with the time that it takes to begin recovery, may harm our business, financial condition, results of operations and cash flows.

Our inability to comply with debt covenants under our loan and debt agreements could result in prepayment obligations.

We are obligated to comply with debt covenants under some of our loan and debt agreements. Failure to comply with covenants under our loan and debt agreements could result in an event of default, which if not cured or waived, could result in us being required to repay or finance these borrowings before their due date, limit future borrowings, cause us to default on other obligations, and increase borrowing costs. If we are forced to repay or refinance (on less favorable terms) these borrowings, our business, financial condition, and results of operations could be harmed by reduced access to capital and increased costs and rates.

The price of our common stock may be volatile. This volatility may affect the price at which one could sell our common stock, and the sale or resale of substantial amounts of our common stock could adversely affect the market price of our common stock.

The sale or issuance of substantial amounts of our common stock, or the perception that additional sales or issuances could occur, could adversely affect the market price of our common stock, even if the business is doing well. In addition, the availability for sale of substantial amounts of our common stock could adversely impact its market price. Any of the foregoing may also impair our ability to raise additional capital through the sale of our equity securities.

Item 1B *Unresolved Staff Comments*

None

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Item 2. *Properties*

Our Regulated Water properties consist of water transmission and distribution mains and wastewater collection pipelines, water and wastewater treatment plants, pumping facilities, wells, tanks, meters, pipes, dams, reservoirs, buildings, vehicles, land, easements, rights-of-way, and other facilities and equipment used for the operation of our systems, including the collection, treatment, storage, and distribution of water and the collection and treatment of wastewater. Substantially all of our treatment, storage, and distribution properties are owned by our subsidiaries, and a substantial portion of our property is subject to liens of mortgage or indentures. These liens secure bonds, notes and other evidences of long-term indebtedness of our subsidiaries. For some properties that we acquired through the exercise of the power of eminent domain and other properties we purchased, we hold title for water supply purposes only. We own, operate and maintain approximately 14,350 miles of transmission and distribution mains, 23 surface water treatment plants, many well treatment stations, and 203 wastewater treatment plants. A small portion of the properties are leased under long-term leases.

Our Regulated Natural Gas properties consist of approximately 15,400 miles of natural gas distribution mains, varying in size from one-half inch to 36 inches in diameter, 1,700 miles of gathering pipeline, and 300 miles of intrastate transmission/storage pipeline. Further, in each of the cities, towns, and rural areas where we serve natural gas customers, we own the underground gas mains and service lines, metering, and regulating equipment located on customers' premises and the district regulating equipment necessary for pressure maintenance. With a few exceptions, the measuring stations at which we receive gas from third parties are owned, operated, and maintained by others, and our distribution facilities begin at the outlet of the measuring equipment. These facilities, including odorizing equipment, are usually located on land owned by suppliers.

The following table indicates our net property, plant and equipment, in thousands of dollars, as of December 31, 2022 in the principal states where we operate:

	Net Property, Plant and Equipment	
Pennsylvania	$ 7,991,598	71.8%
Ohio	629,446	5.7%
Illinois	612,888	5.5%
North Carolina	507,503	4.6%
Texas	575,454	5.2%
Other (1)	814,057	7.2%
Consolidated	$ 11,130,946	100.0%

(1) Consists primarily of our operating subsidiaries in the following states: New Jersey, Indiana, Virginia, West Virginia, and Kentucky.

We believe that our properties are generally maintained in good condition and in accordance with current standards of good water, wastewater, and natural gas industry practice. We believe that our facilities are adequate and suitable for the conduct of our business and to meet customer requirements under normal circumstances.

Our corporate offices are leased from our subsidiary, Aqua Pennsylvania, and are located in Bryn Mawr, Pennsylvania.

Item 3. *Legal Proceedings*

There are various legal proceedings in which we are involved. Although the results of legal proceedings cannot be predicted with certainty, there are no pending legal proceedings to which we or any of our subsidiaries is a party or to which any of our properties is the subject that we believe are material or are expected to materially harm our business, operating results, reputation, or financial condition.

Item 4. *Mine Safety Disclosures*

Not applicable.

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PART II

Item 5. *Market for the Registrant's Common Stock, Related Stockholder Matters and Purchases of Equity Securities*

Our common stock is traded on the New York Stock Exchange under the ticker symbol WTRG. As of February 17, 2023, there were approximately 20,212 holders of record of our common stock.

The following table shows the cash dividends per share for the periods indicated:

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year
2022					
Dividend paid per common share	$ 0.2682	$ 0.2682	$ 0.2870	$ 0.2870	$ 1.1104
Dividend declared per common share	0.2682	0.2682	0.2870	0.5740*	1.3974
2021					
Dividend paid per common share	$ 0.2507	$ 0.2507	$ 0.2682	$ 0.2682	$ 1.0378
Dividend declared per common share	0.2507	0.2507	0.2682	0.2682	1.0378

**includes dividends declared in December 2022 that are payable to shareholders on March 1, 2023*

We have paid dividends consecutively for 78 years. On August 2, 2022, our Board of Directors authorized an increase of 7.0% in the September 1, 2022 quarterly dividend over the dividend Essential Utilities paid in the previous quarter. As a result of this authorization, beginning with the dividend payment in September 2022, the annualized dividend rate increased to $1.1480 per share. This is the 32nd dividend increase in the past 31 years and the 24th consecutive year that we have increased our dividend in excess of five percent. We presently intend to pay quarterly cash dividends in the future, on March 1, June 1, September 1, and December 1, subject to our earnings and financial condition, restrictions set forth in our debt instruments, regulatory requirements and such other factors as our Board of Directors may deem relevant. In 2022, our dividends paid represented 62.0% of net income.

Information with respect to restrictions set forth in our debt instruments is disclosed in Note 11 – *Long-term Debt and Loans Payable* in the *Notes to Consolidated Financial Statements* which is contained in Item 8 of this Annual Report.

During the fourth quarter of 2022, the Company did not repurchase any of its equity securities under any repurchase plan or program.

The following table summarizes the Company's purchases of its common stock under its equity incentive plans for the quarter ending December 31, 2022:

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet Be Purchased Under the Plan or Programs
October 1-31, 2022	118	$ 42.70	-	-
November 1-30, 2022	-	$ -	-	-
December 1-31, 2022	2,720	$ 48.35	-	-
Total	2,838	$ 48.12	-	-

(1) These amounts consist of 2,838 shares acquired from employees associated with the withholding of shares to pay certain withholding taxes upon the vesting of stock-based compensation under the plan. This feature of our equity compensation plan is available to all employees who receive stock-based compensation under the plan. We purchased these shares at their fair market value, as determined by reference to closing price of our common stock on the day prior to award vesting.

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Item 6. *[RESERVED]*

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(In thousands of dollars, except per share amounts)

Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

OVERVIEW

The following discussion and analysis of our financial condition and results of operations should be read together with our Consolidated Financial Statements and accompanying Notes included in this Annual Report. This discussion contains forward-looking statements that are based on management's current expectations, estimates, and projections about our business, operations, and financial performance. All dollar amounts are in thousands of dollars, except per share amounts.

The Company

Essential Utilities, Inc., (Essential Utilities, the Company, we, us, or our), a Pennsylvania corporation, is the holding company for regulated utilities providing water, wastewater, or natural gas services to an estimated five million people in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, Virginia, West Virginia, and Kentucky under the Aqua and Peoples brands. One of our largest operating subsidiaries, Aqua Pennsylvania, Inc. (Aqua Pennsylvania), provides water or wastewater services to approximately one-half of the total number of water or wastewater customers we serve. These customers are located in the suburban areas in counties north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. Our other regulated water or wastewater utility subsidiaries provide similar services in seven additional states. Additionally, commencing on March 16, 2020, with the completion of the Peoples Gas Acquisition, the Company began to provide natural gas distribution services to customers in western Pennsylvania, Kentucky, and West Virginia. Approximately 93% of the total number of natural gas utility customers we serve are in western Pennsylvania. In December 2022, we entered into a definitive agreement to sell our regulated natural gas utility assets in West Virginia, which serve approximately 13,000 customers. This sale is conditioned on regulatory approval and is expected to close in mid-2023. The completion of this transaction will conclude our regulated utility operations in West Virginia. Lastly, the Company's market-based activities are conducted through Aqua Infrastructure, LLC and Aqua Resources, Inc. and certain other non-regulated subsidiaries of Peoples. Prior to our October 30, 2020 sale of our investment in a joint venture, Aqua Infrastructure provided non-utility raw water supply services for firms in the natural gas drilling industry. Following the October 30, 2020 closing, Aqua Infrastructure does not provide any services to the natural gas drilling industry. Aqua Resources offers, through a third-party, water and sewer service line protection solutions and repair services to households. Other non-regulated subsidiaries of Peoples provide utility service line protection services to households and operate gas marketing and production businesses.

Recent Developments

In 2022, we experienced inflationary cost increases in our materials, labor and other operating costs, higher interest rates, as well as supply chain pressures, primarily as a result of the COVID-19 pandemic and global uncertainties associated with the current conflict in Ukraine and sanctions imposed in response to this conflict. The price of natural gas substantially increased and resulted in the significant increase in the revenue and expenses of our Regulated Natural Gas business in 2022, as compared to last year. We expect these pressures to continue throughout 2023. We continue to review the adequacy of our rates as approved by public utility commissions in relation to the increasing cost of providing services and the inherent regulatory lag in adjusting those rates. We also continue to work with our suppliers to monitor and address the risks present in our supply chain. While we have experienced some delays in certain materials, we have been able to adjust our purchasing procedures to secure and stock the necessary materials without materially impacting our operations or capital investment program. We continue to monitor the COVID-19 pandemic and take steps to mitigate the potential risks to our business. To date, there has not been a significant impact on our ability to serve our customers or secure necessary supplies. While the pandemic presents risks to the Company's business, as further described in Part I, Item 1A — Risk Factors in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, the Company has not experienced any material financial or operational impacts related to the COVID-19 pandemic. Despite our efforts, the potential for a material negative impact on the Company exists as the COVID-19 pandemic also depends on factors beyond our knowledge, control, or ability to predict, including the duration and severity of this pandemic, the emergence of new variants of the virus, the development and availability of effective treatments and vaccines, as well as third party actions taken to contain its spread and mitigate its public health effects.

On August 16, 2022, the Inflation Reduction Act of 2022 ("IRA") was enacted into law, which among other things, implements a 15% minimum tax on book income of certain large corporations, and a 1% excise tax on net stock repurchases after December 31, 2022. The alternative minimum tax would not be applicable in our next fiscal year because it is based on a three-year average annual adjusted financial statement income in excess of $1,000,000. Also included in the IRA is a provision to implement an annual waste emissions charge beginning with calendar year 2024 (to be paid in 2025) on applicable oil and gas facilities that exceed certain methane emission thresholds. Currently, the Company has gathering facility assets that could exceed the minimum thresholds and potentially be subject to the waste emissions charge. We are continuing to assess the future impact of the provisions of the IRA on our consolidated financial statements and on the Company's gathering assets. As a regulated utility, required capital expenditures and operating costs, including taxes, have been traditionally recognized by state utility commissions as appropriate for inclusion in establishing rates.

In December 2022, the Company signed an agreement to sell its regulated natural gas utility assets in West Virginia, which are used to serve approximately 13,000 customers or less than two percent of the Company's regulated natural gas customers. This sale is conditioned on regulatory approval and is expected to close in mid-2023. The completion of this transaction will conclude our regulated utility operations in West Virginia and allow the Company to focus on the growth of its utilities in states where it has scale.

Economic Regulation

Most of our utility operations are subject to regulation by their respective state utility commissions, which have broad administrative power and authority to regulate billing rates, determine franchise areas and conditions of service, approve acquisitions, and authorize the issuance of securities. The utility commissions also generally establish uniform systems of accounts and approve the terms of contracts with affiliates and customers, business combinations with other utility systems, and loans and other financings. The policies of the utility commissions often differ from state to state and may change over time. A small number of our operations are subject to rate regulation by county or city government. Over time, the regulatory party in a particular state may change. The profitability of our utility operations is influenced to a great extent by the timeliness and adequacy of rate allowances in the various states in which we operate. One consideration we may undertake in evaluating on which states to focus our growth and investment strategy is whether a state provides for consolidated rates, a surcharge for replacing and rehabilitating infrastructure, fair value treatment of acquired utility systems, and other regulatory policies that promote infrastructure investment and efficiency in processing rate cases.

Rate Case Management Capability – The mission of the regulated utility industry is to provide quality and reliable utility service at reasonable rates to customers, while earning a fair return for shareholders. We strive to achieve the industry's mission by effective planning, efficient investments, and productive use of our resources. We maintain a rate case management capability to pursue timely and adequate returns on the capital investments that we make in improving our distribution system, treatment plants, information technology systems, and other infrastructure. This capital investment creates assets that are used and useful in providing utility service and is commonly referred to as rate base. Timely and adequate rate relief is important to our continued profitability and in providing a fair return to our shareholders; thus, providing access to capital markets to help fund these investments. In pursuing our rate case strategy, we consider the amount of net utility plant additions and replacements made since the previous rate decision, the changes in the cost of capital, changes in our capital structure, and changes in operating and other costs. Based on these assessments, our utility operations periodically file rate increase requests with their respective state utility commissions or local regulatory authorities. In general, as a regulated enterprise, our utility rates are established to provide full recovery of utility operating costs, taxes, interest on debt used to finance capital investments, and a return on equity used to finance capital investments. Our ability to recover our expenses in a timely manner and earn a return on equity employed in the business helps determine the profitability of the Company.

As of December 31, 2022, the Company's rate base is estimated to be $9,300,000, which is comprised of:

- $6,400,000 in the Regulated Water segment; and
- $2,900,000 in the Regulated Natural Gas segment.

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(In thousands of dollars, except per share amounts)

As of December 31, 2022, the regulatory status of the Company's rate base is estimated to be as follows:

- $8,100,000 filed with respective state utility commissions or local regulatory authorities; and
- $1,200,000 not yet filed with respective state utility commissions or local regulatory authorities.

Our water and wastewater operations are composed of 47 rate divisions, and our natural gas operations are comprised of four rate divisions. Each of our utility rate divisions require a separate rate filing for the evaluation of the cost of service and recovery of investments in connection with the establishment of tariff rates for that rate division. When feasible and beneficial to our utility customers, we have sought approval from the applicable state utility commission to consolidate rate divisions to achieve a more even distribution of costs over a larger customer base. All of the eight states in which we operate water and wastewater utilities currently permit us to file a revenue requirement using some form of consolidated rates for some or all of the rate divisions in that state.

Our operating subsidiaries received rate increases representing estimated annualized revenues of $81,610 in 2022 resulting from seven base rate decisions, $3,390 in 2021 resulting from six base rate decisions, and $4,480 in 2020 resulting from five base rate decisions. Annualized revenues in aggregate from all of the rate increases realized in the year of grant were $51,163 in 2022, $2,995 in 2021, and $1,594 in 2020.

Revenue Surcharges – Each of our states in which we operate water, wastewater, and natural gas utilities, permit us to add an infrastructure rehabilitation surcharge to their respective bills to offset the additional depreciation and capital costs associated with capital expenditures related to replacing and rehabilitating infrastructure systems. Prior to allowing for such surcharges, utilities absorbed all of the depreciation and capital costs of these projects between base rate increases without the benefit of additional revenues. The gap between the time that a capital project is completed and the recovery of its costs in rates is known as regulatory lag. This surcharge is intended to substantially reduce regulatory lag, which could act as a disincentive for utilities to rehabilitate their infrastructure. In addition, some states permit our subsidiaries to use a surcharge or credit on their bills to reflect allowable changes in costs, such as changes in state tax rates, other taxes and purchased water costs, until such time as the new costs are fully incorporated in base rates. Additional information regarding revenue surcharges is provided in Note 17 – *Rate Activity* in this Annual Report.

Inflation and Operating Costs – Most elements of operating costs are subject to the effects of inflation and changes in the number of customers served. Several elements are subject to the effects of changes in water or gas consumption, weather conditions, and the degree of water treatment required due to variations in the quality of the raw water. The principal elements of operating costs are purchased gas, labor and employee benefits, electricity, chemicals, transportation, maintenance expenses, insurance and claims costs, and costs to comply with environmental regulations. Electricity and chemical expenses vary in relationship to water or gas consumption, raw water quality, wastewater volumes, and price changes. Maintenance expenses are sensitive to extremely cold weather, which can cause utility mains to rupture and natural gas service lines to freeze, resulting in additional costs to repair the affected mains.

Materials and supplies, freight, chemicals, purchased power, and labor inflation resulted in increased costs in fiscal 2022, and we expect this trend will continue in fiscal 2023. Recovery of the effects of inflation through higher customer rates is dependent upon receiving adequate and timely rate increases. However, rate increases are not retroactive and often lag increases in costs caused by inflation. On occasion, our regulated utility companies may enter into rate settlement agreements, which require us to wait for a period of time to file the next base rate increase request. These agreements may result in regulatory lag whereby inflationary increases in expenses may not be reflected in rates, and may not yet be requested, or a gap may exist between when a capital project is completed and the start of its recovery in rates. Even during periods of moderate inflation, the effects of inflation can have a negative impact on our operating results.

Our natural gas distribution operations are also affected by the cost of natural gas. We are able to generally pass the cost of gas to our customers without markup under purchase gas cost adjustment mechanisms; therefore, increases in the cost of gas are offset by a corresponding increase in revenues. However, higher gas costs may adversely impact our accounts receivable collections, resulting in higher bad debt expense. This risk is currently mitigated by rate design that allows us to collect from our customers a portion of our bad debt expense. Additionally, higher gas costs may require us to increase borrowings under our credit facilities, resulting in higher interest expense. A typical residential natural gas bill includes

charges for the cost of gas, delivery, and other charges. As of January 1, 2023, the annual portion of a typical Peoples Natural Gas residential bill related to gas costs is approximately 56%. In periods when we experience market increases in natural gas costs, such as in 2022, customer affordability and usage may be reduced. Customer conservation measures may occur that can reduce natural gas revenues, either temporarily or over time.

Income Tax Accounting Change - In March 2020 and in June 2022, the Company changed the method of tax accounting for certain qualifying infrastructure investments at its Peoples Natural Gas and Peoples Gas Company subsidiaries, respectively. In December 2022, the Company made a similar change for its Aqua New Jersey subsidiary beginning with the current tax year. These changes allow a tax deduction for qualifying utility asset improvement costs that were formerly capitalized for tax purposes. The Company is utilizing the flow-through method to account for these timing differences. For Peoples Natural Gas, the Company calculated the income tax benefits for qualifying capital expenditures made prior to March 16, 2020 (catch-up adjustment) and has recorded a regulatory liability for $160,655 for these income tax benefits. In May 2021, the Pennsylvania Public Utility Commission approved a settlement petition that allows Peoples Natural Gas to continue to use flow-through accounting for the current tax repair benefit and allows for the catch-up adjustment be given to its customers. These benefits are being provided back to customers over a five-year period through a credit on customer bills which commenced in August 2021. In addition, the settlement petition required the contribution of $500 to a customer-bill payment assistance program, completed in July 2021, and $5,000 in relief to past-due accounts for natural gas customers impacted by the COVID-19 pandemic, completed in December 2021. For Peoples Gas, the Company calculated the catch-up adjustment for periods prior to the 2021 tax year and recognized a regulatory liability of $13,808 for these income tax benefits. The Company will maintain this regulatory liability on its consolidated balance sheet until the accounting treatment is determined in its next base rate case.

Growth-Through-Acquisition Strategy

Part of our strategy to meet the industry challenges is to actively explore opportunities to expand our utility operations through acquisitions of water, wastewater, and other utilities either in areas adjacent to our existing service areas or in new service areas, and to explore acquiring market-based businesses that are complementary to our regulated utility operations. To complement our growth strategy, we routinely evaluate the operating performance of our individual utility systems, and in instances where limited economic growth opportunities exist or where we are unable to achieve favorable operating results or a return on equity that we consider acceptable, we will seek to sell the utility system and reinvest the proceeds in other utility systems. Consistent with this strategy, we are focusing our acquisitions and resources in states where we have critical mass of operations in an effort to achieve economies of scale and increased efficiency. Our growth-through-acquisition strategy allows us to operate more efficiently by sharing operating expenses over more utility customers and provides new locations for future earnings growth through capital investment. Another element of our growth strategy is the consideration of opportunities to expand by acquiring other utilities, including those that may be in a new state if they provide promising economic growth opportunities and a return on equity that we consider acceptable. Our ability to successfully execute this strategy historically and to meet the industry challenges has largely been due to our core competencies, financial position, and our qualified and trained workforce, which we strive to retain by treating employees fairly and providing our employees with development and growth opportunities.

On March 16, 2020, we completed the acquisition of Peoples Natural Gas (the Peoples Gas Acquisition), which expanded the Company's regulated utility business to include natural gas distribution, serving approximately 750,000 natural gas utility customers in western Pennsylvania, West Virginia, and Kentucky.

During 2022, we completed three acquisitions of water and wastewater systems, which along with the organic growth in our existing systems, represents 31,537 new customers. During 2021 we completed two acquisitions of water and wastewater systems, which along with the organic growth in our existing systems, represents 21,364 new customers. During 2020, in addition to the Peoples Gas Acquisition, we completed six acquisitions of water and wastewater systems, which along with the organic growth in our existing systems, represents 24,169 new customers.

The Company currently has eight signed purchase agreements for additional water and wastewater systems that are expected to serve approximately 218,600 equivalent retail customers or equivalent dwelling units and total approximately $380,000 in purchase price in four of our existing states. This includes the Company's agreement to acquire the Delaware County Regional Water Quality Control Authority (DELCORA) for $276,500. DELCORA, a Pennsylvania sewer authority, serves approximately 198,000 equivalent dwelling units in the Philadelphia suburbs. Refer to Note 2 – *Acquisitions* in this Annual Report for further discussion.

As of December 31, 2022, the pipeline of potential water and wastewater municipal acquisitions the company is actively pursuing represents approximately 400,000 total customers or equivalent dwelling units. The Company remains on track to, on average, annually increase customers between 2% and 3% through acquisitions and organic customer growth.

Performance Measures Considered by Management

We consider the following financial measures (and the period to period changes in these financial measures) to be the fundamental basis by which we evaluate our operating results:

- earnings per share;
- water and wastewater operating revenues;
- gas operating revenues, net of purchased gas costs;
- earnings before interest, taxes, and depreciation (EBITD);
- earnings before income taxes;
- net income; and
- the dividend rate on common stock.

In addition, we consider other key measures in evaluating our utility business performance within our Regulated Water and Regulated Natural Gas segments:

- our number of utility customers;
- the ratio of operations and maintenance expense compared to operating revenues (this percentage is termed "operating expense ratio");
- return on revenues (net income divided by operating revenues);
- rate base growth;
- return on equity (net income divided by stockholders' equity); and
- the ratio of capital expenditures to depreciation expense.

Some of these measures, like EBITD and gas operating revenues, net of purchased gas costs, are non-GAAP financial measures. The Company believes that the non-GAAP financial measures provide management the ability to measure the Company's financial operating performance across periods and are more comparable to measures reported by other companies. We believe EBITD is a relevant and useful indicator of operating performance, as we measure it for management purposes because it provides a better understanding of our results of operations by highlighting our operations and the underlying profitability of our core businesses.

We review these measurements regularly and compare them to historical periods, to our operating budget as approved by our Board of Directors, and to other publicly-traded utilities. Additionally, our Regulated Natural Gas segment is affected by the cost of natural gas, which is passed through to customers using a purchased gas adjustment mechanism and includes commodity price, transportation and storage costs. These costs are reflected in the consolidated statement of operations and comprehensive income as purchased gas expenses. Therefore, fluctuations in the cost of purchased gas impact operating revenues on dollar-for-dollar basis. Management uses gas operating revenues, net of purchased gas costs, a non-GAAP financial measure, to analyze the financial performance of our Regulated Natural Gas segment. Management believes this measure provides a meaningful basis for evaluating our natural gas utility operations since purchased gas expenses are included in operating revenues and passed through to customers.

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(In thousands of dollars, except per share amounts)

Our operating expense ratio is one measure that we use to evaluate our operating efficiency and management effectiveness of our regulated operations. Our operating expense ratio is affected by a number of factors, including the following:

- ***Regulatory lag*** – Our rate filings are designed to provide for the recovery of increases in costs of operations (primarily labor and employee benefits, electricity, chemicals, transportation, maintenance expenses, insurance and claim costs, and costs to comply with environmental regulations), capital, and taxes. The revenue portion of the operating expense ratio can be impacted by the timeliness of recovery of, and the return on capital investments. The operating expense ratio is further influenced by regulatory lag (increases in operations and maintenance expenses not yet recovered in rates or a gap between the time that a capital project is completed and the start of its cost recovery in rates). The operating expense ratio is also influenced by decreases in operating revenues without a commensurate decrease in operations and maintenance expense, such as changes in customer usage as impacted by adverse weather conditions, or conservation trends. During periods of inflation, our operations and maintenance expenses may increase, impacting the operating expense ratio, as a result of regulatory lag, since our rate cases may not be filed timely and are not retroactive.

- ***Acquisitions*** – In general, acquisitions of smaller undercapitalized utility systems in some areas may initially increase our operating expense ratio if the operating revenues generated by these operations do not reflect the true cost of service and are accompanied by a higher ratio of operations and maintenance expenses as compared to other operational areas of the company that are more densely populated and have integrated operations. In these cases, the acquired operations are characterized as having relatively higher operating costs to fixed capital costs, in contrast to the majority of our operations, which generally consist of larger, interconnected systems, with higher fixed capital costs (utility plant investment) and lower operating costs per customer. For larger acquisitions, such as the Peoples Gas Acquisition, we have incurred significant transaction expenses, which increase operations and maintenance expenses in periods prior to and in the period of the closing of the acquisition. In addition, we operate market-based subsidiary companies consisting of our non-regulated natural gas operations, Aqua Resources, and Aqua Infrastructure. The cost-structure of these market-based companies differs from our utility companies in that, although they may generate free cash flow, these companies may at times have a higher ratio of operations and maintenance expenses to operating revenues and a lower capital investment and, consequently, a lower ratio of fixed capital costs versus operating revenues in contrast to our regulated operations. As a result, the operating expense ratio is not comparable between the businesses. These market-based subsidiary companies are not a component of our Regulated Water or Regulated Natural Gas segments.

We continue to evaluate initiatives to help control operating costs and improve efficiencies.

Other Operational Measures Considered by Management

Sendout - Sendout represents the quantity of treated water delivered to our distribution systems. We use sendout as an indicator of customer demand. Weather conditions tend to impact water consumption, particularly during the late spring, summer, and early fall when discretionary and recreational use of water is at its highest. Consequently, a higher proportion of annual Regulated Water segment operating revenues are realized in the second and third quarters. In general, during this period, an extended period of hot and dry weather increases water consumption, while above-average rainfall and cool weather decreases water consumption. Conservation efforts, construction codes that require the use of low-flow plumbing fixtures, as well as mandated water use restrictions in response to drought conditions can reduce water consumption. We believe an increase in conservation awareness by our customers, including the increased use of more efficient plumbing fixtures and appliances, may continue to result in a long-term structural trend of declining water usage per customer. These gradual long-term changes are normally taken into account by the utility commissions in setting rates, whereas significant short-term changes in water usage, resulting from drought warnings, water use restrictions, or extreme weather conditions, may not be fully reflected in the rates we charge between rate proceedings. In Illinois, our operating subsidiary has a revenue stability mechanism which allows us to recognize state PUC-authorized revenue for a period which is not based upon the volume of water sold during that period, and effectively lessens the impact of weather and consumption variability.

On occasion, drought warnings and water use restrictions are issued by governmental authorities for portions of our service territories in response to extended periods of dry weather conditions, regardless of our ability to meet unrestricted

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(In thousands of dollars, except per share amounts)

customer water demands. The timing and duration of the warnings and restrictions can have an impact on our water revenues and net income. In general, water consumption in the summer months is affected by drought warnings and restrictions to a higher degree because discretionary and recreational use of water is highest during the summer months, particularly in our northern service territories. At other times of the year, warnings and restrictions generally have less of an effect on water consumption. Drought warnings and watches result in the public being asked to voluntarily reduce water consumption.

The geographic diversity of our utility customer base reduces the effect of our exposure to extreme or unusual weather conditions in any one area of the country. During the year ended December 31, 2022, our operating revenues for our Regulated Water segment were derived principally from the following states: approximately 56% in Pennsylvania, 11% in Ohio, 9% in Illinois, 8% in Texas, and 7% in North Carolina.

Heating Degree Days – The regulated natural gas utility business is subject to seasonal fluctuations with the peak usage period occurring in the heating season which generally runs from October to March. A heating degree day (HDD) is each degree that the average of the high and the low temperatures for a day is below 65 degrees Fahrenheit in a specific geographic location. Particularly during the heating season, this measure is used to reflect the demand for natural gas needed for heating based on the extent to which the average temperature falls below a reference temperature for which no heating is required (65 degrees Fahrenheit). HDDs are used in the natural gas industry to measure the relative coldness of weather and to estimate the demand for natural gas. Normal temperatures are based on a historical twenty-year average heating degree days, as calculated from data provided by the National Weather Service for the same geographic location. During the year ended December 31, 2022, we experienced actual HDDs of 5,648 days, which was colder by 3.9% than the average or normal HDDs for Pittsburgh, Pennsylvania, which we use as a proxy for our western Pennsylvania service territory.

RESULTS OF OPERATIONS

Consolidated financial and operational highlights for the years ended December 31, 2022, 2021 and 2020 are presented below. For discussion of our results of operations and cash flows for 2021 compared with 2020, refer to Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for our fiscal year ended December 31, 2021, filed with the SEC on March 1, 2022.

Years ended December 31,	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
Operating revenues:					
Regulated water segment	$ 1,082,972	$ 980,203	$ 938,540	$ 102,769	$ 41,663
Regulated gas segment	1,143,362	859,902	506,564	283,460	353,338
Other and eliminations	61,698	38,039	17,594	23,659	20,445
Consolidated operating revenues	$ 2,288,032	$ 1,878,144	$ 1,462,698	$ 409,888	$ 415,446
Operations and maintenance expense	$ 613,649	$ 550,580	$ 528,611	$ 63,069	$ 21,969
Net income (1)	$ 465,237	$ 431,612	$ 284,849	$ 33,625	$ 146,763
Capital expenditures	$ 1,062,763	$ 1,020,519	$ 835,642	$ 42,244	$ 184,877
Operating Statistics					
Selected operating results as a percentage of operating revenues:					
Operations and maintenance	26.8%	29.3%	36.1%	-2.5%	-6.8%
Depreciation and amortization	14.0%	15.9%	17.6%	-1.9%	-1.7%
Taxes other than income taxes	3.9%	4.6%	5.2%	-0.7%	-0.6%
Interest expense, net of interest income	10.2%	10.9%	12.5%	-0.7%	-1.6%
Net income (1)	20.3%	23.0%	19.5%	-2.7%	3.5%
Return on Essential Utilities stockholders' equity (1)	8.7%	8.3%	6.1%	0.4%	2.2%
Ratio of capital expenditures to depreciation expense	3.4	3.5	3.3	-0.1	0.2
Effective tax rate	(3.2%)	(2.3%)	(7.5%)	(0.9%)	5.2%

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(In thousands of dollars, except per share amounts)

(1) Reflects Peoples Gas Acquisition transaction-related expenses of $20,925 ($25,573 pre-tax) in 2020 and utility customer rate credits issued in 2020 of $23,004 (or $16,357 net of tax).
(2) Peoples Gas' operating results are included since its acquisition on March 16, 2020.

Consolidated Results of Operations Comparison for 2022 and 2021

Operating revenues - Operating revenues increased by $409,888 or 21.8% for the year ended December 31, 2022 compared to the year ended December 31, 2021. Revenues from our Regulated Water segment increased by $102,769, Regulated Natural Gas segment by $283,460 and other revenues by $23,659. A detailed discussion of the factors contributing to the changes in segment net revenue is included below under the section, Segment Results of Operations.

Our other revenues consist of market-based revenues at Aqua Resources, Aqua Infrastructure, and our non-regulated natural gas operations amounting to $61,698 in 2022, $38,435 in 2021, and $17,776 in 2020. The increase in other revenues is primarily due to higher revenues from our non-regulated natural gas operations driven by higher gas prices.

Operating expenses - Operations and maintenance expenses increased in 2022, as compared to 2021, by $63,069 or 11.5%, primarily due to:

- increase in employee related costs of $17,129 driven by an increase in labor rates, other compensation, including a one-time compensation payment for non-officer level employees, and benefits to employees;
- increase in production costs for water and wastewater operations of $6,339, primarily due to higher chemical prices and an increase in wholesale water costs;
- additional operating costs associated with acquired and pending acquisitions of water and wastewater utility systems and higher customer base of $6,872;
- increase in customer assistance surcharge costs of $12,778 in our Regulated Natural Gas segment, which has an equivalent offsetting amount in revenues. These revenues and offsetting expenses increased mainly due to the increase in average gas prices during 2022 compared to last year;
- increase in insurance expense of $6,911 due to higher insurance claims, which includes the impact of a favorable insurance reserve adjustment of $2,426 during the first quarter of 2021;
- increase in legal expenses of $2,779;
- increase in materials and supplies of $3,417, and outside services and maintenance expenses of $22,175 largely due to inflationary cost pressures and increased maintenance activity; offset by,
- reduction of expenses in 2022 of $454 associated with remediating an advisory for some of our water utility customers served by our Illinois subsidiary. We expect the expenses associated with remediating the advisory to continue into 2023;
- decrease in repairs expense of $2,820 as 2021 included costs incurred to restore and repair the property damaged by Hurricane Ida;
- lower asset impairment charge of $2,900 associated with the write down of the right of use assets of our Regulated Natural Gas segment's leased office space to fair value in 2022 as compared with 2021; and,
- a decrease in expenses of $7,386 in our Regulated Gas segment due to higher capitalization as a result of greater capital spend in the current year.

Purchased gas increased by $261,733 or 76.9% in 2022 compared to 2021. Purchased gas represents the cost of gas sold by Peoples for the regulated and non-regulated gas business and has a corresponding offset in revenue. This expense increased for the regulated natural gas business and non-regulated business by $237,619 and $24,114, respectively, as a result of the increase in natural gas prices.

Depreciation and amortization expense increased by $23,225 or 7.8%, in 2022 over 2021, principally due to continued capital expenditures to expand and improve our utility facilities, upgrade our information systems, our acquisitions of new utility systems, and additional rate case filings. Expenses associated with filing rate cases are deferred and amortized over periods that generally range from one to three years.

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(In thousands of dollars, except per share amounts)

Taxes other than income taxes totaled $90,024 in 2022 and $86,641 in 2021, and has increased by $3,383 or 3.9% in 2022 as compared to 2021 principally due to increase in pumping fees of $2,120.

Other expense, net - Interest expense was $238,116 in 2022 and $207,709 in 2021. Interest expense increased in 2022 primarily due to an increase in average borrowings, and an increase in average interest rates. The weighted average cost of fixed rate long-term debt was 3.78% at December 31, 2022 and 3.61% at December 31, 2021. The weighted average cost of fixed and variable rate long-term debt was 3.94% at December 31, 2022 and 3.49% at December 31, 2021.

Allowance for funds used during construction (AFUDC) was $23,665 in 2022 and $20,792 in 2021, and varies as a result of changes in the average balance of utility plant construction work in progress, to which AFUDC is applied, changes in the AFUDC rate which is based predominantly on short-term interest rates, changes in the balance of short term-debt, and changes in the amount of AFUDC related to equity. The increase in 2022 is primarily due to an increase in the average balance of utility plant construction work in progress, to which AFUDC is applied. The amount of AFUDC related to equity was $17,618 in 2022 and $16,282 in 2021.

Gain on sale of other assets totaled $991 in 2022 and $976 in 2021, and consists of the sales of property, plant and equipment.

Other totaled $494 in 2022, and $(2,848) in 2021, and largely consists of the non-service cost component of our net benefit cost for pension benefits and unrealized gains and losses on investments associated with our non-qualified pension plan. In 2022, the fair values of our investments associated with our non-qualified plan declined and we recognized a loss of $895 in 2022 compared to a gain of $(607) in 2021.

Income tax benefit - Our effective income tax rate was (3.2)% in 2022, and (2.3)% in 2021. The Company's provision for income taxes represents an income tax benefit due to the effects of tax deductions recognized for certain qualifying infrastructure investments. The decrease in the effective tax rate is primarily attributed to the increase in our income tax benefit associated with the tax deduction for qualifying infrastructure investments.

Net income -

	Years ended December 31,		
	2022	2021	2020
Operating income	$ 661,187	$ 602,709	$ 434,686
Net income	465,237	431,612	284,849
Diluted net income per share	1.77	1.67	1.12

The changes in diluted net income per share in 2022 over the previous year were due to the aforementioned changes.

Although we have experienced increased income in the recent past, continued adequate rate increases reflecting increased operating costs and new capital improvements are important to the future realization of improved profitability.

Segment Results of Operations Comparison for 2022 and 2021

We have identified twelve operating segments, and we have two reportable segments based on the following:

- Eight segments are composed of our water and wastewater regulated utility operations in the eight states where we provide these services. These operating segments are aggregated into one reportable segment, Regulated Water, since each of these operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution and/or wastewater collection methods, and the nature of the regulatory environment.

- Our Regulated Natural Gas segment is composed of natural gas utility companies in three states acquired in the Peoples Gas Acquisition. These utilities provide natural gas distribution services, and their operating results subsequent to the March 16, 2020 acquisition date are reported in the Regulated Natural Gas segment.

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- Three segments are not quantitatively significant to be reportable and are composed of our non-regulated natural gas operations, Aqua Resources, and Aqua Infrastructure. These segments are included as a component of "Other," in addition to corporate costs that have not been allocated to the Regulated Water and Regulated Natural Gas segments, because they would not be recoverable as a cost of utility service, and intersegment eliminations. Corporate costs include general and administrative expenses, and interest expense.

Regulated Water Segment

The following tables present the selected operating results and customers served for our Regulated Water segment, for and as of the year ended December 31,:

	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
Sendout (in millions of gallons)					
Pennsylvania	42,666	42,198	41,683	468	515
Ohio	14,604	13,971	14,020	633	(49)
Illinois	8,784	8,764	8,651	20	113
Texas	8,606	7,212	7,393	1,394	(181)
North Carolina	5,934	5,984	5,780	(50)	204
Other states	6,272	6,191	6,299	81	(108)
Subtotal	86,866	84,320	83,826	2,546	494
Elimination	(141)	(154)	(65)	13	(89)
Total sendout by state	86,725	84,166	83,761	2,559	405
Utility customers:					
Residential water	850,673	842,200	832,902	8,473	9,298
Commercial water	43,119	42,864	42,535	255	329
Industrial water	1,286	1,331	1,338	(45)	(7)
Other water	18,446	17,932	18,561	514	(629)
Wastewater	181,721	162,478	151,965	19,243	10,513
Total water and wastewater utility customers	1,095,245	1,066,805	1,047,301	28,440	19,504
Operating revenues:					
Residential water	$ 607,473	$ 561,996	$ 567,485	$ 45,477	$ (5,489)
Commercial water	168,460	151,071	143,479	17,389	7,592
Industrial water	32,581	30,230	29,764	2,351	466
Other water	94,359	89,472	67,712	4,887	21,760
Wastewater	165,312	132,316	121,117	32,996	11,199
Customer rate credits	-	-	(4,080)	-	4,080
Other utility	14,787	15,118	13,063	(331)	2,055
Total operating revenues	$ 1,082,972	$ 980,203	$ 938,540	$ 102,769	$ 41,663
Operating expenses:					
Operations and maintenance expense	$ 370,850	$ 332,598	$ 309,608	$ 38,252	$ 22,990
Depreciation and amortization	$ 201,392	$ 182,074	$ 171,152	$ 19,318	$ 10,922
Taxes other than income taxes	$ 64,472	$ 63,264	$ 60,505	$ 1,208	$ 2,759
Other expense, net	$ 84,396	$ 81,931	$ 91,001	$ 2,465	$ (9,070)
Provision for income tax	$ 47,510	$ 26,633	$ 22,481	$ 20,877	$ 4,152
Segment net income	$ 314,352	$ 293,703	$ 283,793	$ 20,649	$ 9,910

Operating revenues - The growth in our Regulated Water segment's revenues over the past three years is primarily a result of increases in our water and wastewater rates and our customer base. Water and wastewater rate increases, including infrastructure rehabilitation surcharges, implemented during the past three years have provided additional operating revenues of $63,367 in 2022, $27,421 in 2021, and $32,660 in 2020. The number of customers increased at an annual compound rate of 2.2% over the past three years due to acquisitions and organic growth, adjusted to exclude customers associated with utility system dispositions. Acquisitions in our Regulated Water segment have provided additional water and wastewater revenues of $16,145 in 2022, $6,750 in 2021, and $10,951 in 2020.

Our Regulated Water segment also includes operating revenues of $11,477 in 2022 and $13,358 in 2021, and $8,781 in 2020, associated with revenues earned primarily from fees received from telecommunication operators that have put

cellular antennas on our water towers, fees earned from municipalities for our operation of their water or wastewater treatment services or to perform billing services, and fees earned from developers for accessing our water mains.

Operating expenses - Operations and maintenance expense for the year ended December 31, 2022 was $370,850 compared to $332,598 in the prior period. The increase of 38,252 or 11.5% was primarily due to the following:

- increase in employee related costs of $7,279 driven by an increase in labor rates, other compensation and benefits to employees;
- increase in production costs for water and wastewater operations of $6,339;
- additional operating costs resulting from acquired water and wastewater utility systems and higher customer base of $6,872;
- increase in legal expenses of $3,059;
- increase in outside services and maintenance expenses of $17,196 in our Regulated Water segment as compared with the prior period; offset by,
- reduction of expenses in 2022 of $454 associated with remediating an advisory for some of our water utility customers served by our Illinois subsidiary. We expect the expenses associated with remediating the advisory to continue into 2023; and,
- offset by a decrease in repairs expense of $2,820 as 2021 included costs incurred to restore and repair the property damaged by Hurricane Ida.

Depreciation and amortization increased by $19,318 or 10.6% primarily due to continued capital spend.

Other expense, net – Interest expense, net, increased by $3,582 or 3.3% primarily due to the increase in average borrowings and higher interest rate on our revolving line of credit in 2022.

AFUDC increased by $1,692 or 8.8% due to the increase in the average balance of utility plant construction work in progress, to which AFUDC is applied.

Provision for income tax – The effective income tax rate for our Regulated Water segment was 13.1% in 2022, compared to 8.3% in 2021. The change in the effective tax rate is primarily due to a decrease in the amortization of certain regulatory liabilities associated with deferred taxes.

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(In thousands of dollars, except per share amounts)

Regulated Natural Gas Segment

The following tables present the selected operating results and customers served for our Regulated Natural Gas segment for and as of the year ended December 31,:

	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
Gas utility customers:					
Residential gas	695,198	692,174	690,642	3,024	1,532
Commercial gas	59,684	59,595	59,424	89	171
Industrial gas	1,459	1,475	1,436	(16)	39
Total gas utility customers	756,341	753,244	751,502	3,097	1,742
Delivered volumes (thousand cubic feet)					
Residential gas	61,093,372	56,542,038	33,675,963	4,551,334	22,866,075
Commercial gas	37,240,382	33,403,899	20,082,555	3,836,483	13,321,344
Industrial gas	49,017,036	49,726,237	37,936,661	(709,201)	11,789,576
Total delivered volumes	147,350,790	139,672,174	91,695,179	7,678,616	47,976,995
Heating Degree Days [(b)]	5,648	5,139	3,013	509	2,126
Average Heating Degree Days [(c)]	5,438	5,466	2,973	(28)	2,493

	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
Operating revenues:					
Residential gas	$ 720,490	$ 530,338	$ 314,274	$ 190,152	$ 216,064
Commercial gas	149,653	99,596	50,239	50,057	49,357
Industrial gas	5,636	3,427	6,923	2,209	(3,496)
Gas transportation	205,825	198,195	133,685	7,630	64,510
Customer rate credits	-	(5,000)	(18,924)	5,000	13,924
Other utility	61,758	33,346	20,367	28,412	12,979
Total operating revenues	$ 1,143,362	$ 859,902	$ 506,564	$ 283,460	$ 353,338
Operating expenses:					
Operations and maintenance expense	$ 239,506	$ 226,194	$ 198,383	$ 13,312	$ 27,811
Purchased gas	$ 551,009	$ 313,390	$ 154,103	$ 237,619	$ 159,287
Depreciation and amortization	$ 118,955	$ 113,238	$ 84,201	$ 5,717	$ 29,037
Taxes other than income taxes	$ 22,642	$ 20,801	$ 13,307	$ 1,841	$ 7,494
Other expense, net	$ 87,916	$ 78,099	$ 25,252	$ 9,817	$ 52,847
Income tax benefit	$ (61,942)	$ (40,013)	$ (25,133)	$ (21,929)	$ (14,880)
Segment net income	$ 185,276	$ 148,193	$ 56,451	$ 37,083	$ 91,742

[(a)] Includes operating results since the completion of the Peoples Gas Acquisition on March 16, 2020.

[(b)] Unit of measure reflecting temperature-sensitive natural gas consumption, calculated by subtracting the average of a day's high and low temperatures from 65 degrees Fahrenheit.

[(c)] Based on historical twenty-year average heating degree days, as calculated from data provided by the National Weather Service for the same geographic location.

Operating revenues – Operating revenues from the Regulated Natural Gas segment increased by $283,460 or 33.0% due to:

- impact of higher gas cost of $237,619 in 2022 as compared to 2021;
- higher gas usage of $27,237;
- increase of $13,682 due to higher rates and other surcharges; and,
- increase in customer assistance surcharge of $12,778, which has an equivalent offsetting amount in operations and maintenance expense. These revenues and offsetting expenses increased mainly due to the increase in average gas prices in 2022 compared to the last year; and,
- offset by the increase in tax repair surcredits to customers of $18,304.

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Operating expenses – Operations and maintenance expense for the year ended December 31, 2022 increased by $13,312 or 5.9% primarily due to the following:

- increases in employee related costs of $5,413 driven by an increase in labor rates, other compensation and benefits to employees;
- increase in customer assistance surcharge costs of $12,778, which has an equivalent offsetting amount in revenues;
- increase in outside services and maintenance expenses of $4,841; offset by,
- lower asset impairment charge of $2,900 associated with the write down of the right of use assets of our Regulated Natural Gas segment's leased office space to fair value in 2022 as compared with 2021; and,
- a decrease in expenses of $7,386 in our Regulated Gas segment due to higher capitalization as a result of greater capital spend in the current year.

Our Regulated Natural Gas segment is affected by the cost of natural gas, which is passed through to customers using a purchased gas adjustment clause and includes commodity price, transportation and storage costs. These costs are reflected in the consolidated statement of operations and comprehensive income as purchased gas expenses. Therefore, fluctuations in the cost of purchased gas impact operating revenues on dollar-for-dollar basis. Purchased gas increased by $237,619 or 75.8% due to an increase of 78.2% in the average gas commodity prices in 2022 as compared to the prior year.

Depreciation and amortization increased by $5,717 or 5.0% primarily due to continued capital spend.

Taxes other than income taxes increased by $1,841 or 8.9% mainly due to to an increase in sales and use taxes and regulatory fees in 2022.

Other expense, net – Interest expense, net, increased by $11,558 or 15.3% for 2022 compared to 2021 due to additional borrowings and a higher interest rate on our revolving line of credit in 2022.

AFUDC increased by $1,181 or 77.0% due to the increase in the average balance of utility plant construction work in progress, to which AFUDC is applied.

Income tax benefit – The effective income tax rate was a benefit of 50.2% in 2022, compared to a benefit of 37.0% in 2021. The change in the effective tax rate is primarily attributed to an increase in the income tax benefit associated with the tax deduction for qualifying infrastructure investment and an increase in the amortization of the tax repair catch-up adjustment in our Regulated Natural Gas segment.

LIQUIDITY AND CAPITAL RESOURCES

Consolidated Cash Flow and Capital Expenditures

Net operating cash flows, dividends paid on common stock, capital expenditures, including allowances for funds used during construction, and expenditures for acquiring utility systems were as follows for the years ended December 31:

	Net Operating Cash Flows	Dividends	Capital Expenditures	Acquisitions
2020	$ 508,024	$ 232,571	$ 835,642	$ 3,501,835
2021	644,679	258,650	1,020,519	36,326
2022	600,306	288,632	1,062,763	116,891
	$ 1,753,009	$ 779,853	$ 2,918,924	$ 3,655,052

Net cash flows from operating activities decreased from 2021 to 2022 largely due to the increase in accounts receivable, unbilled revenues and inventory- gas stored. Average cost of gas stored in inventories and associated recoveries of gas costs from customers was higher in 2022 than in 2021.

Included in capital expenditures for the three year period are: expenditures for the rehabilitation of existing utility systems, the expansion of our utility systems, modernization and replacement of existing treatment facilities, meters, office facilities, information technology, vehicles, and equipment. During this three year period, we received $36,563 of customer advances and contributions in aid of construction to finance new utility mains and related facilities that are not included in the capital expenditures presented in the above table. In addition, during this period, we have made repayments of debt, which includes the net effect of borrowings and repayments under our long-term revolving credit facility of $1,965,289 and have refunded $21,068 of customers' advances for construction. Dividends increased during the past three years as a result of annual increases in the dividends declared and paid and increases in the number of shares outstanding.

Our planned 2023 capital program, excluding the costs of new mains financed by advances and contributions in aid of construction is estimated to be approximately $1,123,000 in infrastructure improvements for the communities we serve. The 2023 capital program is expected to include approximately $747,000 for infrastructure rehabilitation surcharge qualified projects. Our planned 2023 capital program in Pennsylvania for our water and natural gas utilities is estimated to be approximately $761,000, a portion of which is expected to be eligible as a deduction for qualifying utility asset improvements for Federal income tax purposes. Our overall 2023 capital program along with $199,356 of debt repayments and $365,432 of other contractual cash obligations, as reported in the section captioned "Management's Discussion and Analysis of Financial Condition and Results of Operations – *Contractual Obligations*", has been, or is expected to be, financed through internally-generated funds, our revolving credit facilities, and the issuance of long-term debt and equity.

Future utility construction in the period 2024 through 2025, including recurring programs, such as the ongoing replacement or rehabilitation of utility meters and mains, water treatment plant upgrades, storage facility renovations, pipes, service lines, and additional transmission mains to meet customer demands, excluding the costs of new mains financed by advances and contributions in aid of construction, is estimated to require aggregate expenditures of approximately $2,115,000. We anticipate that approximately one-half of these expenditures will require external financing. We expect to refinance $221,345 of long-term debt during this period as it becomes due with funds from new issues of long-term debt, issuances of equity, internally-generated funds, and our revolving credit facilities. The estimates discussed above do not include any amounts for possible future acquisitions of utility systems or the financing necessary to support them.

Our primary sources of liquidity are cash flows from operations (including the allowed deferral of Federal income tax payments), borrowings under various short-term lines of credit and other credit facilities, and customer advances and contributions in aid of construction. Our cash flow from operations, or internally-generated funds, is impacted by the timing of rate relief, utility operating revenues, and changes in Federal tax laws, and accelerated tax depreciation or deductions for utility construction projects. We fund our capital and typical acquisitions through internally-generated funds, supplemented by short-term lines of credit. Over time, we partially repay or pay-down our short-term lines of credit with long-term debt. The ability to finance our future construction programs, as well as our acquisition activities, depends on our ability to attract the necessary external debt and equity financing and maintain internally-generated funds. Timely rate orders permitting compensatory rates of return on invested capital will be required by our operating subsidiaries to achieve an adequate level of earnings and cash flow to enable them to secure the capital they will need to operate and to maintain satisfactory debt coverage ratios.

Acquisitions

As part of the Company's growth-through-acquisition strategy, as of December 31, 2022, the Company has entered into purchase agreements to acquire the water or wastewater utility system assets of seven municipalities and a private company for a total combined purchase price in cash of approximately $380,000. The purchase price for these pending acquisitions is subject to certain adjustments at closing, and the pending acquisitions are subject to regulatory approvals, including the final determination of the fair value of the rate base acquired. Closings for these acquisitions are expected to occur in 2023 or early 2024, which is subject to the timing of the various regulatory approval processes. These acquisitions are expected to add approximately 218,600 equivalent retail customers in four of the states in which the Company operates.

In November 2022, the Company acquired the water system of Oak Brook, DuPage County, Illinois, which serves 2,037 customers, for a cash purchase price of $12,500. In August 2022, the Company acquired the municipal wastewater assets of East Whiteland Township, Chester County, Pennsylvania, which serves 4,018 customers, for a cash purchase price of $54,374. In March 2022, the Company acquired the wastewater system of Lower Makefield Township, which serves 11,323 customer connections in Lower Makefield, Falls, and Middletown townships, and Yardley Borough, Bucks County, Pennsylvania, for a cash purchase price of $53,000.

In August 2021, the Company acquired the water utility system assets of The Commons Water Supply, Inc., which serves 992 customers in Harris County, Texas, and the wastewater utility system assets of the Village of Bourbonnais, which serves approximately 6,500 customers in Kankakee County, Illinois. The total cash purchase prices for these utility systems were $4,000 and $32,100, respectively.

On March 16, 2020, the Company completed the Peoples Gas Acquisition, which expanded the Company's regulated utility business to include natural gas distribution, serving approximately 750,000 natural gas utility customers in western Pennsylvania, West Virginia and Kentucky. The Company paid cash consideration of $3,465,344, which was subject to adjustment based upon the terms of the purchase agreement. The Company financed this acquisition through the April 2019 issuances of $1,293,750 of common stock, $900,000 of senior notes (of which $436,000 was for this acquisition), $690,000 of tangible equity units, and the issuance of $750,000 of common stock through a private placement, and borrowings on our revolving credit facility. Additionally, during 2020, we completed six acquisitions of water and wastewater utility systems for $63,279 in cash in four of the states in which we operate, adding 10,585 customers.

Excluding the Peoples Gas Acquisition, during the past three years, we have expended cash of $216,496 related to the acquisition of both water and wastewater utility systems. We continue to pursue the acquisition of water and wastewater utility systems and explore other utility acquisitions that may be in a new state. Our typical acquisitions are expected to be financed with short-term debt with subsequent repayment from the proceeds of long-term debt, retained earnings, or equity issuances.

Assets Held for Sale and Disposition

We routinely review and evaluate areas of our business and operating divisions and, over time, may sell utility systems or portions of systems. In December 2022, the Company signed an agreement to sell its regulated natural gas utility assets in West Virginia which serve less than two percent of the Company's regulated natural gas customers. This sale is conditioned on regulatory approval and is expected to close in mid-2023. The completion of this transaction will conclude our regulated utility operations in West Virginia.

In October 2020, the Company also sold its investment in a joint venture. Its investment represented its 49% investment in a joint venture that operates a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale of north central Pennsylvania, and recorded a charge of $3,700 associated with the sale. Refer to Note 3 – *Asset Held for Sale and Disposition* in this Annual Report for additional information.

Sources of Capital

Since net operating cash flow plus advances and contributions in aid of construction have not been sufficient to fully fund our cash requirements including capital expenditures and our growth through acquisitions program, which included financings for a portion of the Peoples Gas Acquisition, we issued $5,542,246 of long-term debt, and obtained other short-term borrowings during the past three years. At December 31, 2022, we have a $1,000,000 unsecured long-term revolving credit facility that expires in December 2027, of which $19,041 was designated for letter of credit usage, $490,959 was available for borrowing, and $490,000 of borrowings were outstanding at December 31, 2022. This credit facility was established in December 2022, replacing a similar facility that was expiring in December 2023, and was used to repay all indebtedness and fees under our prior unsecured revolving credit facility, and for other general corporate purposes. In addition, we have short-term lines of credit of $435,500 of which $207,000 was available as of December 31, 2022. Included in the short-term lines of credit is an Aqua Pennsylvania $100,000 364 day unsecured revolving credit facility and a Peoples Natural Gas $300,000 364 day unsecured revolving credit facility. These short-term lines of credit are subject to renewal on an annual basis. Although we believe we will be able to renew these facilities, there is no assurance that they will be renewed, or what the terms of any such renewal will be.

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In January 2023 and October 2022, Aqua Pennsylvania issued $75,000 and $125,000 of first mortgage bonds, due in 2043 and 2052, and with interest rates of 5.60% and 4.50%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

On October 14, 2022, the Company entered into at-the market sales agreements ("ATM") with third-party sales agents, under which the Company may offer and sell shares of its common stock, from time to time, at its option, having an aggregate gross offering price of up to $500,000 pursuant to the Company's effective shelf registration statement on Form S-3 (File No. 333-255235). The Company intends to use the net proceeds from the sales of shares through the ATM for working capital, capital expenditures, water and wastewater utility acquisitions and repaying outstanding indebtedness. As of December 31, 2022, the Company has issued 1,321,994 shares for net proceeds of $63,040 under the ATM. In January 2023, the Company has issued 399,128 shares for net proceeds of $19,294 under the ATM.

On June 30, 2022, the Peoples Natural Gas Companies amended its 364-day revolving credit agreement primarily to increase the amount of the facility from $100,000 to $300,000 and to update the termination date of the facility to June 29, 2023. Aqua Pennsylvania also amended its $100,000 364-day revolving credit agreement primarily to update the termination date to June 29, 2023 to coincide with the term of the Peoples Natural Gas Companies' facility.

On May 20, 2022, the Company issued $500,000 of long-term debt (the "Senior Notes"), less expenses of $5,815, due in 2052 with an interest rate of 5.30%. The Company used the net proceeds from the issuance of Senior Notes to (1) to repay $49,700 of borrowings under Aqua Pennsylvania's 364-day revolving credit facility and $410,000 of borrowings under the Company's existing five year unsecured revolving credit facility, and (2) for general corporate purposes.

On April 15, 2021, our operating subsidiary, Aqua Ohio, Inc., issued $100,000 of first mortgage bonds, of which $50,000 is due in 2031 and $50,000 is due in 2051, with interest rates of 2.37% and 3.35%, respectively. The proceeds from these bonds were used for general corporate purposes and to repay existing indebtedness. Further, on April 19, 2021, the Company issued $400,000 of long-term debt, with expenses of $4,010, which is due in 2031 with an interest rate of 2.40%. The Company used the proceeds from this issuance to repay $50,000 of borrowings under the Aqua Pennsylvania revolving credit facility, and the balance was used to repay in full the borrowings under its existing five-year unsecured revolving credit agreement.

In August 2020, we entered into a forward equity sale agreement for 6,700,000 shares of common stock with a third party (the "forward purchaser"). In connection with the forward equity sale agreement, the forward purchaser borrowed an equal number of shares of our common stock from stock lenders and sold the borrowed shares to the public. We did not receive any proceeds from the sale of our common stock by the forward purchaser until settlement of the forward equity sale agreement. On August 9, 2021, the Company settled the forward equity sale agreement in full by physical share settlement. The Company issued 6,700,000 shares and received cash proceeds of $299,739 at a forward price of $44.74 per share. Pursuant to the agreement, the forward price was computed based upon the initial forward price of $46.00 per share, adjusted for a floating interest rate factor equal to a specified daily rate less a spread and scheduled dividends during the term of the agreement. The Company used the proceeds received upon settlement of the forward equity sale agreement to fund general corporate purposes, including for water and wastewater acquisitions, working capital and capital expenditures. The forward equity sale agreement has now been completely settled, and there are no additional shares subject to the forward equity sale agreement.

Our consolidated balance sheet historically has had a negative working capital position, whereby routinely our current liabilities exceed our current assets. Management believes that internally-generated funds along with existing credit facilities and the proceeds from the issuance of long-term debt and common equity will be adequate to provide sufficient working capital to maintain normal operations and to meet our financing requirements for at least the next twelve months.

Our loan and debt agreements require us to comply with certain financial covenants, which among other things, subject to specific exceptions, limit the Company's ratio of consolidated total indebtedness to consolidated total capitalization, and require a minimum level of earnings coverage over interest expense. During 2022, we were in compliance with our debt covenants under our credit facilities. Failure to comply with our debt covenants could result in an event of default, which could result in us being required to repay or refinance our borrowings before their due date, possibly limiting our future borrowings, and increasing our borrowing costs.

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In April 2021, the Company filed a universal shelf registration statement through a filing with the SEC to allow for the potential future offer and sale by the Company, from time to time, in one or more public offerings, of an indeterminate amount of our common stock, preferred stock, debt securities, and other securities specified therein at indeterminate prices. In April 2019, March 2020 and August 2020, we issued common stock, including common stock in connection with a forward equity sale agreement, long-term debt and tangible equity units in several offerings under this shelf registration statement. Refer to Note 11 – *Long-term Debt and Loans Payable* and Note 13 – *Stockholders' Equity* in this Annual Report for further information regarding these financings.

In addition, we have an acquisition shelf registration statement, which was filed with the SEC on February 27, 2015, to permit the offering from time to time of an aggregate of $500,000 of our common stock and shares of preferred stock in connection with acquisitions. The balance remaining available for use under the acquisition shelf registration as of December 31, 2022 is $487,155.

We will determine the form and terms of any further securities issued under the universal shelf registration statement and the acquisition shelf registration statement at the time of issuance.

We offer a Dividend Reinvestment and Direct Stock Purchase Plan (the Plan) that provides a convenient and economical way to purchase shares of the Company. Under the direct stock purchase portion of the Plan, shares are issued throughout the year. The dividend reinvestment portion of the Plan offers a five percent discount on the purchase of shares of common stock with reinvested dividends. As of the December 2022 dividend payment, holders of 5.1% of the common shares outstanding participated in the dividend reinvestment portion of the Plan. The shares issued under the Plan are either original issue shares or shares purchased by the Company's transfer agent in the open-market. During the past three years, we have sold 1,132,080 original issue shares of common stock for net proceeds of $49,940 through the dividend reinvestment portion of the Plan, and we used the proceeds to invest in our operating subsidiaries, to repay short-term debt, and for general corporate purposes. In 2022, 2021 and 2020, we sold 368,278, 374,824 and 388,978 original issues shares of common stock for net proceeds of $16,619, $16,799 and $16,522, respectively, through the dividend reinvestment portion of the plan.

Off-Balance Sheet Financing Arrangements
We do not engage in any off-balance sheet financing arrangements. We do not have any interest in entities referred to as variable interest entities, which includes special purpose entities and other structured finance entities.

Contractual Obligations
The following table summarizes our contractual cash obligations as of December 31, 2022:

		Payments Due By Period			
	Total	Less than 1 year	1 – 3 years	3 – 5 years	More than 5 years
Long-term debt	$ 6,617,395	$ 199,356	221,345	751,512	5,445,182
Interest on fixed-rate, long-term debt (1)	250,143	8,149	9,953	39,570	192,471
Operating leases (2)	60,348	8,923	17,233	13,429	20,763
Unconditional purchase obligations (3)	18,216	4,716	9,142	3,238	1,120
Gas purchase obligations (4)	2,813,168	234,950	485,784	485,507	1,606,927
Other purchase obligations (5)	84,632	84,632	-	-	-
Pension plan obligations (6)	20,343	20,343	-	-	-
Other obligations (7)	11,825	3,719	2,737	3,293	2,076
Total	$ 9,876,070	$ 564,788	$ 746,194	$ 1,296,549	$ 7,268,539

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(In thousands of dollars, except per share amounts)

(1) Represents interest payable on fixed rate, long-term debt. Amounts reported may differ from actual due to future refinancing of debt.

(2) Represents minimum lease payments for long-term operating leases of land, office facilities, office equipment, and vehicles.

(3) Represents our commitment to purchase minimum quantities of water as stipulated in agreements with other water purveyors. We use purchased water to supplement our water supply, particularly during periods of peak customer demand. Our actual purchases may exceed the minimum required levels.

(4) Represents our commitment to purchase minimum quantities of natural gas stipulated in agreements with various producers of natural gas to meet regulated customers' natural gas requirements.

(5) Represents an approximation of the open purchase orders for goods and services purchased in the ordinary course of business.

(6) Represents contributions to be made to the Company's retirement plans.

(7) Represents expenditures estimated to be required under legal and binding contractual obligations.

In addition to the contractual obligations table above, we have the following obligations:

- *Refunds of customer's advances for construction* – We pay refunds on customers' advances for construction over a specific period of time based on operating revenues related to developer-installed utility mains or as new customers are connected to and take service from such mains. After all refunds are paid, any remaining balance is transferred to contributions in aid of construction. The refund amounts are not included in the above table because the refund amounts and timing are dependent upon several variables, including new customer connections, customer consumption levels and future rate increases, which cannot be accurately estimated. Portions of these refund amounts are payable annually through 2031 and amounts not paid by the contract expiration dates become non-refundable.

- *Asset Retirement Obligations* – We recognize asset retirement obligations associated with retirements of production, storage wells and other pipeline components at fair value, as incurred, or when sufficient information becomes available to determine a reasonable estimate of the fair value of the retirement activities to be performed. Expected obligations are not included in the above table because the amounts and timing are dependent upon several variables, which cannot be accurately estimated.

- *Uncertain tax positions* – We have uncertain tax positions of $18,217. Although we believe our tax positions comply with applicable law, we have made judgments as to the sustainability of each uncertain tax position based on its technical merits. Due to the uncertainty of future cash outflows, if any, associated with our uncertain tax positions, we are unable to make a reasonable estimate of the timing or amounts that may be paid. See Note 7 – *Income Taxes* in this Annual Report for further information on our uncertain tax positions.

We will fund these contractual obligations with cash flows from operations and liquidity sources held by or available to us.

The Company is routinely involved in legal matters, including both asserted and unasserted legal claims, during the ordinary course of business. See Note 9 – *Commitments and Contingencies* in this Annual Report for a discussion of the Company's legal matters. It is not always possible for management to make a meaningful estimate of the potential loss or range of loss associated with such litigation. Also, unanticipated changes in circumstances and/or revisions to the assessed probability of the outcomes of legal matters could result in expenses being incurred in future periods as well as an increase in actual cash required to resolve the legal matter.

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(In thousands of dollars, except per share amounts)

Capitalization
The following table summarizes our capitalization as of December 31, 2022 and 2021:

December 31,	2022	2021
Long-term debt (1)	55.2%	53.4%
Essential Utilities stockholders' equity	44.8%	46.6%
	100.0%	100.0%

(1) Includes current portion, as well as our borrowings under a variable rate revolving credit agreement of $490,000 at December 31, 2022, and $300,000 at December 31, 2021.

Over the past two years, the changes in the capitalization ratios primarily resulted from the issuance of debt to finance our acquisitions and capital program, changes in net income, the issuance of common stock, and the declaration of dividends.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our financial condition and results of operations are impacted by the methods, assumptions, and estimates used in the application of critical accounting policies. The following accounting policies are particularly important to our financial condition or results of operations and require estimates or other judgments of matters of uncertainty. Changes in the estimates or other judgments included within these accounting policies could result in a significant change to the financial statements. We believe our most critical accounting policies include the use of regulatory assets and liabilities, revenue recognition, the valuation of our long-lived assets (which consist primarily of utility plant in service, regulatory assets, and goodwill), our accounting for post-retirement benefits, and our accounting for income taxes. We have discussed the selection and development of our critical accounting policies and estimates with the Audit Committee of the Board of Directors.

Regulatory Assets and Liabilities — We defer costs and credits on the balance sheet as regulatory assets and liabilities when it is probable that these costs and credits will be recognized in the rate-making process in a period different from when the costs and credits were incurred. These deferred amounts, both assets and liabilities, are then recognized in the consolidated statement of operations in the same period that they are reflected in our rates charged for utility service. We make significant judgments and estimates to record regulatory assets and liabilities, such as for amounts related to income taxes, pension and postretirement benefits, acquisitions and capital projects. For each regulatory jurisdiction with regulated operations, we evaluate at the end of each reporting period, whether the regulatory assets and liabilities continue to meet the probable criteria for future recovery or refund. The evaluation considers factors such as regulatory orders or guidelines, in the same regulatory jurisdiction, of a specific matter or a similar matter, as provided to us in the past or to other regulated utilities. In addition, the evaluation may be impacted by changes in the regulatory environment and pending or new legislation that could impact the ability to recover costs through regulated rates. There may be multiple participants to rate or transactional regulatory proceedings who might offer different views on various aspects of such proceedings, and in these instances may challenge our prudence of business policies and practices, seek cost disallowances or request other relief.

In the event that our assessment as to the probability of the inclusion in the rate-making process is incorrect, the associated regulatory asset or liability would be adjusted to reflect the change in our assessment or change in regulatory approval.

Revenue Recognition — Our utility revenues recognized in an accounting period include amounts billed to customers on a cycle basis and unbilled amounts based on estimated usage from the last billing to the end of the accounting period. The estimated usage is based on our judgment and assumptions; our actual results could differ from these estimates, which would result in operating revenues being adjusted in the period that the revision to our estimates is determined. In Virginia, North Carolina, and Kentucky, we may bill our utility customers, in certain circumstances, in accordance with a rate filing that is pending before the respective regulatory commission, which would allow interim rates before the final commission rate order is issued. The revenue recognized reflects an estimate based on our judgment of the final outcome of the commission's ruling. We monitor the applicable facts and circumstances regularly and revise the estimate as

required. The revenue billed and collected prior to the final ruling is subject to refund based on the commission's final ruling.

Valuation of Long-Lived Assets, Goodwill and Intangible Assets — We review our long-lived assets for impairment, including utility plant in service and investment in joint venture. We also review regulatory assets for the continued application of the FASB accounting guidance for regulated operations. Our review determines whether there have been changes in circumstances or events, such as regulatory disallowances, or abandonments, that have occurred that require adjustments to the carrying value of these assets. Adjustments to the carrying value of these assets would be made in instances where their inclusion in the rate-making process is unlikely. For utility plant in service, we would recognize an impairment loss for any amount disallowed by the respective utility commission.

Our long-lived assets, which consist primarily of utility plant in service, operating lease right-of-use assets and intangible assets, are reviewed for impairment when changes in circumstances or events occur. These circumstances or events could include a decline in the market value or physical condition of a long-lived asset, an adverse change in the manner in which long-lived assets are used or planned to be used, a change in historical trends, operating cash flows associated with the long-lived assets, changes in macroeconomic conditions, industry and market conditions, or overall financial performance. When these circumstances or events occur, we determine whether it is more likely than not that the fair value of those assets is less than their carrying amount. If we determine that it is more likely than not (that is, the likelihood of more than 50 percent), we would recognize an impairment charge if it is determined that the carrying amount of an asset exceeds the sum of the undiscounted estimated cash flows. In this circumstance, we would recognize an impairment charge equal to the difference between the carrying amount and the fair value of the asset. Fair value is estimated to be the present value of future net cash flows associated with the asset, discounted using a discount rate commensurate with the risk and remaining life of the asset. This assessment requires significant management judgment and estimates that are based on budgets, general strategic business plans, historical trends and other data and relevant factors. These estimates include significant inherent uncertainties, since they involve forecasting future events. If changes in circumstances or events occur, or estimates and assumptions that were used in this review are changed, we may be required to record an impairment charge on our long-lived assets. Refer to Note 1 – *Summary of Significant Accounting Policies – Impairment of Long-Lived Assets* in this Annual Report for additional information regarding the review of long-lived assets for impairment.

We test the goodwill attributable for each of our reporting units for impairment at least annually, or more often, if circumstances indicate a possible impairment may exist. When testing goodwill for impairment, we may assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, overall financial performance, and entity specific events, for some or all of our reporting units to determine whether it's more likely than not that the fair value of a reporting unit is less than its carrying amount. Alternatively, based on our assessment of the qualitative factors previously noted, or at our discretion, we may perform a quantitative goodwill impairment test by determining the fair value of a reporting unit by weighting the results from the income approach and the market approach. These valuation approaches consider a number of factors that include, but are not limited to, prospective financial information, growth rates, terminal value, discount rates, and comparable multiples from publicly traded companies in our industry and require us to make certain assumptions and estimates regarding industry economic factors and future profitability of our business. If we perform a quantitative test and determine that the fair value of a reporting unit is less than its carrying amount, we would record an impairment loss for the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill. The assessment requires significant management judgment and estimates that are based on budgets, general strategic business plans, historical trends and other data and relevant factors. If changes in circumstances or events occur, or estimates and assumptions that were used in our impairment test change, we may be required to record an impairment charge for goodwill. Refer to Note 1 – *Summary of Significant Accounting Policies – Goodwill* in this Annual Report for further information.

In 2022, we changed our annual goodwill impairment test date from July 31 to October 1, which is a change in accounting principle that management believes is preferable as the new test date better aligns with our long-term planning and forecasting process. The change did not delay, accelerate or avoid an impairment charge nor did it change our requirement to assess goodwill on an interim date between scheduled annual testing dates if triggering events are present. To ensure that no lapse in an assessment occurred since the prior period, we performed an impairment test as of July 31, 2022, during the third quarter of 2022 for all reporting units and noted no impairment.

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(In thousands of dollars, except per share amounts)

During the fourth quarter of 2022, as part of the October 1, 2022 annual goodwill assessment, we elected to perform a quantitative goodwill impairment assessment on the goodwill attributable to our Regulated Natural Gas reporting unit and a qualitative assessment for our Regulated Water and Other reporting units. Based on our analysis, we determined that none of the goodwill of our reporting units was impaired. The headroom, which we defined as the percentage difference between the excess of fair value over carrying value, of our Regulated Natural Gas reporting unit was 15% as of the date of the most recent estimated fair value determination. We generally assumed operating margins in future years would increase as we continue to integrate and implement our rate base growth strategy. However, if overall market conditions further deteriorate, or market interest rates increase, future non-cash impairment charges may result which could be material. If we were to assume changes in certain of our key assumptions used to determine the fair value of our Regulated Gas reporting unit, the following would be the effect on headroom:

Sensitivity Analysis[1]	Percentage points (ppts) decrease in Regulated Gas Reporting Unit Headroom
Increase in discount rate by 100 basis points	6 ppts
Decrease in Market Multiples by 1x	7 ppts
Reduction in terminal value EBITDA[2] by 10%	8 ppts

[1] Each assumption used in the sensitivity analysis is independent of the other assumptions

[2] Defined as earnings before interest, taxes, depreciation and amortization

Accounting for Post-Retirement Benefits — We maintain a qualified and a non-qualified defined benefit pension plan and plans that provide for post-retirement benefits other than pensions. Accounting for pension and other post-retirement benefits requires an extensive use of assumptions including the discount rate, expected return on plan assets, the rate of future compensation increases received by our employees, mortality, turnover and medical costs. Each assumption is reviewed annually with assistance from our actuarial consultant, who provides guidance in establishing the assumptions. The assumptions are selected to represent the average expected experience over time and may differ in any one year from actual experience due to changes in capital markets and the overall economy. These differences will impact the amount of pension and other post-retirement benefits expense that we recognize.

Our discount rate assumption, which is used to calculate the present value of the projected benefit payments of our post-retirement benefits, was determined by selecting a hypothetical portfolio of high quality corporate bonds appropriate to match the projected benefit payments of the plans. The selected bond portfolio was derived from a universe of Aa-graded corporate bonds. The discount rate was then developed as the rate that equates the market value of the bonds purchased to the discounted value of the projected benefit payments of the plans. A decrease in the discount rate would generally increase our post-retirement benefits expense and benefit obligation. After reviewing the hypothetical portfolio of bonds, we selected a discount rate of 5.51% for our pension plan, and 5.45% for our other post-retirement benefit plans as of December 31, 2022, which represent a 260 and 249 basis-point increase as compared to the discount rates selected at December 31, 2021, respectively. Our post-retirement benefits expense under these plans is determined using the discount rate as of the beginning of the year, which was 2.91% for our pension plan and 2.96% for our other-postretirement benefit plan for 2022. As of September 30, 2022, settlement accounting was triggered by the amount of lump-sum payments by our qualified pension plan to retirees and other separated employees exceeding the threshold of service and interest cost for the period. As a result, we remeasured our qualified pension plan assets and liabilities using a discount rate of 5.58%, and the remeasurement did not have a material impact to our consolidated financial statements.

Our expected return on plan assets is determined by evaluating the asset class return expectations with our advisors as well as actual, long-term, historical results of our asset returns. The Company's market-related value of plan assets is equal to the fair value of the plans' assets as of the last day of its fiscal year and is a determinant for the expected return on plan assets, which is a component of post-retirement benefits expense. The allocation of our plans' assets impacts our expected return on plan assets. The expected return on plan assets is based on a targeted allocation of 50% to 70% return seeking assets and 30% to 50% liability hedging assets. Our post-retirement benefits expense increases as the expected return on plan assets decreases. We believe that our actual long-term asset allocations on average will approximate our targeted allocations. Our targeted allocations are driven by our investment strategy to earn a reasonable rate of return

while maintaining risk at acceptable levels through the diversification of investments across and within various asset categories. For 2022, we used a 5.4% expected return on plan assets assumption, and are currently reviewing this assumption for 2023 and expect it may remain unchanged in 2023.

Funding requirements for qualified defined benefit pension plans are determined by government regulations and not by accounting pronouncements. In accordance with funding rules and our funding policy, during 2023 our pension contribution is expected to be $20,343. Future years' contributions will be subject to economic conditions, plan participant data and the funding rules in effect at such time as the funding calculations are performed, though we expect future changes in the amount of contributions and expense recognized to be generally included in customer rates.

Accounting for Income Taxes — We estimate the amount of income tax payable or refundable for the current year and the deferred income tax liabilities and assets that results from estimating temporary differences resulting from the treatment of specific items, such as depreciation, for tax and financial statement reporting. Generally, these differences result in the recognition of a deferred tax asset or liability on our consolidated balance sheet and require us to make judgments regarding the probability of the ultimate tax impact of the various transactions we enter into. Based on these judgments, we may record tax reserves or adjustments to valuation allowances on deferred tax assets to reflect the expected realization of future tax benefits. Actual income taxes could vary from these estimates and changes in these estimates can increase income tax expense in the period that these changes in estimates occur.

Our determination of what qualifies as a capital cost versus a tax deduction, for qualifying utility asset improvements, as it relates to our income tax accounting method, is subject to subsequent adjustment as well as IRS audits, changes in income tax laws, including regulations regarding tax-basis depreciation as it applies to our capital expenditures, or qualifying utility asset improvements, the expiration of a statute of limitations, or other unforeseen matters could impact the tax benefits that have already been recognized. We establish reserves for uncertain tax positions based upon management's judgment as to the sustainability of these positions. These accounting estimates related to the uncertain tax position reserve require judgments to be made as to the sustainability of each uncertain tax position based on its technical merits. We believe our tax positions comply with applicable law and that we have adequately recorded reserves as required. However, to the extent the final tax outcome of these matters is different than our estimates recorded, we would then need to adjust our tax reserves which could result in additional income tax expense or benefits in the period that this information is known.

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IMPACT OF RECENT ACCOUNTING PRONOUNCEMENTS

We describe the impact of recent accounting pronouncements in Note 1 – *Summary of Significant Accounting Policies* in this Annual Report.

Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*

We are subject to market risks in the normal course of business, including changes in interest rates, gas commodity prices and equity prices. Volatile equity market conditions arising from the COVID-19 pandemic and global uncertainties associated with the current conflict in Ukraine and sanctions imposed in response to this conflict, may result in our pension and other post-retirement plans' assets market values suffering a decline, which could increase our required cash contributions to the plans and expense in subsequent years. The exposure to changes in interest rates is a result of financings through the issuance of fixed rate long-term debt. Such exposure is typically related to financings between utility rate increases, since generally our rate increases include a revenue level to allow recovery of our current cost of capital. Interest rate risk is managed through the use of a combination of long-term debt, which is at fixed interest rates; short-term debt, which is at floating interest rates; and at times in the past interest rate swap agreements. As of December 31, 2022, the debt maturities by period, in thousands of dollars, and the weighted average interest rate for long-term debt are as follows:

	2023	2024	2025	2026	2027	Thereafter	Total	Fair Value
Long-term debt:								
Fixed rate	$ 199,356	71,785	149,560	21,605	239,907	5,445,182	$ 6,127,395	$ 5,038,131
Variable rate					490,000		490,000	490,000
Total	$ 199,356	$ 71,785	$ 149,560	$ 21,605	$ 729,907	$ 5,445,182	$ 6,617,395	$ 5,528,131
Weighted average interest rate	4.08%	4.23%	4.98%	7.37%	5.29%	3.55%	3.94%	

From time to time, we make investments in marketable equity securities. As a result, we are exposed to the risk of changes in equity prices for the marketable equity securities. As of December 31, 2022, we have assets of, in thousands of dollars, $24,962 to fund our deferred compensation and non-qualified pension plan liabilities. The market risk of the deferred compensation plan assets are borne by the participants in the deferred compensation plan.

Our natural gas commodity price risk, driven mainly by price fluctuations of natural gas, is mitigated by our purchased-gas cost adjustment mechanisms. We also use derivative instruments to economically hedge the cost of anticipated natural gas purchases during the winter heating months that seeks to offset the risk to our customers from upward market price volatility. These instruments include requirements contracts and spot purchase contracts to meet our regulated customers' natural gas requirements and these instruments may have fixed or variable pricing. The variable price contracts qualify as derivative instruments; however, because the contract price is the prevailing price at the future transaction date the contract has no determinable fair value. The fixed price contracts and firm commitments to purchase a fixed quantity of gas in the future qualify for the normal purchases and normal sales exception that is allowed for contracts that are probable of delivery in the normal course of business and, as such, are accounted for under the accrual basis and not recorded at fair value in the Company's consolidated financial statements. We also manage gas commodity price risk and supply risk by injecting natural gas into storage during the summer months and withdrawing the natural gas during the winter heating season.

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Item 8. *Financial Statements and Supplementary Data*

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Essential Utilities, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets, including the consolidated statements of capitalization, of Essential Utilities, Inc. and its subsidiaries (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive income, of equity, and of cash flows for each of the three years in the period ended December 31, 2022, including the related notes and schedule of condensed parent company financial statements as of December 31, 2022 and 2021 and for each of the three years in the period ended December 31, 2022 appearing after the signature pages (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

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Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Accounting for Rate Regulation

As described in Notes 1 and 6 to the consolidated financial statements, most of the operating companies of the Company that are regulated public utilities are subject to regulation by the utility commissions of the states in which they operate. Some of the operating companies that are regulated public utilities are subject to rate regulation by county or city government. As of December 31, 2022, regulatory assets were $1.4 billion and regulatory liabilities were $0.8 billion. Regulated public utilities follow the Financial Accounting Standards Board's accounting guidance for regulated operations, which provides for the recognition of regulatory assets and liabilities as allowed by regulators for costs or credits that are reflected in current rates or are considered probable of being included in future rates. The regulatory assets represent costs that are probable to be fully recovered from customers in future rates while regulatory liabilities represent amounts that are expected to be refunded to customers in future rates or amounts recovered from customers in advance of incurring the costs. The regulatory assets or liabilities are then relieved as the cost or credit is reflected in the Company's rates charged for utility service. If, as a result of a change in circumstances, it is determined that a regulated operating company no longer meets the criteria to apply regulatory accounting, the operating company would have to discontinue regulatory accounting and write-off the respective regulatory assets and liabilities. Management makes significant judgments and estimates to record regulatory assets and liabilities. For each regulatory jurisdiction with regulated operations, management evaluates at the end of each reporting period whether the regulatory assets and liabilities continue to meet the probable criteria for future recovery or refund. The evaluation considers factors such as regulatory orders or guidelines, in the same regulatory jurisdiction, of a specific matter or a similar matter, as provided to the Company in the past or to other regulated utilities. In addition, the evaluation may be impacted by changes in the regulatory environment and pending or new legislation that could impact the ability to recover costs through regulated rates. There may be multiple participants to rate or transactional regulatory proceedings who might offer different views on various aspects of such proceedings and, in these instances, may challenge the prudence of business policies and practices, seek cost disallowances or request other relief.

The principal considerations for our determination that performing procedures relating to management's accounting for rate regulation is a critical audit matter are the significant judgment by management when assessing the impact of regulation on the accounting for regulatory assets and liabilities, which in turn led to a high degree of auditor judgment and effort in performing procedures and in evaluating audit evidence related to whether the regulatory assets will be recovered and liabilities will be refunded.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's evaluation of regulatory matters impacting regulatory assets and liabilities, including controls over the recovery of regulatory assets and the refund of regulatory liabilities. These procedures also included, among others (i) obtaining the Company's correspondence with regulators and assessing the reasonableness of management's judgments regarding the recovery of regulatory assets and refund of regulatory liabilities, (ii) assessing the reasonableness of management's accounting judgments related to new and updated regulatory orders and guidelines, and (iii) testing the calculation of regulatory assets and liabilities based on provisions outlined in regulatory correspondence.

/s/ PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
March 1, 2023

We have served as the Company's auditor since 2000.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands of dollars, except per share amounts)

	December 31,	
	2022	2021
Assets		
Property, plant and equipment, at cost	$ 13,737,387	12,610,376
Less: accumulated depreciation	2,606,441	2,358,510
Net property, plant and equipment	11,130,946	10,251,866
Current assets:		
Cash and cash equivalents	11,398	10,567
Accounts receivable, net	206,324	141,025
Unbilled revenues	170,504	119,896
Inventory – materials and supplies	46,592	33,756
Inventory – gas stored	153,143	75,804
Current assets held for sale	11,167	-
Prepayments and other current assets	39,759	36,597
Regulatory assets	19,272	20,150
Total current assets	658,159	437,795
Regulatory assets	1,342,753	1,429,840
Deferred charges and other assets, net	166,653	141,955
Funds restricted for construction activity	1,342	1,313
Goodwill	2,340,792	2,340,815
Non-current assets held for sale	32,124	-
Operating lease right-of-use assets	41,734	48,930
Intangible assets	4,604	5,764
Total assets	$ 15,719,107	$ 14,658,278

See accompanying notes to consolidated financial statements.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS (continued)
(In thousands of dollars, except per share amounts)

	December 31,	
	2022	2021
Liabilities and Equity		
Essential Utilities stockholders' equity:		
Common stock at $0.50 par value, authorized 600,000,000 shares, issued 266,973,321 and 256,102,388 as of December 31, 2022 and December 31, 2021	$ 133,486	$ 128,050
Capital in excess of par value	3,793,262	3,705,814
Retained earnings	1,534,331	1,434,201
Treasury stock, at cost, 3,236,237 and 3,234,765 shares as of December 31, 2022 and December 31, 2021	(83,693)	(83,615)
Total stockholders' equity	5,377,386	5,184,450
Long-term debt, excluding current portion	6,418,039	5,815,211
Less: debt issuance costs	46,982	35,707
Long-term debt, excluding current portion, net of debt issuance costs	6,371,057	5,779,504
Commitments and contingencies (See Note 9)		
Current liabilities:		
Current portion of long-term debt	199,356	132,146
Loans payable	228,500	65,000
Accounts payable	238,843	192,932
Book overdraft	28,694	81,722
Accrued interest	47,063	40,815
Accrued taxes	34,393	37,924
Liabilities related to assets held for sale	3,263	-
Regulatory liabilities	35,276	384
Dividends payable	75,808	-
Other accrued liabilities	130,673	124,140
Total current liabilities	1,021,869	675,063
Deferred credits and other liabilities:		
Deferred income taxes and investment tax credits	1,345,766	1,406,537
Customers' advances for construction	114,732	103,619
Regulatory liabilities	778,754	769,617
Asset retirement obligations	843	1,256
Operating lease liabilities	37,666	48,230
Non-current liabilities related to assets held for sale	974	-
Pension and other postretirement benefit liabilities	31,244	50,226
Other	28,562	43,666
Total deferred credits and other liabilities	2,338,541	2,423,151
Contributions in aid of construction	610,254	596,110
Total liabilities and equity	$ 15,719,107	$14,658,278

See accompanying notes to consolidated financial statements.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME
(In thousands, except per share amounts)

	Years ended December 31,		
	2022	2021	2020
Operating revenues	$ 2,288,032	$ 1,878,144	$ 1,462,698
Operating expenses:			
Operations and maintenance	613,649	550,580	528,611
Purchased gas	601,995	340,262	165,745
Depreciation	315,811	292,191	251,443
Amortization	5,366	5,761	5,616
Taxes other than income taxes	90,024	86,641	76,597
Total operating expenses	1,626,845	1,275,435	1,028,012
Operating income	661,187	602,709	434,686
Other expense (income):			
Interest expense	238,116	207,709	188,435
Interest income	(3,675)	(2,384)	(5,363)
Allowance for funds used during construction	(23,665)	(20,792)	(12,687)
Gain on sale of other assets	(991)	(976)	(661)
Equity loss in joint venture	-	-	3,374
Other	494	(2,848)	(3,383)
Income before income taxes	450,908	422,000	264,971
Income tax benefit	(14,329)	(9,612)	(19,878)
Net income	$ 465,237	$ 431,612	$ 284,849
Comprehensive income	$ 465,237	$ 431,612	$ 284,849
Net income per common share:			
Basic	$ 1.77	$ 1.68	$ 1.14
Diluted	$ 1.77	$ 1.67	$ 1.12
Average common shares outstanding during the period:			
Basic	262,246	257,487	249,768
Diluted	262,868	258,180	254,629

See accompanying notes to consolidated financial statements.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CAPITALIZATION
(In thousands of dollars, except per share amounts)

		December 31, 2022	December 31, 2021
Essential Utilities stockholders' equity:			
Common stock, $0.50 par value		$ 133,486	$ 128,050
Capital in excess of par value		3,793,262	3,705,814
Retained earnings		1,534,331	1,434,201
Treasury stock, at cost		(83,693)	(83,615)
Total stockholders' equity		5,377,386	5,184,450
Long-term debt of subsidiaries (substantially collateralized by utility plant):			
Interest Rate Range	Maturity Date Range		
0.00% to 0.99%	2023 to 2033	1,875	2,341
1.00% to 1.99%	2023 to 2039	8,369	9,341
2.00% to 2.99%	2022 to 2058	209,755	312,751
3.00% to 3.99%	2022 to 2056	1,351,432	1,359,284
4.00% to 4.99%	2023 to 2059	1,403,313	1,286,024
5.00% to 5.99%	2023 to 2052	14,357	16,119
6.00% to 6.99%	2022 to 2036	31,000	32,475
7.00% to 7.99%	2022 to 2027	28,378	28,980
8.00% to 8.99%	2025	2,116	2,772
9.00% to 9.99%	2026	11,800	11,800
		3,062,395	3,061,887
Notes payable to bank under revolving credit agreement, variable rate, due 2027		490,000	300,000
Unsecured notes payable:			
Amortizing notes at 3.00% due 2022		-	20,470
Notes at 2.40% due 2031		400,000	400,000
Notes at 2.704% due 2030		500,000	500,000
Notes ranging from 3.01% to 3.57%, due 2029 through 2050		1,125,000	1,125,000
Notes at 4.28%, due 2049		500,000	500,000
Notes at 5.30%, due 2052		500,000	-
Notes at 5.95%, due 2023 through 2034		40,000	40,000
Total long-term debt		6,617,395	5,947,357
Current portion of long-term debt		199,356	84,353
Long-term debt, excluding current portion		6,418,039	5,863,004
Less: debt issuance costs		46,982	35,707
Long-term debt, excluding current portion, net of debt issuance costs		6,371,057	5,827,297
Total capitalization		$ 11,748,443	$ 11,011,747

See accompanying notes to consolidated financial statements.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY
(In thousands of dollars, except per share amounts)

	Common stock	Capital in excess of par value	Retained earnings	Treasury stock	Total
Balance at December 31, 2019	$ 111,935	$ 2,636,555	$ 1,210,072	$ (77,702)	$ 3,880,860
Net income	-	-	284,849	-	284,849
Dividends declared and paid ($0.97 per share)	-	-	(232,571)	-	(232,571)
Issuance of common stock from private placement (21,661,095 shares)	10,831	718,470	-	-	729,301
Issuance of common stock from stock purchase contracts (2,335,654 shares)	1,168	(1,168)	-	-	-
Issuance of common stock under dividend reinvestment plan (388,978 shares)	194	16,328	-	-	16,522
Repurchase of stock (82,320 shares)	-	-	-	(4,365)	(4,365)
Equity compensation plan (239,512 shares)	120	(120)	-	-	-
Exercise of stock options (74,832 shares)	37	1,552	-	-	1,589
Stock-based compensation	-	8,276	(488)	-	7,788
Other	-	(836)	-	740	(96)
Balance at December 31, 2020	$ 124,285	$ 3,379,057	$ 1,261,862	$ (81,327)	$ 4,683,877
Net income	-	-	431,612	-	431,612
Dividends declared and paid ($1.0378 per share)	-	-	(258,650)	-	(258,650)
Issuance of common stock from stock purchase contracts (127,749 shares)	64	(64)	-	-	-
Issuance of common stock under dividend reinvestment plan (374,824 shares)	187	16,612	-	-	16,799
Issuance of common stock from forward equity sale agreement (6,700,000 shares)	3,350	296,389	-	-	299,739
Repurchase of stock (76,732 shares)	-	-	-	(3,291)	(3,291)
Equity compensation plan (206,163 shares)	103	(103)	-	-	-
Exercise of stock options (122,297 shares)	61	4,111	-	-	4,172
Stock-based compensation	-	9,998	(623)	-	9,375
Other	-	(186)	-	1,003	817
Balance at December 31, 2021	$ 128,050	$ 3,705,814	$ 1,434,201	$ (83,615)	$ 5,184,450
Net income	-		465,237	-	465,237
Dividends declared and paid ($1.1104 per share)	-		(288,632)	-	(288,632)
Dividends of March 1, 2023 declared ($0.287 per share)	-		(75,808)	-	(75,808)
Issuance of common stock from stock purchase contracts (9,029,461 shares)	4,515	(4,515)	-	-	-
Issuance of common stock under dividend reinvestment plan (368,278 shares)	184	16,435	-	-	16,619
Issuance of common stock from at-the-market sale agreements (1,321,994 shares)	661	62,379	-	-	63,040
Repurchase of stock (25,037 shares)	-	-	-	(1,192)	(1,192)
Equity compensation plan (81,516 shares)	41	(41)	-	-	-
Exercise of stock options (69,684 shares)	35	2,440	-	-	2,475
Stock-based compensation	-	12,094	(667)	-	11,427
Other	-	(1,344)		1,114	(230)
Balance at December 31, 2022	$ 133,486	$ 3,793,262	$ 1,534,331	$ (83,693)	$ 5,377,386

See accompanying notes to consolidated financial statements.

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ESSENTIAL UTILITIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands of dollars, except per share amounts)

	Years ended December 31,		
	2022	2021	2020
Cash flows from operating activities:			
Net income	$ 465,237	$ 431,612	$ 284,849
Adjustments to reconcile net income to net cash flows from operating activities:			
Depreciation and amortization	321,177	297,952	257,059
Deferred income taxes	(23,045)	(8,514)	(17,782)
Provision for doubtful accounts	27,631	27,336	32,325
Stock-based compensation	12,206	10,078	8,160
Gain on sale of utility system and other assets	(991)	(1,589)	(642)
Net change in receivables, deferred purchased gas costs, inventory and prepayments	(223,335)	(109,605)	(35,348)
Net change in payables, accrued interest, accrued taxes and other accrued liabilities	53,761	5,190	(1,819)
Pension and other postretirement benefits contributions	(22,027)	(15,135)	(20,282)
Other	(10,308)	7,354	1,504
Net cash flows from operating activities	600,306	644,679	508,024
Cash flows from investing activities:			
Property, plant and equipment additions, including the debt component of allowance for funds used during construction of $6,047, $4,510 and $4,434	(1,062,763)	(1,020,519)	(835,642)
Acquisitions of utility systems and other, net	(116,891)	(36,326)	(3,501,835)
Net proceeds from the sale of utility systems and other assets	1,081	1,819	2,115
Other	271	(1,032)	1,696
Net cash flows used in investing activities	(1,178,302)	(1,056,058)	(4,333,666)
Cash flows from financing activities:			
Customers' advances and contributions in aid of construction	11,714	15,264	9,585
Repayments of customers' advances	(5,006)	(7,725)	(8,337)
Net proceeds (repayments) of short-term debt	163,500	(13,350)	(129,407)
Proceeds from long-term debt	1,646,742	1,095,171	3,366,838
Repayments of long-term debt	(977,175)	(769,546)	(1,820,571)
Change in cash overdraft position	(53,028)	37,719	33,059
Proceeds from issuance of common stock under dividend reinvestment plan	16,619	16,799	16,522
Proceeds from issuance of common stock from private placement	-	-	729,301
Proceeds from issuance of common stock from forward equity sale agreement	-	299,739	-
Proceeds from issuance of common stock from at-the-market sale agreement	63,040	-	-
Proceeds from exercised stock options	2,475	4,172	1,589
Repurchase of common stock	(1,192)	(3,291)	(4,365)
Dividends paid on common stock	(288,632)	(258,650)	(232,571)
Other	(230)	817	(96)
Net cash flows from financing activities	578,827	417,119	1,961,547
Net increase (decrease) in cash and cash equivalents	831	5,740	(1,864,095)
Cash and cash equivalents at beginning of year	10,567	4,827	1,868,922
Cash and cash equivalents at end of year	$ 11,398	$ 10,567	$ 4,827
Cash paid during the year for:			
Interest, net of amounts capitalized	$ 225,820	$ 201,792	$ 169,048
Income taxes	11,269	5,692	4,853
Non-cash investing activities:			
Property, plant and equipment additions purchased at the period end, but not yet paid	$ 102,129	$ 95,945	$ 98,569
Non-cash utility property contributions	35,698	36,882	36,181

See accompanying notes to consolidated financial statements.

Refer to Note 2 – *Acquisitions*, Note 11 – *Long-term Debt and Loans Payable*, and Note 15 – *Employee Stock and Incentive Plan* for a description of non-cash activities.

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Note 1 – *Summary of Significant Accounting Policies*

Nature of Operations ─ Essential Utilities, Inc. ("Essential Utilities," the "Company," "we," "our", or "us") is the holding company for regulated utilities providing water, wastewater, or natural gas services concentrated in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, Virginia, West Virginia, and Kentucky under the Aqua and Peoples brands. One of our largest operating subsidiaries is Aqua Pennsylvania, Inc., which accounted for approximately 56% of our Regulated Water segment's operating revenues and approximately 73% of our Regulated Water segment's income for 2022. As of December 31, 2022, Aqua Pennsylvania provided water or wastewater services to approximately one-half of the total number of Regulated Water customers we serve. Aqua Pennsylvania's service territory is located in the suburban areas north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. The Company's other regulated water or wastewater utility subsidiaries provide similar services in seven additional states. Additionally, commencing on March 16, 2020 with the completion of the Peoples Gas Acquisition, the Company began to provide natural gas distribution services to customers in western Pennsylvania, Kentucky, and West Virginia. Approximately 93% of the total number of natural gas utility customers we serve are in western Pennsylvania. In December 2022, the Company entered into a definitive agreement to sell its regulated natural gas utility assets in West Virginia, which serve approximately 13,000 customers. This sale is conditioned on regulatory approval and is expected to close in mid-2023. The completion of this transaction will conclude our regulated utility operations in West Virginia. Lastly, the Company's market-based activities are conducted through Aqua Infrastructure LLC, and Aqua Resources, Inc., and certain other non-regulated subsidiaries of Peoples. Prior to our October 2020 sale of our investment in a joint venture, Aqua Infrastructure provided non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources offers, through a third-party, water and sewer line protection solutions and repair services to households. Other non-regulated subsidiaries of Peoples provide utility service line protection services to households and operate gas marketing and production businesses.

Regulation ─ Most of the operating companies that are regulated public utilities are subject to regulation by the utility commissions of the states in which they operate. The respective utility commissions have jurisdiction with respect to rates, service, accounting procedures, issuance of securities, acquisitions and other matters. Some of the operating companies that are regulated public utilities are subject to rate regulation by county or city government. Regulated public utilities follow the Financial Accounting Standards Board's ("FASB") accounting guidance for regulated operations, which provides for the recognition of regulatory assets and liabilities as allowed by regulators for costs or credits that are reflected in current rates or are considered probable of being included in future rates. Costs, for which the Company has received or expects to receive prospective rate recovery, are deferred as a regulatory asset and amortized over the period of rate recovery in accordance with the FASB's accounting guidance for regulated operations. The regulatory assets or liabilities are then relieved as the cost or credit is reflected in Company's rates charged for utility service. If, as a result of a change in circumstances, it is determined that a regulated operating company no longer meets the criteria to apply regulatory accounting, the operating company would have to discontinue regulatory accounting and write-off the respective regulatory assets and liabilities. See Note 6 - *Regulatory Assets and Liabilities* for further information regarding the Company's regulatory assets.

The Company makes significant judgments and estimates to record regulatory assets and liabilities. For each regulatory jurisdiction with regulated operations, the Company evaluates at the end of each reporting period, whether the regulatory assets and liabilities continue to meet the probable criteria for future recovery or refund. The evaluation considers factors such as regulatory orders or guidelines, in the same regulatory jurisdiction, of a specific matter or a similar matter, as provided to the Company in the past or to other regulated utilities. In addition, the evaluation may be impacted by changes in the regulatory environment and pending or new legislation that could impact the ability to recover costs through regulated rates. There may be multiple participants to rate or transactional regulatory proceedings who might offer different views on various aspects of such proceedings, and in these instances, may challenge the prudence of our business policies and practices, seek cost disallowances or request other relief.

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Use of Estimates in Preparation of Consolidated Financial Statements — 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 financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Basis of Presentation – The consolidated financial statements include the accounts of the Company and its subsidiaries. All intercompany accounts and transactions have been eliminated.

Property, Plant and Equipment and Depreciation — Property, plant and equipment consist primarily of utility plant. The cost of additions includes contracted cost, direct labor and fringe benefits, materials, overheads, and for additions meeting certain criteria, allowance for funds used during construction. Utility systems acquired are typically recorded at estimated original cost of utility plant when first devoted to utility service and the applicable depreciation is recorded to accumulated depreciation. Further, utility systems acquired under fair value regulations would be recorded based on the valuation of the utility plant as approved by the respective utility commission. The difference between the estimated original cost, less applicable accumulated depreciation, and the purchase price may be recorded as an acquisition adjustment within utility plant as permitted by the applicable regulatory jurisdiction. At December 31, 2022 and 2021, utility plant includes a net credit acquisition adjustment of $6,076 and $9,055, respectively, which is generally being amortized from 10 to 53 years. Amortization of the acquisition adjustments totaled $2,788 in 2022, $2,842 in 2021, and $2,895 in 2020.

Utility expenditures for maintenance and repairs, including major maintenance projects and minor renewals, are charged to operating expenses when incurred in accordance with the system of accounts prescribed by the utility commissions of the states in which the company operates. The cost of new units of property and betterments are capitalized. Utility expenditures for water main cleaning and relining of pipes are deferred and are presented in net property, plant and equipment in accordance with the FASB's accounting guidance for regulated operations. As of December 31, 2022, $1,635 of these costs have been incurred since the last respective rate proceeding and the Company expects to recover these costs in future rates.

The cost of software upgrades and enhancements are capitalized if they result in added functionality, which enables the software to perform tasks it was previously incapable of performing. Information technology costs associated with major system installations, conversions and improvements, such as software training, data conversion and business process reengineering costs, are deferred as a regulatory asset if the Company expects to recover these costs in future rates. If these costs are not deferred, then these costs are charged to operating expenses when incurred. As of December 31, 2022, $41,400 of these costs have been deferred since the last respective rate proceeding as a regulatory asset, and the deferral is reported as a component of net property, plant and equipment.

When units of utility property are replaced, retired or abandoned, the recorded value thereof is credited to the asset account and such value, together with the net cost of removal, is charged to accumulated depreciation. To the extent the Company anticipates recovery of the cost of removal or other retirement costs through rates after the retirement costs are incurred, a regulatory asset is recorded as those costs are incurred. In some cases, the Company recovers retirement costs through rates during the life of the associated asset and before the costs are incurred. These amounts, which are not yet utilized, result in a regulatory liability being reported based on the amounts previously recovered through customer rates.

The straight-line remaining life method is used to compute depreciation on utility plant. Generally, the straight-line method is used with respect to transportation and mechanical equipment, office equipment and laboratory equipment.

Impairment of Long-Lived Assets - Long-lived assets of the Company, which consist primarily of utility plant in service, operating lease right-of-use assets and intangible assets, are reviewed for impairment when changes in circumstances or events occur. These circumstances or events could include a decline in the market value or physical condition of a long-lived asset, an adverse change in the manner in which long-lived assets are used or planned to be used, a change in historical trends, operating cash flows associated with the long-lived assets, changes in macroeconomic conditions, industry and market conditions, or overall financial performance. When these circumstances or events occur, the Company determines whether it is more likely than not that the fair value of those assets is less than their carrying

amount. If the Company determines that it is more likely than not (that is, the likelihood of more than 50 percent), the Company would recognize an impairment charge if it is determined that the carrying amount of an asset exceeds the sum of the undiscounted estimated cash flows. In this circumstance, the Company would recognize an impairment charge equal to the difference between the carrying amount and the fair value of the asset. Fair value is estimated to be the present value of future net cash flows associated with the asset, discounted using a discount rate commensurate with the risk and remaining life of the asset. During the years ended December 31, 2022 and 2021, the Company recorded an impairment loss to write down a portion of the operating lease right-of-use asset for office space not used in operations to fair value. Refer to Note 10 – *Leases*, for further details.

Regulatory assets are reviewed for the continued application of the FASB accounting guidance for regulated operations. The Company's review determines whether there have been changes in circumstances or events, such as regulatory disallowances, or abandonments, that have occurred that require adjustments to the carrying value of these assets. Adjustments to the carrying value of these assets would be made in instances where their inclusion in the rate-making process is unlikely. For utility plant in service, we would recognize an impairment loss for any amount disallowed by the respective utility commission.

Allowance for Funds Used During Construction ─ The allowance for funds used during construction ("AFUDC") represents the capitalized cost of funds used to finance the construction of utility plant. In general, AFUDC is applied to construction projects requiring more than one month to complete. No AFUDC is applied to projects funded by customer advances for construction, contributions in aid of construction, or applicable state-revolving fund loans. AFUDC includes the net cost of borrowed funds and a rate of return on other funds when used and is recovered through rates as the utility plant is depreciated. The amount of AFUDC related to equity funds in 2022 was $17,618, 2021 was $16,282, and 2020 was $8,253. No interest was capitalized by our market-based businesses.

Lease Accounting ─ The Company evaluates the contracts it enters into to determine whether such contracts contain leases. A contract contains a lease if the contract conveys the right to control the use of identified property, plant or equipment for a period of time in exchange for consideration. We enter into operating lease contracts for the right to utilize certain land, office facilities, office equipment, and vehicles from third parties. For contracts that extend for a period greater than 12 months, we recognize a right of use asset and a corresponding lease liability on our consolidated balance sheet. The present value of each lease is based on the future minimum lease payments in accordance with Accounting Standards Codification ("ASC") 842 and is determined by discounting these payments using an incremental borrowing rate.

Recognition of Revenues ─ The Company recognizes revenue as utility services are provided to our customers, which happens over time as the services are delivered and the performance obligation is satisfied. The Company's utility revenues recognized in an accounting period includes amounts billed to customers on a cycle basis and unbilled amounts based on estimated usage from the last billing to the end of the accounting period. Unbilled amounts are calculated by deriving estimates based on average usage of the prior month. The Company's actual results could differ from these estimates, which would result in operating revenues being adjusted in the period that the revision to our estimates are determined.

Generally, payment is due within 30 days once a bill is issued to a customer. Sales tax and other taxes we collect on behalf of government authorities, concurrent with our revenue-producing activities, are primarily excluded from revenue.

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The following table presents our revenues disaggregated by major source and customer class for the years ended December 31,:

2022	Water Revenues	Wastewater Revenues	Natural Gas Revenues	Other Revenues
Revenues from contracts with customers:				
Residential	$ 607,473	$ 122,612	$ 720,490	$ -
Commercial	168,460	30,340	149,653	-
Fire protection	38,970	-	-	-
Industrial	32,581	1,755	5,636	-
Gas transportation	-	-	205,825	-
Other water	55,389	-	-	-
Other wastewater	-	10,676	-	-
Other utility	-	-	61,393	11,478
Revenues from contracts with customers	902,873	165,383	1,142,997	11,478
Alternative revenue program	3,309	(71)	365	-
Other and eliminations	-	-	-	61,698
Consolidated	$ 906,182	$ 165,312	$ 1,143,362	$ 73,176

2021	Water Revenues	Wastewater Revenues	Natural Gas Revenues	Other Revenues
Revenues from contracts with customers:				
Residential	$ 561,996	$ 99,931	$ 530,338	$ -
Commercial	151,071	22,060	99,596	-
Fire protection	35,984	-	-	-
Industrial	30,230	1,729	3,427	-
Gas transportation	-	-	198,195	-
Other water	53,488	-	-	-
Other wastewater	-	8,860	-	-
Customer rate credits	-	-	(5,000)	-
Other utility	-	-	32,812	13,358
Revenues from contracts with customers	832,769	132,580	859,368	13,358
Alternative revenue program	1,760	(264)	534	-
Other and eliminations	-	-	-	38,039
Consolidated	$ 834,529	$ 132,316	$ 859,902	$ 51,397

2020	Water Revenues	Wastewater Revenues	Natural Gas	Other Revenues
Revenues from contracts with customers:				
Residential	$ 567,486	$ 95,051	$ 314,274	$ -
Commercial	143,479	19,062	50,239	-
Fire protection	35,340	-	-	-
Industrial	29,764	1,619	6,923	-
Gas transportation	-	-	133,685	-
Other water	32,372	-	-	-
Other wastewater	-	5,385	-	-
Customer rate credits	(3,757)	(323)	(18,924)	-
Other utility	-	-	20,243	12,861
Revenues from contracts with customers	804,684	120,794	506,440	12,861
Alternative revenue program	87	114	124	-
Other and eliminations	-	-	-	17,594
Consolidated	$ 804,771	$ 120,908	$ 506,564	$ 30,455

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On March 16, 2020, the Company completed the Peoples Gas Acquisition, which expanded the Company's regulated utility business to include natural gas distribution. The natural gas revenues of Peoples are included for the period since the date of the acquisition.

Revenues from Contracts with Customers – These revenues are composed of four main categories: water, wastewater, natural gas, and other. Water revenues represent revenues earned for supplying customers with water service. Wastewater revenues represent revenues earned for treating wastewater and releasing it into the environment. Natural gas revenues represent revenues earned for the gas commodity and delivery of natural gas to customers. Other revenues are associated fees that relate to our utility businesses but are not water, wastewater, or natural gas revenues. Refer to the description below for a discussion of the performance obligation for each of these revenue streams.

- Tariff Revenues – These revenues are categorized by customer class: residential, commercial, fire protection, industrial, gas transportation, other water, and other wastewater. The rates that generate these revenues are approved by the respective state utility commission, and revenues are billed cyclically and accrued for when unbilled. The regulated natural gas rates are set and adjusted for increases or decreases in our purchased gas costs through purchased gas adjustment mechanisms. Purchased gas adjustment mechanisms provide us with a means to recover purchased gas costs on an ongoing basis without filing a rate case. Other water and other wastewater revenues consists primarily of fines, penalties, surcharges, and availability lot fees. Our performance obligation for tariff revenues is to provide potable water, wastewater treatment service, or delivery and sale of natural gas to customers. This performance obligation is satisfied over time as the services are rendered. The amounts that the Company has a right to invoice for tariff revenues reflect the right to consideration from the customers in an amount that corresponds directly with the value transferred to the customer for the performance completed to date.
- Other Utility Revenues – Other utility revenues represent revenues earned primarily from: antenna revenues, which represents fees received from telecommunication operators that have put cellular antennas on our water towers; operation and maintenance and billing contracts, which represent fees earned from municipalities for our operation of their water or wastewater treatment services or performing billing services; and fees earned from developers for accessing our water mains, miscellaneous service revenue from gas distribution operations, gas processing and handling revenue, sales of natural gas at market-based rates and contracted fixed prices, sales of gas purchased from third parties, and other gas marketing activities. The performance obligations vary for these revenues, but all are primarily recognized over time as the service is delivered.

- Alternative Revenue Program:
  - Water / Wastewater Revenues – These revenues represent the difference between the actual billed utility volumetric water and wastewater revenues for Aqua Illinois and the revenues set in the last Aqua Illinois rate case. In accordance with the Illinois Commerce Commission, we recognize revenues based on the target amount established in the last rate case, and then record either a regulatory asset or liability based on the cumulative annual difference between the target and actual amounts billed, which results in either a payment from customers or a refund due to customers. The cumulative annual difference is either refunded to customers or collected from customers over a nine-month period.

  - Natural Gas Revenues – These revenues represent the weather-normalization adjustment ("WNA") mechanism in place for our natural gas customers served in Kentucky. The WNA serves to minimize the effects of weather on the Company's results for its residential and small commercial natural gas customers. This regulatory mechanism adjusts revenues earned for the variance between actual and normal weather and can have either positive (warmer than normal) or negative (colder than normal) effects on revenues. Customer bills are adjusted in the December through April billing months, with rates adjusted for the difference between actual revenues and revenues calculated under this mechanism billed to the customers.

These revenue programs represent a contract between the utility and its regulators, not customers, and therefore are not within the scope of the FASB's accounting guidance for recognizing revenue from contracts with customers.

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- Other and Eliminations – Other and eliminations consist of our market-based revenues, which comprises: our non-regulated natural gas operations, Aqua Infrastructure, and Aqua Resources (described below), and intercompany eliminations for revenue billed between our subsidiaries. Our non-regulated natural gas operations consist of utility service line protection solutions and repair services for households and the operation of gas marketing and production entities. Revenue is recognized and the performance obligation is satisfied over time as the service is delivered.

  Aqua Infrastructure is the holding company for our former 49% investment in a joint venture that operated a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale of north central Pennsylvania. Prior to our October 30, 2020 sale of our investment in the joint venture, the joint venture earned revenues through providing non-utility raw water supply services to natural gas drilling companies which enter into water supply contracts. The performance obligation was to deliver non-potable water to the joint venture's customers. Aqua Infrastructure's share of the revenues recognized by the joint venture was reflected, net, in equity earnings in joint venture on our consolidated statements of operations and comprehensive income. Aqua Resources earned revenues by providing non-regulated water and wastewater services through an operating and maintenance contract, which concluded in 2020, and continues to earn revenue through third-party water and sewer service line protection and repair services. For the contract operations and maintenance business, the performance obligations were performing agreed upon contract services to operate the water and wastewater system. For the service line protection business, the performance obligations are allowing the use of our logo to a third-party water and sewer service line repair provider. Revenues are primarily recognized over time as service is delivered.

Cash and Cash Equivalents — The Company considers all highly liquid investments with an original maturity of three months or less, which are not restricted for construction activity, to be cash equivalents.

The Company had a book overdraft, which represents transactions that have not cleared the bank accounts at the end of the period, for specific disbursement cash accounts of $28,694 and $81,722 at December 31, 2022 and 2021, respectively. The Company transfers cash on an as-needed basis to fund these items as they clear the bank in subsequent periods. The balance of the book overdraft is reported as book overdraft and the change in the book overdraft balance is reported as cash flows from financing activities, due to our ability to fund the overdraft with the Company's credit facility.

Accounts Receivable — Accounts receivable are recorded at the invoiced amounts, which consists of billed and unbilled revenues. The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in our existing accounts receivable and is determined based on lifetime expected credit losses and the aging of account balances. The Company reviews the allowance for doubtful accounts quarterly. Account balances are written off against the allowance when it is probable the receivable will not be recovered. When utility customers request extended payment terms, credit is extended based on regulatory guidelines, and collateral is not required.

Inventories – Materials and Supplies – Inventories are stated at cost. Cost is determined using the first-in, first-out method.

Inventory – Gas Stored – The Company accounts for gas in storage inventory using the weighted average cost of gas method.

Investment in Joint Venture – The Company used the equity method of accounting to account for our former 49% investment in a joint venture with a firm in the natural gas industry for the construction and operation of a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale in north-central Pennsylvania, which commenced operations in 2012. In 2020, the Company sold its investment in joint venture and recorded a charge of $3,700 associated with the sale. Our share of equity loss in the joint venture was reported in the consolidated statements of operations and comprehensive income as equity loss in joint venture. During 2020, we received distributions of $2,137.

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Assets Held for Sale — When the Company makes a decision to sell an asset or to stop some part of its business, the Company assesses if such assets should be classified as an asset held for sale. Assets held for sale are measured at the lower of their carrying amount or fair value less cost to sell. For long-lived assets or disposal groups that are classified as held for sale but do not meet the criteria for discontinued operations, the assets and liabilities are presented separately on the consolidated balance sheet of the initial period in which it is classified as held for sale. The major classes of assets and liabilities classified as held for sale are disclosed in the notes to the consolidated financial statements. See *"Note 3 – Assets Held for Sale and Disposition"*.

Goodwill — Goodwill represents the excess cost over the fair value of net tangible and identifiable intangible assets acquired through acquisitions. Goodwill is not amortized but is tested for impairment annually, or more often, if circumstances indicate a possible impairment may exist. When testing goodwill for impairment, we may assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, overall financial performance, and entity specific events, for some or all of our reporting units to determine whether it's more likely than not that the fair value of a reporting unit is less than its carrying amount. Alternatively, based on our assessment of the qualitative factors previously noted or at our discretion, we may perform a quantitative goodwill impairment test by determining the fair value of a reporting unit. If we perform a quantitative test and determine that the fair value of a reporting unit is less than its carrying amount, we would record an impairment loss for the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the reporting unit's carrying amount of goodwill.

Impairment testing for goodwill is done at the reporting unit level. A reporting unit is an operating segment or one level below an operating segment (also known as a component). A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available, and segment management regularly reviews the operating results of that component. We assigned assets and liabilities to each reporting unit based on either specific identification or by using judgment for the remaining assets and liabilities that are not specific to a reporting unit. Goodwill was assigned to the reporting units based on a combination of specific identification and relative fair values.

Determining the fair value of our reporting units involves the use of significant estimates and assumptions and considerable management judgment. We base our fair value estimates on assumptions we believe to be reasonable at the time, but such assumptions are subject to inherent uncertainty. We estimated the fair value of reporting units by weighting results from the market approach and the income approach. These valuation approaches consider a number of factors that include, but are not limited to, prospective financial information, growth rates, terminal value, discount rates, and comparable multiples from publicly traded companies in our industry. Changes in market conditions, changes in the regulatory environment, pending or new legislation that could impact the ability to recover costs through regulated rates or other factors outside of our control, could cause us to change key assumptions and our judgment about a reporting unit's prospects. Similarly, in a specific period, a reporting unit could significantly underperform relative to its historical or projected future operating results. Either situation could result in a meaningfully different estimate of the fair value of our reporting units, and a consequent future impairment charge.

In 2022, we changed the date of our annual goodwill impairment test date from July 31 to October 1, which is a change in accounting principle, that management believes is preferable as the new test date better aligns with our long-term planning and forecasting process. The change did not delay, accelerate or avoid an impairment charge nor did it change our requirement to assess goodwill on an interim date between scheduled annual testing dates if triggering events are present. To ensure that no lapse in an assessment occurred since the prior period, during the third quarter of 2022, we performed qualitative tests as of July 31, 2022, for all reporting units and determined that it was more likely than not that the fair value of each of the reporting unit's fair values exceeded their carrying values at the time of the change in impairment test date.

During the fourth quarter of 2022, as part of the annual goodwill assessment as of October 1, 2022, we elected to perform a quantitative goodwill impairment assessment on the goodwill attributable to our Regulated Natural Gas reporting unit and a qualitative assessment for our Regulated Water and Other reporting units. Based on our analysis, we determined that none of the goodwill of our reporting units was impaired.

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The following table summarizes the changes in the Company's goodwill:

	Regulated Water	Regulated Natural Gas	Other	Consolidated
Balance at December 31, 2020	$ 58,659	$ 2,261,047	$ 4,841	$ 2,324,547
Goodwill acquired	-	-	-	-
Measurement period purchase price allocation adjustments	-	16,400	-	16,400
Reclassifications to utility plant acquisition adjustment	(132)	-	-	(132)
Balance at December 31, 2021	58,527	2,277,447	4,841	2,340,815
Goodwill acquired	-	-	-	-
Reclassifications to utility plant acquisition adjustment	(23)	-	-	(23)
Balance at December 31, 2022	$ 58,504	$ 2,277,447	$ 4,841	$ 2,340,792

The measurement period purchase price allocation adjustments resulted from the completion of the Peoples Gas Acquisition on March 16, 2020, which resulted in goodwill of $2,277,447 which was subject to adjustment over the one year measurement period that ended on March 15, 2021. Refer to Note 2 – *Acquisitions* for information about the goodwill attributed to our Regulated Natural Gas segment.

The reclassification of goodwill to utility plant acquisition adjustment results from either a regulatory order or a mechanism approved by the applicable utility commission. A regulatory order may provide for the one-time transfer of certain acquired goodwill. The mechanism provides for the transfer over time, and the recovery through customer rates, of goodwill associated with some acquisitions upon achieving specific objectives.

Intangible assets – The Company's intangible assets consist of customer relationships for our non-regulated natural gas operations, and non-compete agreements with certain former employees of Peoples. These intangible assets are amortized on a straight-line basis over their estimated useful lives of fifteen years for the customer relationships and five years for the non-compete agreements.

Derivative Instruments – The Company's natural gas commodity price risk, driven mainly by price fluctuations of natural gas, is mitigated by its purchased-gas cost adjustment mechanisms. The Company also uses derivative instruments to economically hedge the cost of anticipated natural gas purchases during the winter heating months that seeks to offset the risk to the Company's utility customers from upward market price volatility. These strategies include requirements contracts, spot purchase contracts and underground storage to meet regulated customers' natural gas requirements that may have fixed or variable pricing. The variable price contracts qualify as derivative instruments; however, because the contract price is the prevailing price at the future transaction date the contract has no determinable fair value. The fixed price contracts and firm commitments to purchase a fixed quantity of gas in the future qualify for the normal purchases and normal sales exception that is allowed for contracts that are probable of delivery in the normal course of business and, as such, are accounted for under the accrual basis and are not recorded at fair value in the Company's consolidated financial statements.

Deferred Charges and Other Assets ─ Deferred charges and other assets consist primarily of assets held to compensate employees in the future who participate in the Company's deferred compensation plan, prepaid pension and other post-retirement benefit plans assets, and the non-current portion of Peoples' financing notes receivable, which amounted to $24,962, $43,827 and $63,204 as of December 31, 2022; and $28,576, $25,978, and $65,744 as of December 31, 2021, respectively. The assets of the deferred compensation plan are invested in mutual funds which are carried on the consolidated balance sheet at fair market value, and changes in fair value are included in other expense (income), refer to Note 12 – *Fair Value of Financial Instruments* for further details. Refer to Note 16 – *Pension Plans and Other Post-Retirement Benefit Plans* for further information on the prepaid pension and other post-retirement benefit plan assets.

Pursuant to agreements entered into by Peoples in 2019, Peoples committed to design, construct, and operate over a 20-year period, three onsite natural gas fueled energy plants on customer-owned property in the western Pennsylvania area. Under the provisions of ASC 842, *Leases*, the Company determined that indicators of control over the assets

constructed were not met, as such this failed sale-leaseback transaction was accounted for as a financing arrangement in accordance with ASC Topic 310, *Receivables*. During 2021, when construction was completed and the plants became on-line and began generation activity, the accumulated balance of the projects included in property, plant and equipment of $71,665 was reclassified as a note receivable and included within deferred charges and other assets in the consolidated balance sheet. Amounts becoming due for payment by the customer in the current year are included within prepayments and other current assets in the consolidated balance sheets, which amounted to $2,517 and $2,423 as of December 31, 2022 and 2021, respectively. Interest income is recognized on these financing notes receivable using an imputed interest rate ranging from 3.4% to 4.3% and is recorded as interest income in the consolidated statements of operations and comprehensive income. For the year ended December 31, 2022 and 2021, interest income on financing note receivable amounted to $2,639 and $1,971, respectively.

Income Taxes — The Company accounts for some income and expense items in different time periods for financial and tax reporting purposes. Deferred income taxes are provided on specific temporary differences between the tax basis of the assets and liabilities, and the amounts at which they are carried in the consolidated financial statements. The income tax effect of temporary differences not currently included in rates is recorded as deferred taxes with an offsetting regulatory asset or liability. These deferred income taxes are based on the enacted tax rates expected to be in effect when such temporary differences are projected to reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amount more likely than not to be realized. Investment tax credits are deferred and amortized over the estimated useful lives of the related properties. Judgment is required in evaluating the Company's Federal and state tax positions. Despite management's belief that the Company's tax return positions are fully supportable, the Company establishes reserves when it believes that its tax positions are likely to be challenged and it may not fully prevail in these challenges. The Company's provision for income taxes includes interest, penalties and reserves for uncertain tax positions.

Customers' Advances for Construction and Contributions in Aid of Construction — Utility mains, other utility property or, in some instances, cash advances to reimburse the Company for its costs to construct utility mains or other utility property, are contributed to the Company by customers, real estate developers and builders in order to extend utility service to their properties. The value of these contributions is recorded as customers' advances for construction. Over time, the amount of non-cash contributed property will vary based on the timing of the contribution of the non-cash property and the volume of non-cash contributed property received in connection with development in our service territories. The Company makes refunds on these advances over a specific period of time based on operating revenues related to the property, or as new customers are connected to and take service from the applicable water main. After all refunds are made, any remaining balance is transferred to contributions in aid of construction for our regulated water business. Contributions in aid of construction include direct non-refundable contributions and the portion of customers' advances for construction that become non-refundable. For our regulated gas business, non-refundable contributions are netted against the cost of the related utility mains or other utility property.

Based on regulatory conventions in states where the Company operates, generally our subsidiaries depreciate contributed property and amortize contributions in aid of construction at the composite rate of the related property. Contributions in aid of construction and customers' advances for construction are deducted from the Company's rate base for rate-making purposes, and therefore, no return is earned on contributed property.

Stock-Based Compensation — The Company records compensation expense in the financial statements for stock-based awards based on the grant date fair value of those awards. Stock-based compensation expense includes an estimate for pre-vesting forfeitures and is recognized over the requisite service periods of the awards on either a straight-line basis, or the graded vesting method, which is generally commensurate with the vesting term.

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Fair Value Measurements – The Company follows the FASB's accounting guidance for fair value measurements and disclosures, which defines fair value and establishes a framework for using fair value to measure assets and liabilities. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

- Level 1: unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access;

- Level 2: inputs other than Level 1 that are observable, either directly or indirectly, such as quoted market prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in non-active markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; or

- Level 3: inputs that are unobservable and significant to the fair value measurement.

The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs. Additionally, assets that are measured at fair value using the net asset value ("NAV") per share practical expedient are not classified in the fair value hierarchy. There have been no changes in the valuation techniques used to measure fair value or asset or liability transfers between the levels of the fair value hierarchy for the years ended December 31, 2022 and 2021.

Recent Accounting Pronouncements –

Pronouncements to be adopted upon the effective date:

In October 2021, the FASB issued accounting guidance on accounting for acquired revenue contracts with customers in a business combination. The guidance specifies for all acquired revenue contracts, regardless of their timing of payment, the circumstances in which the acquirer should recognize contract assets and contract liabilities that are acquired in a business combination, as well as how to measure those contract assets and contract liabilities. The updated accounting guidance is effective for fiscal years beginning after December 15, 2022 with early adoption permitted. The Company adopted this guidance effective January 1, 2023, and will apply it prospectively to business combinations occurring on or after that date.

Pronouncements adopted during the fiscal year:

In August 2020, the FASB issued updated accounting guidance on accounting for convertible instruments and contracts in an entity's own equity. The updated guidance reduces the number of accounting models for convertible debt and convertible preferred stock instruments and makes certain disclosure amendments intended to improve the information provided to users. Additionally, the guidance also amends the derivative guidance for the "own stock" scope exception, which exempts qualifying instruments from being accounted for as derivatives if certain criteria are met. Further, the standard changes the way certain convertible instruments are treated when calculating earnings per share. As permitted, we adopted this updated guidance on January 1, 2022, which did not have a material impact on our consolidated financial statements.

Recently issued accounting standards or pronouncements not disclosed above have been excluded as they are not relevant to the Company.

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Note 2 – *Acquisitions*

Peoples Gas Acquisition

On March 16, 2020 (the "Closing Date"), the Company completed the acquisition of Peoples Natural Gas (the "Peoples Gas Acquisition"), which expanded the Company's regulated utility business to include natural gas distribution, serving approximately 750,000 natural gas utility customers in western Pennsylvania, West Virginia, and Kentucky. The Company paid cash consideration of $3,465,344, which was subject to adjustment based upon the terms of the purchase agreement. Purchase price adjustments included the completion of a closing balance sheet, which was provided to the seller, and an adjustment for utility capital expenditures made by the seller during the period between November 1, 2018 and the Closing Date. There was a dispute between the parties regarding this adjustment for utility capital expenditures. In November 2021, the dispute between the parties regarding the adjustment for utility capital expenditures was resolved in accordance with the provisions of the purchase agreement and an inconsequential payment was made between the parties. The purchase price paid by the Company was determined as follows:

Base purchase price	$	4,275,000
Adjustments:		
Estimated change in working capital		43,935
Certain estimated capital expenditures		247,500
Assumption of indebtedness		(1,101,091)
Cash consideration	$	3,465,344

The assumption of $1,101,091 of indebtedness as of the Closing Date, consisted of $920,091 of senior notes and $181,000 of short-term debt. The acquisition was financed through a series of financing transactions which included the issuance of common stock from a public offering and a private placement, a tangible equity unit offering, and short and long-term debt. Refer to Note 11 – *Long-term Debt and Loans Payable,* and Note 13 – *Stockholder's Equity* for further information on these financings.

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The Company accounted for the Peoples Gas Acquisition as a business combination using the acquisition method of accounting. The purchase price was allocated to the net tangible and intangible assets based upon their estimated fair values at the date of the acquisition. The purchase price allocation was preliminary and was subject to revision through the end of the measurement period on March 15, 2021. During the first quarter of 2021, the Company recorded an adjustment to increase goodwill by $16,400 primarily reflecting an adjustment to deferred income taxes and the valuation of accounts receivable. Goodwill recorded for the Peoples Gas Acquisition is not expected to be deductible for tax purposes. The following table summarizes the purchase price allocation as of the acquisition date and measurement period adjustments as of March 15, 2021:

	Amounts Previously Recognized as of Acquisition Date (a)	Measurement Period Adjustments	Amounts Recognized as of Acquisition Date (as Adjusted)
Property, plant and equipment, net	$ 2,476,551	$ -	$ 2,476,551
Current assets	242,531	(9,197)	233,334
Regulatory assets	286,751	(22,293)	264,458
Goodwill	2,261,047	16,400	2,277,447
Other long-term assets	75,071	-	75,071
Total assets acquired	5,341,951	(15,090)	5,326,861
Current portion of long-term debt	5,136	-	5,136
Loans payable	181,000	-	181,000
Other current liabilities	186,120	(200)	185,920
Long-term debt	999,460	-	999,460
Deferred income taxes	213,647	(20,522)	193,125
Regulatory liabilities	123,029	6,389	129,418
Other long-term liabilities	168,215	(757)	167,458
Total liabilities assumed	1,876,607	(15,090)	1,861,517
Net assets acquired	$ 3,465,344	$ -	$ 3,465,344

(a) As reported in the Essential Utilities, Inc. Form 10-K for the period ended December 31, 2020.

The fair value of long-term debt was determined based on prevailing market prices for similar debt issuances as of March 16, 2020, which resulted in an adjustment to increase the carrying amount by $84,569. The fair value adjustment is being amortized over the remaining life of the debt.

Goodwill is attributable to the assembled workforce of Peoples, planned growth in new markets, and planned growth in rate base through continued investment in utility infrastructure. Goodwill recorded for the Peoples Gas Acquisition is not expected to be deductible for tax purposes.

The Company incurred transaction-related expenses for the Peoples Gas Acquisition, which consisted of costs recorded as operations and maintenance expenses in the first quarter of 2020 of $25,397, primarily representing expenses associated with investment banking fees, including bridge financing, employee related costs, obtaining regulatory approvals, legal expenses, and integration planning. There were no further transaction-related expenses for the Peoples Gas Acquisition after the first quarter of 2020.

Associated with the approval of the Peoples Gas Acquisition from the Pennsylvania Public Utility Commission, the Company committed to addressing the replacement of gathering pipe over a seven year timeframe for an estimated cost of $120,000, which will be recoverable through customer rates. The Company committed to provide $23,004 of one-time customer rate credits to its Pennsylvania natural gas utility customers and water and wastewater customers served by Aqua Pennsylvania. The Company granted $4,080 of customer rate credits to its water and wastewater customers during the third quarter of 2020, and $18,924 to its natural gas utility customers in the fourth quarter of 2020 to satisfy the $23,004 commitment.

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Water and Wastewater Utility Acquisitions – Pending Completion

In January 2023, the Company entered into a purchase agreement to acquire the water utility assets of La Rue, an Ohio municipality, which serves approximately 300 customers for $2,250.

In December 2022, the Company entered into a purchase agreement to acquire the wastewater utility assets of Union Rome Sewer, which serves approximately 5,300 customers in the southeast corner of Lawrence County, Ohio, for $25,500.

In August 2022, the Company entered into a purchase agreement to acquire a portion of the water and wastewater utility assets of the Village of Frankfort, an Illinois municipality, which serves approximately 1,400 customers for $1,400.

In December 2021, the Company entered into a purchase agreement to acquire the water utility assets of the Southern Oaks Water System, which serves approximately 740 customers in Texas for $3,300. In October 2021, the Company entered into a purchase agreement to acquire the wastewater utility assets of the City of Beaver Falls, Pennsylvania which consists of approximately 7,600 customers for $41,250. In July 2021, the Company entered into a purchase agreement to acquire the water utility assets of Shenandoah Borough, Pennsylvania, which consists of approximately 2,930 customers for $12,000. In January 2021, the Company entered into purchase agreement to acquire the wastewater utility system assets of Willistown Township, Pennsylvania, which consist of approximately 2,300 customers for $17,500.

The purchase price for these pending acquisitions are subject to certain adjustments at closing, and are subject to regulatory approval, including the final determination of the fair value of the rate based acquired. We plan to finance the purchase price of these acquisitions by utilizing our revolving credit facility until permanent debt and common equity are secured. These pending acquisitions are expected to close in 2023 and in early 2024. Closing for our utility acquisitions are subject to the timing of the regulatory approval process.

DELCORA Purchase Agreement

In September 2019, the Company entered into a purchase agreement to acquire the wastewater utility system assets of the Delaware County Regional Water Quality Control Authority ("DELCORA"), which consists of approximately 16,000 customers, or the equivalent of 198,000 retail customers, in 42 municipalities in Southeast Pennsylvania for $276,500. In May 2020, Delaware County, Pennsylvania filed a lawsuit alleging that DELCORA does not have the legal authority to establish and fund a customer trust with the net proceeds of the transaction. In December 2020, the judge in the Delaware County Court lawsuit issued an order that (1) the County cannot interfere with the purchase agreement between DELCORA and the Company, (2) the County cannot terminate DELCORA prior to the closing of the transaction, and (3) the establishment of the customer trust was valid. Delaware County appealed this decision to Commonwealth Court of Pennsylvania. On March 3, 2022, the Commonwealth Court issued a decision finding that Delaware County can dissolve the Authority if it so chooses, but the purchase agreement must be upheld regardless of who is operating the system. The case was remanded back to the trial court for the entry of an order consistent with the Commonwealth Court's opinion.
This order was issued on September 8, 2022 ("Remand Order). Since then, the County has challenged the Remand Order through two separate actions:

- First, Delaware County filed an Application for Determination of Finality ("Application") on October 13, 2022. The Company filed its opposition to the Application on October 27, 2022, and on November 2, 2022, the Delaware County Court of Common Pleas denied Delaware County's Application for Determination of Finality indicating that its previous order already constituted a final order that addressed the claims of all parties. On December 2, 2022, following the denial of its Application, Delaware County filed a Petition for Permission to Appeal ("Petition") the Remand Order in the Commonwealth Court of Pennsylvania. On December 16, 2022, the Company filed an Answer in opposition to the Petition, and the matter is currently pending before Commonwealth Court.

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- Second, on November 2, 2022, Delaware County filed a Notice of Appeal ("Notice of Appeal") from the Remand Order. On December 2, 2022, the Delaware County of Common Pleas issued an Opinion concluding that the County Court did not err in issuing the Remand Order. On January 13, 2023, Delaware County filed an Application in Commonwealth Court seeking confirmation of briefing deadlines with respect to the Notice of Appeal. In response, by Order dated January 24, 2023, the Commonwealth Court stated that "the record received from the Court of Common Pleas of Delaware County is currently under review for finality. A briefing schedule will be issued upon completion of this review."

On January 25, 2023, DELCORA filed in the Delaware Court of Common Pleas a complaint for Declaratory Judgment seeking resolution of whether the County Ordinance dissolving DELCORA is a final action prohibiting DELCORA from carrying out the material transaction of the Asset Purchase Agreement and, in the event that DELCORA retains the ability to close the transaction, whether DELCORA is permitted to exist as a trust.

The administrative law judges in the regulatory approval process recommended that the Company's application be denied, and subsequently, the Company provided exceptions to the recommended decision. On March 30, 2021, the Pennsylvania Public Utility Commission ("PUC") ruled that the case be remanded back to the Office of Administrative Law Judge ("ALJ") and vacated the original administrative law judges' recommended decision ("2021 Order"). This 2021 Order was also appealed to the Commonwealth Court by Delaware County. The County appealed the 2021 Order on April 29, 2022. A decision was issued by the Commonwealth Court on September 12, 2022 which dismissed the appeal of the County.

After the PUC issued the 2021 Order, on April 16, 2021, the administrative law judge issued an order staying the proceeding until the Delaware County Court lawsuit is final and unappealable. On March 25, 2022, the Company sent a letter notifying the PUC of the March 3, 2022 Commonwealth Court decision (that originated in Delaware County Court of Common Pleas) and requested that the PUC move forward with processing the application. On July 14, 2022, the Commission moved to lift the stay imposed by the ALJ, and required the ALJ to establish a schedule on remand for the proceeding. The published procedural schedule has the proceeding concluding in June 2023.

On January 26, 2023, several parties involved in the PUC case filed a joint motion for stay based on DELCORA's filing of the January 25, 2023 complaint for Declaratory Judgment filed by DELCORA, and referenced the City of Chester's bankruptcy filing in which the City of Chester has asserted reversionary contract interests regarding to DELCORA's wastewater assets. On February 6, 2023, the ALJ stayed the PUC DELCORA application proceedings again. The Company will be filing a Petition for Interlocutory Review to the PUC asking to review the ALJ's February 6, 2023 decision to stay the current proceedings.

The purchase price for this pending acquisition is subject to certain adjustments at closing, and is subject to regulatory approval, including the final determination of the fair value of the rate base acquired. We plan to finance the purchase price of this acquisition by the issuance of common stock and by utilizing our revolving credit facility until permanent debt is secured. Closing of our acquisition of DELCORA is expected to occur in 2023, subject to the timing of the regulatory approval process and Delaware County's on-going litigation.

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Water and Wastewater Utility Acquisitions - Completed

In November 2022, the Company acquired certain water utility assets of Oak Brook, Illinois, which serves 2,037 customers for a cash purchase price of $12,500. In August 2022, the Company acquired the municipal wastewater assets of East Whiteland Township, Chester County, Pennsylvania, which serves 4,018 customers, for a cash purchase price of $54,374. Additionally, in March 2022, the Company acquired the wastewater system of Lower Makefield Township, which serves 11,323 customer connections in Lower Makefield, Falls, and Middletown townships, and Yardley Borough, Bucks County, Pennsylvania, for a cash purchase price of $53,000. The purchase price allocation for these acquisitions consisted primarily of property, plant and equipment. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for these utility systems acquired in 2022 are $11,393.

In August 2021, the Company acquired the water utility system assets of The Commons Water Supply, Inc., which serves 992 customers in Harris County, Texas, and the wastewater utility system assets of the Village of Bourbonnais, which serves approximately 6,500 customers in Kankakee County, Illinois. The total cash purchase prices for these utility systems were $4,000 and $32,100, respectively. The purchase price allocation for these acquisitions consisted primarily of property, plant and equipment. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for the utility systems acquired in 2021 were $7,421 in 2022 and $2,462 in 2021.

In December 2020, the Company acquired the wastewater utility system asset of New Garden Township, Pennsylvania, which serves 1,965 customers. The total cash purchase price for the utility system was $29,944. Further, in June 2020, the Company acquired the wastewater utility system assets of East Norriton Township, Pennsylvania, which serves 4,947 customers. The total cash purchase price for the utility system was $21,000. The purchase price allocation for these acquisitions consisted primarily of property, plant and equipment. Additionally, during 2020, we completed four acquisitions of water and wastewater utility systems for $12,335 in cash in three of the states in which we operate, adding 3,673 customers. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for the utility systems acquired in 2020 were $10,717 in 2022, $8,365 in 2021 and $3,569 in 2020.

The pro forma effect of the businesses acquired is not material either individually or collectively to the Company's results of operations.

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Note 3 –*Assets Held for Sale and Disposition*

In the fourth quarter of 2022, the Company decided to market for sale the assets of its regulated natural gas system in West Virginia that serves approximately 13,000 customers and is part of the Company's Regulated Natural Gas segment. On December 31, 2022, the Company entered into a definitive agreement with Hope Gas, Inc. for the sale of its membership interests in its West Virginia assets for cash at closing of $37,000. The purchase price is subject to certain adjustments at closing and is subject to applicable regulatory approvals. Closing on the sale is expected in mid-2023, and completion of this transaction will conclude the Company's operations in West Virginia. Based on an assessment of the sale price and the carrying value of the planned disposition, there is no anticipated impairment expected to be recognized because of this sale agreement. These assets and liabilities do not qualify as discontinued operations, are reported as held for sale in the Company's consolidated balance sheet, and consist of the following as of December 31, 2022:

Inventory - gas stored	$	2,807
Other current assets		3,284
Regulatory assets		5,076
Current assets held for sale	$	11,167
Property, plant and equipment, net		30,267
Regulatory assets and other		1,857
Non-current assets held for sale	$	32,124
Current liabilities related to assets held for sale	$	3,263
Regulatory liabilities		649
Other long-term liabilities		325
Non-current liabilities related to assets held for sale	$	974

In October 2020 the Company sold its investment in a joint venture. Its investment represented its 49% investment in a joint venture that operates a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale of north central Pennsylvania. This investment was an unconsolidated affiliate and was accounted for under the equity method of accounting within our Aqua Infrastructure subsidiary. In 2020, the Company recorded a charge of $3,700 for the write-down of the Company's investment associated with the sale and is reported in equity loss in joint venture. This disposition has not been presented as discontinued operations in the Company's consolidated financial statements as it does not qualify as discontinued operations, since the disposal does not represent a strategic shift that has a major effect on our operations or financial results.

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Note 4 – *Property, Plant and Equipment*

	December 31, 2022	December 31, 2021	Approximate Range of Useful Lives	Weighted Average Useful Life
Regulated Water segment:				
Utility plant and equipment				
Mains and accessories	$ 4,213,197	$ 4,014,507	26-90 years	72 years
Services, hydrants, treatment plants and reservoirs	2,910,496	2,672,186	5-89 years	56 years
Operations structures and water tanks	388,596	376,880	15-80 years	47 years
Miscellaneous pumping and purification equipment	1,131,975	1,011,487	7-76 years	41 years
Meters, transportation and other operating equipment	1,045,053	980,208	5-84 years	28 years
Land and other non-depreciable assets	133,618	116,888	-	-
Utility plant and equipment - regulated water segment	9,822,935	9,172,156	-	-
Utility construction work in progress	366,777	304,373	-	-
Net utility plant acquisition adjustment	(6,076)	(9,055)	10-53 years	22 years
Non-utility plant and equipment	20,561	21,098	17-64 years	58 years
Property, Plant and Equipment - Regulated Water segment	10,204,197	9,488,572		
Regulated Natural Gas segment:				
Natural gas transmission	398,658	365,051	24-93 years	68 years
Natural gas storage	61,639	60,985	5-85 years	45 years
Natural gas gathering and processing	144,337	131,237	5-77 years	59 years
Natural gas distribution	2,206,434	1,874,040	25-78 years	63 years
Meters, transportation and other operating equipment	568,305	588,716	5-65 years	24 years
Land and other non-depreciable assets	4,187	3,872	-	-
Utility plant and equipment - Regulated Natural Gas segment	3,383,560	3,023,901		
Utility construction work-in-progress	149,630	97,903	-	-
Property, plant and equipment - Regulated Natural Gas segment	3,533,190	3,121,804		
Total property, plant and equipment	$ 13,737,387	$ 12,610,376		

Note 5 – *Accounts Receivable*

	December 31, 2022	December 31, 2021
Billed utility revenue	$ 265,504	$ 197,815
Other	4,801	1,283
	270,305	199,098
Less allowance for doubtful accounts	63,981	58,073
Net accounts receivable	$ 206,324	$ 141,025

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As of December 31, 2022, the Company's utility customers are located principally in the following states: 66% in Pennsylvania, 9% in Ohio, 6% in North Carolina, 5% in Texas, and 5% in Illinois. No single customer accounted for more than one percent of the Company's utility operating revenues during the years ended December 31, 2022, 2021, and 2020. The following table summarizes the changes in the Company's allowance for doubtful accounts:

	2022	2021	2020
Balance at January 1,	$ 58,073	$ 40,099	$ 7,353
Amounts charged to expense	27,631	27,336	32,325
Accounts written off	(22,507)	(19,731)	(12,613)
Recoveries of accounts written off and other	784	10,369	13,034
Balance at December 31,	$ 63,981	$ 58,073	$ 40,099

For Recoveries of accounts written off and other, "other" represents the opening balance from the Peoples Gas Acquisition of $10,962 in 2020 and additional measurement period adjustments in 2021 of $12,851 before the measurement period ended.

Note 6 – *Regulatory Assets and Liabilities*

The regulatory assets represent costs that are probable to be fully recovered from customers in future rates while regulatory liabilities represent amounts that are expected to be refunded to customers in future rates or amounts recovered from customers in advance of incurring the costs. Except for income taxes and utility plant retirement costs, regulatory assets and regulatory liabilities are excluded from the Company's rate base and do not earn a return. The components of regulatory assets and regulatory liabilities are as follows:

	December 31, 2022		December 31, 2021	
	Regulatory Assets	Regulatory Liabilities	Regulatory Assets	Regulatory Liabilities
Income taxes	$ 1,164,294	$ 571,110	$ 1,219,924	$ 595,185
Purchased gas costs	15,435	28,955	13,798	-
Utility plant retirement costs	36,440	64,212	47,683	56,479
Post-retirement benefits	51,810	142,390	60,640	115,283
Accrued vacation	3,231	-	3,760	-
Water tank painting	10,385	-	7,553	-
Fair value adjustment of long-term debt assumed in acquisition	49,954	-	62,722	-
Debt refinancing	13,906	-	19,083	-
Rate case filing expenses and other	16,570	7,363	14,827	3,054
	$ 1,362,025	$ 814,030	$ 1,449,990	$ 770,001

Items giving rise to deferred state income taxes, as well as a portion of deferred Federal income taxes related to specific differences between tax and book depreciation expense, are recognized in the rate setting process on a cash basis or as a reduction in current income tax expense and will be recovered as they reverse. Amounts include differences that arise between specific utility asset improvement costs capitalized for book and deducted as an expense for tax purposes. Additionally, the recording of AFUDC for equity funds results in the recognition of a regulatory asset for income taxes, which represents amounts due related to the revenue requirement. Regulatory liabilities are refundable in future rate filings based on the difference between the amount of the income tax benefits that were incorporated into the Company's cost of service in its latest rate case as compared to the actual income tax benefits recognized.

A portion of the regulatory liability for income taxes is related to Aqua Pennsylvania's income tax accounting change for the tax benefits realized on the Company's 2012 tax return, which have not yet reduced current income tax expense due to a rate order requiring a ten year amortization period which began in 2013. Beginning in 2013, the Company amortized $38,000, annually, of its deferred income tax benefits, which reduced current income tax expense. A portion of the income taxes regulatory liability is also related to Peoples Natural Gas' income tax accounting change for the tax benefits expected to be realized for the periods prior to adoption on March 16, 2020. The Company recorded a regulatory liability for this catch-up adjustment in the amount of $160,655 in 2020, and it remained on the consolidated balance sheet as of

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December 31, 2020. In May 2021, the Company received a regulatory order directing the Company to refund the catch-up adjustment to its utility customers over a five-year period, which was initiated by the Company in August 2021. In 2022, the Company made a similar change for its Peoples Gas and Aqua New Jersey subsidiaries, resulting in the recognition of a regulatory liability for each of these subsidiaries for the tax benefits prior to the year of adoption.

On July 8, 2022, Pennsylvania enacted House Bill 1342 into law, which among other things, reduces Pennsylvania's corporate income tax rate from 9.99% to 8.99% beginning January 1, 2023, and an additional 0.5% annually through 2031, when it reaches to 4.99%. The Company evaluated the impacts of the tax rate change and recorded, in the third quarter of 2022, a reduction to our deferred tax liabilities of $244,537 with a corresponding reduction primarily to our regulatory assets.

The regulatory asset or liability for purchased gas costs reflects the differences between actual purchased gas costs and the levels of recovery for these costs in current rates. The unrecovered costs are recovered and the over-recovered costs are refunded in future periods, typically within a year, through quarterly and annual filings with the applicable state regulatory agency.

The regulatory asset for utility plant retirement costs, including cost of removal, represents costs already incurred that are expected to be recovered in future rates over a five year recovery period. The regulatory liability for utility plant retirement costs represents amounts recovered through rates during the life of the associated asset and before the costs are incurred.

The regulatory asset for accrued vacation represents costs that would otherwise be charged to operations and maintenance expense for vacation that is earned by employees, which is recovered as a cost of service.

The regulatory asset for post-retirement benefits, which includes pension and other post-retirement benefits, primarily reflects a regulatory asset that has been recorded for the costs that would otherwise be charged to stockholders' equity for the underfunded status of the Company's pension and other post-retirement benefit plans. The Company also has a regulatory asset related to post-retirement benefits costs that represent costs already incurred which are now being or anticipated to be recovered in rates over a period ranging from approximately 10 to 37 years. The regulatory liability for post-retirement benefits represents costs recovered in rates in excess of post-retirement benefits expense.

Expenses associated with water tank painting are deferred and amortized over a period of time as approved in the regulatory process. Water tank painting costs are generally being amortized over a period ranging from 10 to 20 years. The regulatory liability for water tank painting costs represents amounts recovered through rates and before the costs are incurred.

The Company recorded a fair value adjustment for fixed rate, long-term debt assumed in acquisitions that matures in various years ranging from 2023 to 2032. The regulatory asset or liability results from the rate setting process continuing to recognize the historical interest cost of the assumed debt.

The regulatory asset for debt refinancing represents a portion of a make whole payment of $25,237 incurred in 2019 for the Company's redemption of $313,500 of the Company's outstanding notes that had maturities ranging from 2019-2037 and interest rates ranging from 3.57-5.83%. The Company deferred a portion of the make whole payment as it represents an amount by which we expect to receive prospective rate recovery.

The regulatory asset related to rate case filing expenses and other represents the costs associated with filing for rate increases that are deferred and amortized over periods that generally range from one year to five years, and costs incurred by the Company for which it has received or expects to receive rate recovery.

The regulatory asset related to the costs incurred for information technology software projects and water main cleaning and relining projects are described in Note 1 – *Summary of Significant Accounting Policies – Property, Plant and Equipment and Depreciation*.

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Note 7 – *Income Taxes*

Income tax benefit for the years ended December 31, is comprised of the following:

	Years Ended December 31,		
	2022	2021	2020
Current:			
Federal	$ -	$ (5,132)	$ (1,831)
State	8,716	4,034	(265)
	8,716	(1,098)	(2,096)
Deferred:			
Federal	(8,258)	3,036	(11,527)
State	(14,787)	(11,550)	(6,255)
	(23,045)	(8,514)	(17,782)
Total income tax benefit	$ (14,329)	$ (9,612)	$ (19,878)

The statutory Federal tax rate is 21% for 2022, 2021, and 2020. For states with a corporate net income tax, the state corporate net income tax rates range from 2.5% to 9.99% for all years presented. The Company's effective income tax rate for 2022, 2021, and 2020 was (3.2)%, (2.3)%, and (7.5)%, respectively. The Company remains subject to examination by federal and state tax authorities for the 2019 through 2022 tax years.

The reasons for the differences between amounts computed by applying the statutory Federal corporate income tax rate to income before income tax expense are as follows:

	Years Ended December 31,		
	2022	2021	2020
Computed Federal tax expense at statutory rate	$ 94,691	$ 88,620	$ 55,644
Decrease in Federal tax expense related to the flow through of plant related timing differences	(99,741)	(76,534)	(53,532)
State income taxes, net of Federal tax benefit	2,456	(1,681)	(6,896)
Increase in tax expense for depreciation expense to be recovered in future rates	159	925	140
Stock-based compensation	(242)	(611)	(1,484)
Deduction for Essential Utilities common dividends paid under employee benefit plan	(333)	(330)	(315)
Amortization of deferred investment tax credits	(290)	(314)	(319)
Amortization of excess deferred income taxes	(8,425)	(11,715)	(15,352)
Impact of acquisitions and reorganizations	-	(4,632)	-
Other, net	(2,604)	(3,340)	2,236
Actual income tax benefit	$ (14,329)	$ (9,612)	$ (19,878)

In 2012, in response to a rate order, Aqua Pennsylvania changed its tax method of accounting for qualifying utility system repairs, which provides for a tax deduction for qualifying utility asset improvement costs that were previously being capitalized and depreciated for book and tax purposes. The rate order requires a flow-through method of income tax benefits, which results in a reduction in current income tax expense through the recognition of income tax benefits due to the income tax accounting method change. The Company recognized a tax deduction on its 2012 Federal tax return of $380,000 for prior year qualifying costs and based on a 2012 rate order, Aqua Pennsylvania began to amortize this benefit over ten years beginning in 2013. As a result of the May 2022 rate order, this amortization period was extended for an additional three years and the Company's utility rates now include these tax benefits.

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In 2019, the Pennsylvania Public Utility Commission issued a rate order to Aqua Pennsylvania and commencing in 2020 the base rates were designed to include annual tax benefits for qualifying utility system improvement costs equal to a deduction of $158,865, subject to a $3,000 collar either above or below this target amount. In May 2022, Aqua Pennsylvania received a rate order that adjusted this target to $159,060 and revised the collar amount to $4,000, beginning with the 2022 fiscal year. To the extent actual tax benefits are outside this range, tax benefits will either be deferred or accrued, and settled in the next rate filing.

In March 2020 and in June 2022, the Company changed the method of tax accounting for certain qualifying infrastructure investments at its Peoples Natural Gas and Peoples Gas Company subsidiaries, respectively. This change allows a tax deduction for qualifying utility asset improvement costs that were formerly capitalized for tax purposes. Consistent with the Company's accounting for differences between book and tax expenditures in Pennsylvania in its other regulated subsidiaries, the Company uses the flow-through method to account for these timing differences.

For Peoples Natural Gas, the Company calculated the income tax benefits for qualifying capital expenditures made prior to the date of its acquisition on March 16, 2020 ("catch-up adjustment") and recognized a regulatory liability of $160,655 for these income tax benefits. On May 6, 2021, the Pennsylvania Public Utility Commission approved a settlement order which stipulates, among other points, that the catch-up adjustment be provided by a surcredit to utility customers over a five-year period beginning August 2021, and the Company can continue to use flow-through accounting for the current tax repair benefit until its next base rate case. During 2022 and 2021, $29,431 and $11,127, respectively, of income tax benefits were amortized as refunds to Peoples Natural Gas customers. For Peoples Gas Company, the Company calculated the catch-up adjustment from periods prior to the 2021 tax year and recognized a regulatory liability of $13,808 for these income tax benefits. The Company will maintain this regulatory liability on its consolidated balance sheet until accounting treatment is determined in its next base rate case.

The following table provides the changes in the Company's unrecognized tax benefits:

	2022	2021	2020
Balance at January 1,	$ 20,201	$ 19,194	$ 18,671
Impact of current year activity	(900)	1,007	523
Effect of Pennsylvania tax rate change	(1,084)	-	-
Balance at December 31,	$ 18,217	$ 20,201	$ 19,194

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate resolution. From time to time, the Company may be assessed interest and penalties by taxing authorities, which would be recorded as income tax expense. During the years ended December 31, 2022, 2021 and 2020, there were expenses of $118, $409, and $24 for interest and penalties related to uncertain tax positions. As of December 31, 2022 and 2021, the Company has accrued liabilities of $620 and $502 for interest and penalties related to its uncertain tax position.

On its 2012 Federal tax return, filed in September 2013, Aqua Pennsylvania filed a change in accounting method to adopt the IRS temporary tangible property regulations. This method change allowed the Company to take a current year deduction for expenses that were previously capitalized for tax purposes. Since the filing of the 2012 tax return, the IRS has issued final regulations. While the Company maintains the belief that the deduction taken on its tax return is appropriate, the methodology for determining the deduction has not been agreed to by the taxing authorities. Provisions for uncertain tax positions were recorded to reflect the possible challenge of the Company's methodology for determining its repair deduction as required by the FASB's accounting guidance for income taxes. Should the taxing authority challenge the Company's tax treatment, and ultimately disallow a portion of the repair deduction, the Company expects Federal net operating loss carryforwards to offset any resulting liability, and state net operating loss carryforwards will offset a portion of any resulting liability.

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The unrecognized tax benefits relate to the income tax accounting change, and the tax position is attributable to a temporary difference. The Company does not anticipate material changes to its unrecognized tax benefits within the next year. As a result of the regulatory treatment afforded by the income tax accounting change in Pennsylvania and despite this position being a temporary difference, as of December 31, 2022 and 2021, $35,267 and $34,980, respectively, of these tax benefits would have an impact on the Company's effective income tax rate in the event the Company does sustain all, or a portion, of its tax position.

The following table provides the components of net deferred tax liability:

	December 31,	
	2022	2021
Deferred tax assets:		
Customers' advances for construction	$ 27,009	28,845
Costs expensed for book not deducted for tax, principally accrued expenses	23,585	28,211
Post-retirement benefits	-	5,186
Tax effect of regulatory liabilities for post-retirement benefits	26,453	16,080
Tax attribute and credit carryforwards	235,838	243,131
Operating lease liabilities	13,558	16,064
Unrecovered purchased gas costs	4,654	-
Other	10,248	7,586
	341,345	345,103
Less valuation allowance	(38,940)	(36,662)
	302,405	308,441
Deferred tax liabilities:		
Utility plant, principally due to depreciation and differences in the basis of fixed assets due to variation in tax and book accounting	1,495,526	1,510,752
Deferred taxes associated with the gross-up of revenues necessary to recover, in rates, the effect of temporary differences	128,975	179,825
Post-retirement benefits	6,130	-
Utility plant acquisition adjustment basis differences	198	222
Deferred investment tax credit	5,092	5,406
Operating lease right-of-use assets	12,250	14,034
Over-recovered purchased gas costs	-	4,739
	1,648,171	1,714,978
Net deferred tax liability	$ 1,345,766	$ 1,406,537

At December 31, 2022, the Company has a cumulative Federal NOL of $625,988. The Company believes the Federal NOLs are more likely than not to be recovered and require no valuation allowance. The Company's Federal NOLs do not begin to expire until 2032.

At December 31, 2022, the Company has a cumulative state NOL of $1,832,795 a portion of which is offset by a valuation allowance because the Company does not believe these NOLs are more likely than not to be realized. The state NOLs do not begin to expire until 2023.

At December 31, 2022, the Company's Federal and state NOL carryforwards are reduced by an unrecognized tax position, on a gross basis, of $79,368 and $85,759, respectively, which results from the Company's adoption in 2013 of the FASB's accounting guidance on the presentation of an unrecognized tax benefit when a net operating loss carryforward, a similar tax loss, or a tax credit carryforward exists. The amounts of the Company's Federal and state NOL carryforwards prior to

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being reduced by the unrecognized tax positions are $705,356 and $1,918,555, respectively. The Company records its unrecognized tax benefit as a component of its net deferred income tax liability.

On August 16, 2022, the Inflation Reduction Act of 2022 ("IRA") was enacted into law, which among other things, implements a 15% minimum tax on book income of certain large corporations, and a 1% excise tax on net stock repurchases after December 31, 2022. The alternative minimum tax would not be applicable in our next fiscal year because it is based on a three-year average annual adjusted financial statement income in excess of $1,000,000. Also included in the IRA is a provision to implement an annual waste emissions charge beginning with calendar year 2024 (to be paid in 2025) on applicable oil and gas facilities that exceed certain methane emission thresholds. Currently, the Company has gathering facility assets that could exceed the minimum thresholds and potentially be subject to the waste emissions charge. We are continuing to assess the future impact of the provisions of the IRA on our consolidated financial statements and on the Company's gathering assets. As a regulated utility, required capital expenditures and operating costs, including taxes, have been traditionally recognized by state utility commissions as appropriate for inclusion in establishing rates.

On July 8, 2022, Pennsylvania enacted House Bill 1342 into law, which among other things, reduces Pennsylvania's corporate income tax rate from 9.99% to 8.99% beginning January 1, 2023, and an additional 0.5% annually through 2031, when it reaches to 4.99%. The Company evaluated the impacts of the tax rate change and recorded a reduction to our deferred tax liabilities of $244,537 with a corresponding reduction primarily to our regulatory assets.

On November 15, 2021, President Biden signed into law the Infrastructure Investment and Jobs ("IIJ") Act. The IIJ contained several tax provisions, including the modification of the tax code to exclude from taxable income any contribution in aid of construction. This provision effectively restored the exclusion that existed prior to the enactment of TCJA and would generally apply to contributions made after December 31, 2020. The Company evaluated the tax provisions included in the IIJ, and their impact was incorporated in the calculation of the income tax provision.

Note 8 – *Taxes Other than Income Taxes*

The following table provides the components of taxes other than income taxes, including the expenses of Peoples for the period since the completion of the acquisition on March 16, 2020:

	Years Ended December 31,		
	2022	2021	2020
Property	$ 33,703	33,946	$ 32,054
Gross receipts, excise and franchise	16,828	15,777	14,462
Payroll	21,343	21,789	19,053
Regulatory assessments	6,771	6,968	3,130
Pumping fees	7,881	5,761	6,028
Other	3,498	2,400	1,870
Total taxes other than income taxes	$ 90,024	$ 86,641	$ 76,597

Note 9 – *Commitments and Contingencies*

Commitments –

The Company maintains agreements with other water purveyors for the purchase of water to supplement its water supply, particularly during periods of peak demand. The agreements stipulate purchases of minimum quantities of water to the year 2029. The estimated annual commitments related to such purchases through 2027 are expected to average $3,419, and the aggregate of the years remaining approximates $1,120.

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The Company has entered into purchase obligations, in the ordinary course of business, that include agreements for water treatment processes at some of its wells in a small number of its divisions. The 20 year term agreement provides for the use of treatment equipment and media used in the treatment process and are subject to adjustment based on changes in the Consumer Price Index. The future contractual cash obligations related to these agreements are as follows:

2023	2024	2025	2026	2027	Thereafter
$ 1,111	$ 1,131	$ 1,156	$ 1,182	$ 1,208	$ 1,708

The Company's natural gas supply is provided by sources on the interstate pipeline system and from local western Pennsylvania gas well production. The Company has various interstate pipeline service agreements that provide for firm transportation capacity, firm storage capacity, and other services and include capacity reservation charges based upon the maximum daily and annual contract quantities set forth in the agreements. Some of these agreements have minimum volume obligations and are transacted at applicable tariff and negotiated rates to the year 2034. The estimated annual commitments related to such purchases through 2027 are expected to average $241,248, and the aggregate of the years remaining beyond 2027 approximates $1,606,927.

The purchased water, water treatment, and purchased gas expenses under these agreements were as follows:

	Years Ended December 31,		
	2022	2021	2020
Purchased water under long-term agreements	$ 5,559	$ 5,867	$ 5,931
Water treatment expense under contractual agreement	1,061	1,017	1,006
Purchased natural gas under long-term agreements	601,995	340,262	165,745

Contingencies – The Company is routinely involved in various disputes, claims, lawsuits and other regulatory and legal matters, including both asserted and unasserted legal claims, in the ordinary course of business. The status of each such matter, referred to herein as a loss contingency, is reviewed and assessed in accordance with applicable accounting rules regarding the nature of the matter, the likelihood that a loss will be incurred, and the amounts involved. As of December 31, 2022, the aggregate amount of $19,658 is accrued for loss contingencies and is reported in the Company's consolidated balance sheet as other accrued liabilities and other liabilities. These accruals represent management's best estimate of probable loss (as defined in the accounting guidance) for loss contingencies or the low end of a range of losses if no single probable loss can be estimated. For some loss contingencies, the Company is unable to estimate the amount of the probable loss or range of probable losses. Further, Essential Utilities has insurance coverage for certain of these loss contingencies, and as of December 31, 2022, estimates that approximately $1,530 of the amount accrued for these matters are probable of recovery through insurance, which amount is also reported in the Company's consolidated balance sheet as deferred charges and other assets, net.

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During a portion of 2019, the Company initiated a do not consume advisory for some of its customers in one division served by the Company's Illinois subsidiary. The do not consume advisory was lifted in 2019, and, in 2022, the water system was determined to be in compliance with the federal Lead and Copper Rule. During the second quarter of 2021, an amount was accrued for the portion of the fine or penalty that we determined to be probable and estimable of being incurred. In addition, on September 3, 2019, two individuals, on behalf of themselves and those similarly situated, commenced an action against the Company's Illinois subsidiary in the State court in Will County, Illinois related to this do not consume advisory. The complaint seeks class action certification, attorney's fees, and "damages, including, but not limited to, out of pocket damages, and discomfort, aggravation, and annoyance" based upon the water provided by the Company's subsidiary to a discrete service area in University Park Illinois. The complaint contains allegations of damages as a result of supplied water that exceeded the standards established by the federal Lead and Copper Rule. The complaint is in the discovery phase and class certification has not been granted. During the third quarter of 2022, the Company established an accrual for the amount of loss asserted in the complaint that we determined to be probable and estimable of being incurred. The Company is vigorously defending against this claim. The Company submitted a claim for the expenses incurred to its insurance carrier for potential recovery of a portion of these costs and is currently in litigation with one of its carriers seeking to enforce its claims. The Company continues to assess the potential loss contingency on this matter. While the final outcome of this claim cannot be predicted with certainty, and unfavorable outcomes could negatively impact the Company, at this time in the opinion of management, the final resolution of this matter is not expected to have a material adverse effect on the Company's financial position, results of operations or cash flows.

Although the results of legal proceedings cannot be predicted with certainty, other than disclosed above, there are no pending legal proceedings to which the Company or any of its subsidiaries is a party or to which any of its properties is the subject that are material or are expected to have a material effect on the Company's financial position, results of operations or cash flows.

In addition to the aforementioned loss contingencies, the Company self-insures a portion of its employee medical benefit program, and maintains stop-loss coverage to limit the exposure arising from these claims. The Company's reserve for these claims totaled $2,327 and $2,470 at December 31, 2022 and 2021, respectively, and represents a reserve for unpaid claim costs, including an estimate for the cost of incurred but not reported claims.

Associated with the approval of the Peoples Gas Acquisition from the Pennsylvania Public Utility Commission, the Company committed to addressing the replacement of gathering pipe over a seven year timeframe for an estimated cost of $120,000, which will be recoverable through customer rates. Additionally, the Company committed to provide $23,004 of one-time customer rate credits to its Pennsylvania natural gas utility customers and water and wastewater customers served by Aqua Pennsylvania, Inc. In 2020, the Company granted $4,080 of customer rate credits to its Pennsylvania water and wastewater customers and $18,924 to its Pennsylvania natural gas utility customers.

Note 10 – *Leases*

The Company leases land, office facilities, office equipment, and vehicles for use in its operations, which are accounted for as operating leases. Leases with a term of 12 months or less are not recorded on the balance sheet; rather, lease expense is recognized over the lease term. Our leases have remaining lives of 1 to 72 years.

Some of the Company's leases can be extended on a month-to-month basis, which allow us to terminate the lease at any given month without penalty while others include options to extend the leases for up to 50 years. The renewal of a month-to-month lease is at our sole discretion.

The Company accounts for lease and non-lease components of lease arrangements separately. For calculating lease liabilities, we may deem lease terms to include options to extend or terminate the lease when it's reasonably certain that we will exercise that option. The Company's lease agreements do not contain significant residual value guarantees, restrictions or covenants.

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Lease liabilities and corresponding right-of-use assets are recorded based on the present value of the lease payments over the expected lease term, including leases with variable payments that are based on a market rate or an index and net of any impairment. All other variable payments are expensed as incurred. Since the Company's lease agreements do not provide an implicit interest rate, we utilize our incremental borrowing rate to determine the discount rate used to present value the lease payments.

On January 6, 2022, the Company entered into an amendment to an office lease that provided for the partial termination of the Company's obligations with respect to a portion of the leased premises of approximately 37,000 rentable square feet. The Company paid a termination fee of $2,812, reduced its remaining lease payments by $1,753 and recognized a loss on the partial termination of the lease of $1,801.

During the fourth quarter of 2021, the Company determined that there were impairment indicators that required the Company to review a portion of office space that was no longer used by the Company in its operations for impairment. Accordingly, the Company performed undiscounted cash flow analyses on the related right-of-use asset group and determined that such right-of-use asset was impaired. This resulted in a non-cash impairment charge of $4,695, representing the excess of the right-of-use asset over its fair value, and is included within operations and maintenance expense in the consolidated statements of operations and comprehensive income.

	Years Ended December 31,		
	2022	2021	2020
Components of lease expense were as follows:			
Operating lease cost	$ 9,359	$ 9,716	$ 8,496

	Years Ended December 31,	
	2022	2021
Supplemental cash flow information related to leases was as follows:		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 9,270	$ 9,612

	December 31,	
	2022	2021
Supplemental balance sheet information related to leases was as follows:		
Operating leases:		
Operating lease right-of-use assets	$ 41,734	$ 48,930
Other accrued liabilities	$ 9,316	7,841
Operating lease liabilities	37,666	48,230
Total operating lease liabilities	$ 46,982	$ 56,071

	December 31,	
	2022	2021
Weighted average remaining lease term:		
Operating leases	9.7 years	10.6 years
Weighted average discount rate:		
Operating leases	3.42%	3.62%

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Maturities of operating lease liabilities and a reconciliation of the operating lease liabilities reported on our consolidated balance sheets as of December 31, 2022 are as follows:

	Operating Leases
2023	$ 8,923
2024	8,643
2025	8,591
2026	6,671
2027	6,757
Thereafter	20,763
Total operating lease payments	$ 60,348
Total operating lease payments	$ 60,348
Less operating lease liabilities	46,982
Present value adjustment	$ 13,366

Note 11 – *Long-term Debt and Loans Payable*

Long-term Debt – The consolidated statements of capitalization provide a summary of long-term debt as of December 31, 2022 and 2021. The supplemental indentures with respect to specific issues of the first mortgage bonds restrict the ability of Aqua Pennsylvania and other operating subsidiaries of the Company to declare dividends, in cash or property, or repurchase or otherwise acquire the stock of these companies. Loan agreements for Aqua Pennsylvania and other operating subsidiaries of the Company have restrictions on minimum net assets. As of December 31, 2022, restrictions on the net assets of the Company were $4,284,813 of the total $5,377,386 in net assets. Included in this amount were restrictions on Aqua Pennsylvania's net assets of $1,678,703 of their total net assets of $2,462,533. As of December 31, 2022, $2,158,502 of Aqua Pennsylvania's retained earnings of $2,178,502 and $277,036 of the retained earnings of $445,076 of other subsidiaries were free of these restrictions. Some supplemental indentures also prohibit Aqua Pennsylvania and some other subsidiaries of the Company from making loans to, or purchasing the stock of, the Company.

Sinking fund payments are required by the terms of specific issues of long-term debt. Excluding amounts due under the Company's revolving credit agreement, the future sinking fund payments and debt maturities of the Company's long-term debt are as follows:

Interest Rate Range	2023	2024	2025	2026	2027	Thereafter
0.00% to 0.99%	$ 464	$ 256	$ 197	$ 179	$ 146	$ 633
1.00% to 1.99%	872	712	766	776	787	4,456
2.00% to 2.99%	2,182	1,268	1,427	1,305	1,113	1,102,460
3.00% to 3.99%	32,025	53,318	782	746	210,889	2,178,672
4.00% to 4.99%	151,649	4,527	122,310	1,562	1,567	1,621,698
5.00% to 5.99%	11,472	10,728	630	237	27	531,263
6.00% to 6.99%	-	-	-	5,000	20,000	6,000
7.00% to 7.99%	-	-	23,000	-	5,378	-
8.00% to 8.99%	692	976	448	-	-	-
9.00% to 9.99%	-	-	-	11,800	-	-
Total	$ 199,356	$ 71,785	$ 149,560	$ 21,605	$ 239,907	$ 5,445,182

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In January 2023 and October 2022, Aqua Pennsylvania issued $75,000 and $125,000 of first mortgage bonds, due in 2043 and 2052, and with interest rates of 5.60% and 4.50%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

On May 20, 2022, the Company issued $500,000 of long-term debt (the "Senior Notes"), less expenses of $5,815, due in 2052 with an interest rate of 5.30%. The Company used the net proceeds from the issuance of Senior Notes to (1) to repay $49,700 of borrowings under Aqua Pennsylvania's 364-day revolving credit facility and $410,000 of borrowings under the Company's existing five year unsecured revolving credit facility, and (2) for general corporate purposes.

On April 15, 2021, the Company's operating subsidiary, Aqua Ohio, Inc., issued $100,000 of first mortgage bonds, of which $50,000 is due in 2031 and $50,000 is due in 2051, with interest rates of 2.37% and 3.35%, respectively. The proceeds from these bonds were used for general corporate purposes and to repay existing indebtedness. Further, on April 19, 2021, the Company issued $400,000 of long-term debt, with expenses of $4,010, which is due in 2031 with an interest rate of 2.40%. The Company used the proceeds from this issuance to repay $50,000 of borrowings under the Aqua Pennsylvania revolving credit facility, and the balance was used to repay in full the borrowings under its existing five year unsecured revolving credit agreement.

The weighted average cost of long-term debt at December 31, 2022 and 2021 was 3.94% and 3.49%, respectively. The weighted average cost of fixed rate long-term debt at December 31, 2022 and 2021 was 3.78% and 3.61%, respectively.

On December 14, 2022, the Company entered into a five year $1,000,000 unsecured revolving credit facility, which replaced the Company's prior five year $1,000,000 unsecured revolving credit facility. The Company's new unsecured revolving credit facility was used to repay all indebtedness and fees under our prior unsecured revolving credit facility, and for other general corporate purposes. The facility includes a $100,000 sublimit for daily demand loan. Funds borrowed under this facility are classified as long-term debt and are used to provide working capital as well as support for letters of credit for insurance policies and other financing arrangements. As of December 31, 2022, the Company has the following sublimits and available capacity under the credit facility: $100,000 letter of credit sublimit, $80,959 of letters of credit available capacity, $0 borrowed under the swing-line commitment, $490,959 was available for borrowing and $490,000 of funds borrowed under the agreement. Interest under the facility is equal to either (i) Term simple secured overnight financing rate (SOFR), plus applicable margin; or (ii) an Alternate Base Rate (which is based at the highest of the (a) New York Federal Reserve Bank rate, plus 0.5%, (b) the prime rate, and, (c) the daily SOFR, plus 1.0%,) plus applicable margin. The applicable margin for an Alternate Base Rate loan will be up to 0.5% and for a SOFR loan will be up to 1.5%, in each case depending on the debt ratings in effect as of such date. The Company may elect either the Term SOFR or the Alternate Base Rate at the time of the drawdown, and loans may be converted from one rate to another at any time, subject or certain conditions. A facility fee is charged on the total commitment amount of the agreement. Under these facilities the average cost of borrowings was 3.11% and 1.31%, and the average borrowing was $297,021 and $174,026, during 2022 and 2021, respectively.

The Company is obligated to comply with covenants under some of its loan and debt agreements. These covenants contain a number of restrictive financial covenants, which among other things limit, subject to specific exceptions, the Company's ratio of consolidated total indebtedness to consolidated total capitalization, and require a minimum level of earnings coverage over interest expense. During 2022, the Company was in compliance with its debt covenants under its loan and debt agreements. Failure to comply with the Company's debt covenants could result in an event of default, which could result in the Company being required to repay or finance its borrowings before their due date, possibly limiting the Company's future borrowings, and increasing its borrowing costs.

Loans Payable – In June 2022, Aqua Pennsylvania amended its $100,000 364-day revolving credit agreement primarily to update the termination date of the facility to June 29, 2023. The funds borrowed under this agreement are classified as loans payable and used to provide working capital. As of December 31, 2022 and 2021, funds borrowed under the agreement were $20,000 and $35,000, respectively. Interest under this facility is based, at the borrower's option, on the prime rate, an adjusted overnight bank funding rate, or an adjusted Bloomberg Short-Term Bank Yield Index (BSBY) floating rate. This agreement restricts short-term borrowings of Aqua Pennsylvania. A commitment fee of 0.05% is charged on the total commitment amount of Aqua Pennsylvania's revolving credit agreement. The average cost of

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borrowing under the facility was 2.40% and 0.78%, and the average borrowing was $31,555 and $40,312, during 2022 and 2021, respectively. The maximum amount outstanding at the end of any one month was $55,000 and $70,000 in 2022 and 2021, respectively.

In June 2022, Peoples Natural Gas Companies amended its 364-day revolving credit agreement primarily to increase the amount of the facility from $100,000 to $300,000 and to update the termination date of the facility to June 29, 2023. The funds borrowed under this agreement are classified as loans payable and used to provide working capital. Interest under this facility is based, at the borrower' option, at the prime rate, an adjusted overnight bank funding rate, or an adjusted BSBY floating rate. A commitment fee of 0.05% is charged on the total commitment amount of Peoples' revolving credit agreement. As of December 31, 2022 and 2021, funds borrowed under the agreement were $208,500 and $30,000, respectively. The average cost of borrowing under the facility was 2.30% and 1.02%, and the average borrowing was $97,458 and $23,750, during 2022 and 2021, respectively. The maximum amount outstanding at the end of any one month was $234,000 and $30,000 in 2022 and 2021, respectively.

At December 31, 2022 and 2021, the Company had other combined short-term lines of credit of $35,000. Funds borrowed under these lines are classified as loans payable and are used to provide working capital. As of December 31, 2022 and 2021, funds borrowed under the short-term lines of credit were $0. The average borrowing under the lines was $0 and $0 during 2022 and 2021, respectively. The maximum amount outstanding at the end of any one month was $0 and $0 in 2022 and 2021, respectively. Interest under the lines is based at the Company's option, depending on the line, on the prime rate, an adjusted Euro-Rate, an adjusted federal funds rate or at rates offered by the banks. The average cost of borrowings under all lines during 2022 and 2021 was 0% and 0%, respectively.

Interest Income and Expense– Interest income of $3,675, $2,384, and $5,363 was recognized for the years ended December 31, 2022, 2021, and 2020, respectively. Interest expense was $238,116, $207,709, and $188,435 in 2022, 2021, and 2020, including amounts capitalized for borrowed funds of $6,047, $4,510, and $4,434, respectively.

Note 12 – *Fair Value of Financial Instruments*

Financial instruments are recorded at carrying value in the financial statements and approximate fair value, with the exception of long-term debt, as of the dates presented. The fair value of these instruments is disclosed below in accordance with current accounting guidance related to financial instruments.

The fair value of loans payable is determined based on its carrying amount and utilizing Level 1 methods and assumptions. As of December 31, 2022 and 2021, the carrying amount of the Company's loans payable was $228,500 and $65,000, respectively, which equates to their estimated fair value. The fair value of cash and cash equivalents is determined based on Level 1 methods and assumptions. As of December 31, 2022 and 2021, the carrying amounts of the Company's cash and cash equivalents were $11,398 and $10,567, respectively, which equates to their fair value. The Company's assets underlying the deferred compensation and non-qualified pension plans are determined by the fair value of mutual funds, which are based on quoted market prices from active markets utilizing Level 1 methods and assumptions. As of December 31, 2022 and 2021, the carrying amount of these securities was $24,962 and $28,576, respectively, which equates to their fair value, and is reported in the consolidated balance sheet in deferred charges and other assets.

Unrealized gains and losses on equity securities held in conjunction with our non-qualified pension plan is as follows:

	Years ended December 31,		
	2022	2021	2020
Net gain (loss) recognized during the period on equity securities	$ (895)	$ 607	$ 492
Less: net gain (loss) recognized during the period on equity securities sold during the period	-	-	-
Unrealized gain (loss) recognized during the reporting period on equity securities still held at the reporting date	$ (895)	$ 607	$ 492

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The net gain (loss) recognized on equity securities is presented on the consolidated statements of operations and comprehensive income on the line item "Other."

The carrying amounts and estimated fair values of the Company's long-term debt is as follows:

	December 31,	
	2022	2021
Carrying amount	$ 6,617,395	$ 5,947,357
Estimated fair value	5,528,131	6,482,499

The fair value of long-term debt has been determined by discounting the future cash flows using current market interest rates for similar financial instruments of the same duration utilizing level 2 methods and assumptions. The Company's customers' advances for construction have a carrying value of $114,732 and $103,619 at December 31, 2022 and 2021, respectively. Their relative fair values cannot be accurately estimated because future refund payments depend on several variables, including new customer connections, customer consumption levels and future rates. Portions of these non-interest bearing instruments are payable annually through 2031 and amounts not paid by the respective contract expiration dates become non-refundable. The fair value of these amounts would, however, be less than their carrying value due to the non-interest bearing feature.

Note 13 – *Stockholders' Equity*

At December 31, 2022, the Company had 600,000,000 shares of common stock authorized; par value $0.50. Shares outstanding and treasury shares held were as follows:

	December 31,		
	2022	2021	2020
Shares outstanding	263,737,084	252,867,623	245,390,468
Treasury shares	3,236,237	3,234,765	3,180,887

At-the-Market Offering

On October 14, 2022, the Company entered into at-the market sales agreements ("ATM") with third-party sales agents, under which the Company may offer and sell shares of its common stock, from time to time, at its option, having an aggregate gross offering price of up to $500,000 pursuant to the Company's effective shelf registration statement on Form S-3 (File No. 333-255235). The Company intends to use the net proceeds from the sales of shares through the ATM for working capital, capital expenditures, water and wastewater utility acquisitions, and repaying outstanding indebtedness. During the fourth quarter of 2022, the Company issued 1,321,994 shares of common stock under the ATM for proceeds of $63,040, net of expenses. In January 2023, the Company issued 399,128 shares of common stock under the ATM for proceeds of $19,294, net of expenses.

Forward Equity Sale

In August 2020, the Company entered into a forward equity sale agreement for 6,700,000 shares of common stock with a third party (the "forward purchaser"). In connection with the forward equity sale agreement, the forward purchaser borrowed an equal number of shares of the Company's common stock from stock lenders and sold the borrowed shares to the public. The Company did not receive any proceeds from the sale of its common stock by the forward purchaser until settlement of the shares underlying the forward equity sale agreement. The actual proceeds to be received by the Company would have varied depending upon the settlement date, the number of shares designated for settlement on that settlement date and the method of settlement. The forward equity sale agreement was accounted for as an equity instrument and was recorded at a fair value of $0 at inception. The fair value was not adjusted as the Company continued to meet the accounting requirements for equity instruments.

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On August 9, 2021, the Company completely settled forward equity sale agreements by physical share settlement. The Company issued 6,700,000 shares and received cash proceeds of $299,739 at a forward price of $44.74 per share. Pursuant to the agreement, the forward price was computed based upon the initial forward price of $46.00 per share, adjusted for a floating interest rate factor equal to a specified daily rate less a spread and scheduled dividends during the term of the agreement. The Company used the proceeds received upon settlement of the forward equity sale agreement to fund general corporate purposes, including for water and wastewater utility acquisitions, working capital and capital expenditures. There are no remaining shares subject to the forward equity sale agreement.

Private Placement

On March 29, 2019, the Company entered into a Stock Purchase Agreement (the "Stock Purchase Agreement") with Canada Pension Plan Investment Board (the "Investor"), pursuant to which the Company agreed to issue and sell to the Investor in a private placement (the "Private Placement") 21,661,095 newly issued shares of common stock, par value $0.50 per share (the "Common Stock"). On March 16, 2020, in connection with the closing of the Peoples Gas Acquisition, the Company closed on the Private Placement and received gross proceeds of $749,907, less expenses of $20,606. In June 2021, the Company filed a registration statement on Form S-3 ASR registering the Private Placement shares for resale.

The shares issued and sold to the Investor pursuant to the Private Placement were to be priced at the lower of (1) $34.62, which represents a 4.5% discount to the trailing 20 consecutive trading day volume weighted average price of the Common Stock ending on, and including, March 28, 2019, and (2) the volume weighted average price per share in the Company' subsequent public offering of Common Stock to fund a portion of the Peoples Gas Acquisition. Based on the common stock offering noted below, the Private Placement was priced at $34.62 per share.

The Stock Purchase Agreement contains customary representations, warranties and covenants of the Company and the Investor, and the parties have agreed to indemnify each other for losses related to breaches of their respective representations and warranties. At the closing of the Private Placement, the Company reimbursed the Investor for reasonable out-of-pocket diligence expenses of $4,000.

Common Stock / Tangible Equity Unit Issuances

On April 23, 2019, the Company issued $1,293,750, less expenses of $30,651, of its common stock and $690,000, less expenses of $16,358, of its tangible equity units (the "Units"), with a stated amount of $50 per unit. These issuances were part of the financing of the Peoples Gas Acquisition. The common stock was issued at $34.62 per share and thus the Private Placement noted above was priced at $34.62 per share. The Company recorded the issuance of the purchase contract portion of the Units as additional paid-in-capital of $570,919, less allocable issuance costs of $13,530, in our financial statements. The Company recorded the amortizing notes portion of the Units of $119,081 as long-term debt and recorded allocable issuance costs of $2,828 as debt issuance costs.

Each Unit consisted of a prepaid stock purchase contract and an amortizing note, each issued by the Company. The amortizing notes had an initial principal amount of $8.62909, or $119,081 in aggregate, and yielded interest at a rate of 3.00% per year, and paid equal quarterly cash installments of $0.75000 per amortizing note (except for the July 30, 2019 installment payment, which was $0.80833 per amortizing note), that constituted a payment of interest and a partial repayment of principal. This cash payment in the aggregate was equivalent to 6.00% per year with respect to each $50 stated amount of the Units. The amortizing notes represented unsecured senior obligations of the Company.

Certain holders of the tangible equity units had early settled their prepaid stock purchase contracts prior to the due date, and, in exchange, the Company issued shares of its common stock. During 2022, 981,919 stock purchase contracts were early settled by the holders of the contracts prior to the mandatory settlement date, resulting in the issuance of 1,166,107 shares of the Company's common stock. On May 2, 2022, the remaining 6,621,315 stock purchase contracts were each mandatorily settled for 1.18758 shares of the Company's common stock, and in the aggregate the Company issued 7,863,354 shares of its common stock. Additionally, the final quarterly installment payment was made, which resulted in the complete pay-off of the amortizing notes.

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At December 31, 2022, the Company had 1,770,819 shares of authorized but unissued Series Preferred Stock, $1.00 par value.

In April 2021, the Company filed a universal shelf registration, through a filing with the Securities and Exchange Commission ("SEC"), to allow for the potential future offer and sale by the Company, from time to time, in one or more public offerings, of an indeterminate amount of our common stock, preferred stock, debt securities and other securities specified therein at indeterminate prices.

The Company has an acquisition shelf registration statement on file with the SEC which permits the offering, from time to time, of an aggregate of $500,000 in shares of common stock and shares of preferred stock in connection with acquisitions. The balance remaining available for use under the acquisition shelf registration as of December 31, 2022 is $487,155.

The form and terms of any securities issued under the universal shelf registration statement and the acquisition shelf registration statement will be determined at the time of issuance.

The Company has a Dividend Reinvestment and Direct Stock Purchase Plan ("Plan") that allows reinvested dividends to be used to purchase shares of common stock at a five percent discount from the current market value. Under the direct stock purchase program, shares are issued throughout the year. The shares issued under the Plan are either shares purchased by the Company's transfer agent in the open-market or original issue shares. In 2022, 2021 and 2020, the Company sold 368,278, 374,824 and 388,978 original issue shares of common stock through the dividend reinvestment portion of the Plan, for net proceeds of $16,619, $16,799 and $16,522, respectively.

The Company recorded a regulatory asset for its underfunded status of its pension and other post-retirement benefit plans that would otherwise be charged to other comprehensive income, as it anticipates recovery of its costs through customer rates.

Note 14 – *Net Income per Common Share and Equity per Common Share*

Basic net income per share is based on the weighted average number of common shares outstanding and the weighted average minimum number of shares issued upon settlement of the stock purchase contracts issued under the tangible equity units. Diluted net income per share is based on the weighted average number of common shares outstanding and potentially dilutive shares. The dilutive effect of employee stock-based compensation and shares issuable under the forward equity sale agreement (from the date the Company entered into the forward equity sale agreement to the settlement date) are included in the computation of diluted net income per common share. The dilutive effect of stock-based compensation and shares issuable under the forward equity sale agreement are calculated by using the treasury stock method and expected proceeds upon exercise or issuance of the stock-based compensation and settlement of the forward equity sale agreement. The treasury stock method assumes that the proceeds from stock-based compensation and settlement of the forward equity sale agreement are used to purchase the Company's common stock at the average market price during the period. The following table summarizes the shares, in thousands, used in computing basic and diluted net income per share:

	Years ended December 31,		
	2022	2021	2020
Average common shares outstanding during the period for basic computation	262,246	257,487	249,768
Effect of dilutive securities:			
Forward equity sale agreement	-	189	-
Issuance of common stock from private placement	-	-	4,438
Tangible equity units	-	-	-
Employee stock-based compensation	622	504	423
Average common shares outstanding during the period for diluted computation	262,868	258,180	254,629

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For the year ended December 31, 2020, the average common shares outstanding during the period for diluted computation reflects the impact of the issuance of common stock from the March 16, 2020 private placement as if the shares were issued on January 1, 2020.

The number of outstanding employee stock options that were not included in the diluted earnings per share calculation because the effect would have been anti-dilutive was 77,506 for the year ended December 31, 2022. For the years ended December 31, 2021 and 2020, all of the Company's employee stock options were included in the calculation of diluted net income per share as the calculated cost to exercise the stock options was less than the average market price of the Company's common stock during these periods. Additionally, the dilutive effect of performance share units and restricted share units granted are included in the Company's calculation of diluted net income per share.

On May 2, 2022, all of the remaining stock purchase contracts under the tangible equity units were mandatorily settled. For the year ended December 31, 2022, the weighted average impact of 2,932,010 shares were included in the basic computation of the average common shares outstanding based on the number of shares that were issued upon settlement of the stock purchase contracts under the tangible equity units. For the years ended December 31, 2021 and 2020, the minimum settlement amount of the stock purchase contracts under the tangible equity units of 9,041,687 and 9,370,646 shares, respectively, were considered outstanding for the basic computation of the average common shares outstanding.

Equity per common share was $20.39 and $20.50 at December 31, 2022 and 2021, respectively. These amounts were computed by dividing Essential Utilities stockholders' equity by the number of shares of common stock outstanding at the end of each year.

Note 15 – *Employee Stock and Incentive Plan*

Under the Company's Amended and Restated Equity Compensation Plan, (the "Plan") approved by the Company's shareholders on May 2, 2019, to replace the 2004 Equity Compensation Plan, stock options, stock units, stock awards, stock appreciation rights, dividend equivalents, and other stock-based awards may be granted to employees, non-employee directors, and consultants and advisors. The Plan authorizes 6,250,000 shares for issuance under the plan. A maximum of 3,125,000 shares under the Plan may be issued pursuant to stock award, stock units and other stock-based awards, subject to adjustment as provided in the Plan. During any calendar year, no individual may be granted (i) stock options and stock appreciation rights under the Plan for more than 500,000 shares of common stock in the aggregate or (ii) stock awards, stock units or other stock-based awards under the Plan for more than 500,000 shares of Company stock in the aggregate, subject to adjustment as provided in the Plan. Awards to employees and consultants under the Plan are made by a committee of the Board of Directors, except that with respect to awards to the Chief Executive Officer, the committee recommends those awards for approval by the non-employee directors of the Board of Directors. In the case of awards to non-employee directors, the Board of Directors makes such awards. At December 31, 2022, 1,754,295 shares were still available for issuance under the Plan. No further grants may be made under the Company's 2004 Equity Compensation Plan.

Performance Share Units – During 2022, 2021 and 2020, the Company granted performance share units. A performance share unit ("PSU") represents the right to receive a share of the Company's common stock if specified performance goals are met over the three year performance period specified in the grant, subject to exceptions through the respective vesting periods, which is generally three years. Each grantee is granted a target award of PSUs, and may earn between 0% and 200% of the target amount depending on the Company's performance against the performance goals.

The performance goals of the 2022, 2021 and 2020 PSU grants consisted of the following metrics:

Metric 1 – Company's total shareholder return ("TSR") compared to the TSR for a specific peer group of investor-owned utilities (a market-based condition)	38.46%
Metric 2 – Achievement of a targeted cumulative level of rate base growth as a result of acquisitions (a performance-based condition)	30.77%
Metric 3 – Achievement of targets for maintaining consolidated operations and maintenance expenses over the three year measurement period (a performance-based condition)	30.77%

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The following table provides the compensation expense and income tax benefit for PSUs:

	Years ended December 31,		
	2022	2021	2020
Stock-based compensation within operations and maintenance expense	$ 7,950	$ 7,150	$ 3,630
Income tax benefit	1,997	2,038	957

The following table summarizes nonvested PSU transactions for the year ended December 31, 2022:

	Number of Share Units	Weighted Average Fair Value
Nonvested share units at beginning of period	355,384	$ 42.19
Granted	161,968	42.33
Performance criteria adjustment	100,227	46.21
Forfeited	(61,117)	43.89
Nonvested share units at end of period	556,462	42.77

A portion of the fair value of PSUs was estimated at the grant date based on the probability of satisfying the market-based conditions associated with the PSUs using the Monte Carlo valuation method, which assesses the probabilities of various outcomes of market conditions. The other portion of the fair value of the PSUs associated with performance-based conditions was based on the fair market value of the Company's stock at the grant date, regardless of whether the market-based condition is satisfied. The fair value of each PSU grant is amortized into compensation expense on a straight-line basis over their respective vesting periods, generally 36 months. The accrual of compensation costs is based on an estimate of the final expected value of the award and is adjusted as required for the portion based on the performance-based condition. The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense. As the payout of the PSUs includes dividend equivalents, no separate dividend yield assumption is required in calculating the fair value of the PSUs. The recording of compensation expense for PSUs has no impact on net cash flows. The following table provides the assumptions used in the pricing model for the grant, the resulting grant date fair value of PSUs, and the intrinsic value and fair value of PSUs that vested during the year:

	Years ended December 31,		
	2022	2021	2020
Expected term (years)	3.0	3.0	3.0
Risk-free interest rate	1.75%	0.24%	0.66%
Expected volatility	31.9%	32.1%	24.2%
Weighted average fair value of PSUs granted	$ 42.33	$ 43.18	$ 55.25
Intrinsic value of vested PSUs	$ -	$ 6,050	$ 9,030
Fair value of vested PSUs	$ -	$ 5,321	$ 5,215

As of December 31, 2022, $9,752 of unrecognized compensation costs related to PSUs is expected to be recognized over a weighted average period of approximately 1.79 years. The aggregate intrinsic value of PSUs as of December 31, 2022 was $17,594. The aggregate intrinsic value of PSUs is based on the number of nonvested share units and the market value of the Company's common stock as of the period end date.

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Restricted Stock Units – A restricted stock unit ("RSU") represents the right to receive a share of the Company's common stock and is valued based on the fair market value of the Company's stock on the date of grant. RSUs are eligible to be earned at the end of a specified restricted period, generally three years, beginning on the date of grant. In some cases, the right to receive the shares is subject to specific performance goals established at the time the grant is made. The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense. As the payout of the RSUs includes dividend equivalents, no separate dividend yield assumption is required in calculating the fair value of the RSUs. The following table provides the compensation expense and income tax benefit for RSUs:

	Years ended December 31,		
	2022	2021	2020
Stock-based compensation within operations and maintenance expense	$ 2,927	$ 3,360	$ 2,180
Income tax benefit	736	953	585

The following table summarizes nonvested RSU transactions for the year ended December 31, 2022:

	Number of Stock Units	Weighted Average Fair Value
Nonvested stock units at beginning of period	193,687	$ 43.76
Granted	72,092	44.74
Stock units vested and issued	(65,839)	38.42
Forfeited	(19,634)	45.30
Nonvested stock units at end of period	180,306	45.94

The following table summarizes the value of RSUs:

	Years ended December 31,		
	2022	2021	2020
Weighted average fair value of RSUs granted	$ 44.74	$ 44.44	$ 49.19
Intrinsic value of vested RSUs	3,090	2,108	2,130
Fair value of vested RSUs	2,483	1,726	1,203

As of December 31, 2022, $3,246 of unrecognized compensation costs related to RSUs is expected to be recognized over a weighted average period of approximately 1.7 years. The aggregate intrinsic value of RSUs as of December 31, 2022 was $8,606. The aggregate intrinsic value of RSUs is based on the number of nonvested stock units and the market value of the Company's common stock as of the period end date.

Stock Options – A stock option represents the option to purchase a number of shares of common stock of the Company as specified in the stock option grant agreement at the exercise price per share as determined by the closing market price of our common stock on the grant date. Stock options are exercisable in installments of 33% annually, starting one year from the grant date and expire ten years from the grant date. The vesting of stock options granted in 2022 and 2019 are subject to the achievement of the following performance goal: the Company achieves at least an adjusted return on equity equal to 150 basis points below the return on equity granted by the Pennsylvania Public Utility Commission during the Company's Pennsylvania subsidiary's last rate proceeding. The adjusted return on equity equals net income, excluding net income or loss from acquisitions which have not yet been incorporated into a rate application as of the last year end, divided by equity which excludes equity applicable to acquisitions which are not yet incorporated in a rate application during the award period.

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The Company did not grant stock options for the years ended December 31, 2021 and 2020. The fair value of each stock option is amortized into compensation expense using the graded vesting method, which results in the recognition of compensation costs over the requisite service period for each separately vesting tranche of the stock options as though the stock options were, in substance, multiple stock option grants. The following table provides compensation expense and income tax benefit for stock options:

	Years ended December 31,		
	2022	2021	2020
Stock-based compensation within operations and maintenance expenses	$ 451	$ 480	$ 1,322
Income tax benefit	140	136	374

Options under the plans were issued at the closing market price of the stock on the day of the grant. The fair value of options was estimated at the grant date using the Black-Scholes option-pricing model, which relies on assumptions that require management's judgment. The following table provides the assumptions used in the pricing model for grants and the resulting grant date fair value of stock options granted in the period reported:

	2022
Expected term (years)	5.48
Risk-free interest rate	1.92%
Expected volatility	26.5%
Dividend yield	2.37%
Grant date fair value per option	$ 9.34

Historical information was the principal basis for the selection of the expected term and dividend yield. The expected volatility is based on a weighted-average combination of historical and implied volatilities over a time period that approximates the expected term of the option. The risk-free interest rate was selected based upon the U.S. Treasury yield curve in effect at the time of grant for the expected term of the option. The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense.

The following table summarizes stock option transactions for the year ended December 31, 2022:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Life (years)	Aggregate Intrinsic Value
Outstanding, beginning of year	813,492	35.37		
Granted	85,527	45.19		
Forfeited	(9,149)	44.32		
Expired / Cancelled	(125)	35.94		
Exercised	(69,684)	35.52		
Outstanding at end of year	820,061	$ 36.29	6.2	$ 9,383
Exercisable at end of year	745,000	$ 35.39	5.9	$ 9,191

The intrinsic value of stock options is the amount by which the market price of the stock on a given date, such as at the end of the period or on the day of exercise, exceeded the closing market price of stock on the date of grant. The following table summarizes the intrinsic value of stock options exercised and the fair value of stock options which vested:

	Years ended December 31,		
	2022	2021	2020
Intrinsic value of options exercised	$ 960	$ 1,709	$ 1,849
Fair value of options vested	1,203	1,485	1,673

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The following table summarizes information about the options outstanding and options exercisable as of December 31, 2022:

	Options Outstanding			Options Exercisable	
	Shares	Weighted Average Remaining Life (years)	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
Range of prices:					
$30.00 - 33.99	54,467	4.1	$ 30.47	54,467	$ 30.47
$34.00 - 34.99	90,194	5.2	34.51	90,194	34.51
$35.00 - 35.99	597,894	6.2	35.93	597,894	35.93
$36.00 and above	77,506	9.1	45.17	2,445	45.19
	820,061	6.2	$ 36.29	745,000	$ 35.39

As of December 31, 2022, there was $322 of total unrecognized compensation costs related to nonvested stock options granted under the plans. The cost is expected to be recognized over a weighted average period of approximately 1.5 years.

Restricted Stock – Restricted stock awards provide the grantee with the rights of a shareholder, including the right to receive dividends and to vote such shares, but not the right to sell or otherwise transfer the shares during the restriction period. Restricted stock awards result in compensation expense that is equal to the fair market value of the stock on the date of the grant and is amortized ratably over the restriction period. The Company expects forfeitures of restricted stock to be de minimis.

The following table provides the compensation cost and income tax benefit for stock-based compensation related to restricted stock:

	Years ended December 31,		
	2022	2021	2020
Stock-based compensation within operations and maintenance expense	$ 50	$ 130	$ 333
Income tax benefit	15	37	96

The following table summarizes restricted stock transactions for the year ended December 31, 2022:

	Number of Shares	Weighted Average Fair Value
Nonvested shares at beginning of period	1,068	$ 46.83
Granted	1,170	42.75
Vested	(1,068)	(46.83)
Nonvested shares at end of period	1,170	$ 42.75

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Stock Awards – Stock awards represent the issuance of the Company's common stock, without restriction. Stock awards are granted to the Company's non-employee directors. The issuance of stock awards results in compensation expense which is equal to the fair market value of the stock on the grant date, and is expensed immediately upon grant. The following table provides compensation cost and income tax benefit for stock-based compensation related to stock awards:

	Years ended December 31,		
	2022	2021	2020
Stock-based compensation within operations and maintenance expense	$ 715	$ 700	$ 695
Income tax benefit	207	202	201

The following table summarizes the value of stock awards:

	Years ended December 31,		
	2022	2021	2020
Intrinsic and fair value of stock awards vested	$ 715	$ 700	$ 695
Weighted average fair value of stock awards granted	46.44	47.46	41.97

The following table summarizes stock award transactions for year ended December 31, 2022:

	Number of Stock Awards	Weighted Average Fair Value
Nonvested stock awards at beginning of period	-	$ -
Granted	15,397	46.44
Vested	(15,397)	46.44
Nonvested stock awards at end of period	-	-

Note 16 – *Pension Plans and Other Post-retirement Benefits*

The Company maintains a qualified, defined benefit pension plan that covers its full-time employees who were hired prior to the date their respective pension plan was closed to new participants. Retirement benefits under the plan are generally based on the employee's total years of service and compensation during the last five years of employment. The Company's policy is to fund the plan annually at a level which is deductible for income tax purposes and which provides assets sufficient to meet its pension obligations over time. To offset some limitations imposed by the Internal Revenue Code with respect to payments under qualified plans, the Company has a non-qualified Supplemental Pension Benefit Plan for Salaried Employees in order to prevent some employees from being penalized by these limitations, and to provide certain retirement benefits based on employee's years of service and compensation. The net pension costs and obligations of the qualified and non-qualified plans are included in the tables which follow. Employees hired after their respective pension plan was closed, may participate in a defined contribution plan that provides a Company matching contribution on amounts contributed by participants and an annual profit-sharing contribution based upon a percentage of the eligible participants' compensation.

The Company's qualified defined benefit pension plan has a permanent lump sum option to the form of benefit payments offered to participants upon retirement or termination. The plan paid $17,757 and $11,069 to participants who elected this option during 2022 and 2021, respectively. During 2022, we made lump-sum pension benefit distributions exceeding the cumulative amount of service and interest cost components of the net periodic pension cost for the year, which is the settlement accounting threshold. The settlement loss of $3,300 was recorded as a regulatory asset, as it is probable of recovery in future rates, and will be amortized into pension benefit costs. A settlement loss is the recognition of unrecognized pension benefit costs that would have been incurred in subsequent periods.

In addition to providing pension benefits, the Company offers post-retirement benefits other than pensions to employees

retiring with a minimum level of service and hired before their respective plan closed to new participants. These benefits

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include continuation of medical and prescription drug benefits, or a cash contribution toward such benefits, for eligible retirees and life insurance benefits for eligible retirees. The Company funds these benefits through various trust accounts. The benefits of retired officers and other eligible retirees are paid by the Company and not from plan assets due to limitations imposed by the Internal Revenue Code.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid in the years indicated:

	Pension Benefits	Other Post-retirement Benefits
Years:		
2023	$ 27,351	$ 5,498
2024	27,154	5,464
2025	27,723	5,636
2026	27,497	5,965
2027	29,007	6,252
2028-2032	129,413	32,750

The changes in the benefit obligation and fair value of plan assets, the funded status of the plans and the assumptions used in the measurement of the company's benefit obligation are as follows:

	Pension Benefits		Other Post-retirement Benefits	
	2022	2021	2022	2021
Change in benefit obligation:				
Benefit obligation at January 1,	$ 452,947	$ 486,219	$ 114,651	$ 125,375
Service cost	2,587	3,503	1,911	2,793
Interest cost	13,806	13,018	3,369	3,358
Actuarial loss/(gain)	(105,107)	(17,378)	(31,995)	(12,001)
Plan participants' contributions	-	-	145	36
Benefits paid	(19,339)	(32,415)	(4,580)	(4,910)
Plan amendments	2,121	-	-	-
Participants' directed transfer of benefit to other plans	(4,568)	-	-	-
Settlements	(17,757)	-	-	-
Benefit obligation at December 31,	324,690	452,947	83,501	114,651
Change in plan assets:				
Fair value of plan assets at January 1,	433,121	426,801	107,308	98,995
Actual return on plan assets	(83,297)	23,901	(19,589)	12,484
Employer contributions	20,390	14,834	1,636	598
Participants' contributions	-	-	145	36
Benefits paid	(19,281)	(32,415)	(3,506)	(4,805)
Settlements	(17,757)	-	-	-
Fair value of plan assets at December 31,	333,176	433,121	85,994	107,308
Funded status of plan:				
Net asset / (liability) recognized at December 31,	$ 8,486	$ (19,826)	$ 2,493	$ (7,343)

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The following table provides the net liability recognized on the consolidated balance sheets at December 31,:

	Pension Benefits		Other Post-retirement Benefits	
	2022	2021	2022	2021
Non-current asset	$ 24,389	$ 2,474	$ 19,438	$ 23,504
Current liability	(761)	(1,144)	(843)	(1,777)
Noncurrent liability	(15,142)	(21,156)	(16,102)	(29,070)
Net asset / (liability) recognized	$ 8,486	$ (19,826)	$ 2,493	$ (7,343)

The following table provides selected information about plans with accumulated benefit obligation and projected benefit obligation in excess of plan assets:

	December 31, 2022		December 31, 2021	
	Pension Benefits	Other Post-retirement Benefits	Pension Benefits	Other Post-retirement Benefits
Selected information for plans with projected benefit obligation in excess of plan assets:				
Projected benefit obligation	$ 16,041	$ N/A	$ 23,601	$ N/A
Fair value of plan assets	-	N/A	-	N/A
Selected information for plans with accumulated benefit obligation in excess of plan assets:				
Accumulated benefit obligation	$ 12,126	$ 29,009	$ 17,129	$ 42,463
Fair value of plan assets	-	12,064	-	11,616

The following table provides the components of net periodic benefit costs for the years ended December 31,:

	Pension Benefits			Other Post-retirement Benefits		
	2022	2021	2020	2022	2021	2020
Service cost	$ 2,587	$ 3,503	$ 3,775	$ 1,911	$ 2,793	$ 2,276
Interest cost	13,806	13,018	13,710	3,369	3,358	3,687
Expected return on plan assets	(22,004)	(23,165)	(21,249)	(4,502)	(4,155)	(4,079)
Amortization of prior service cost (credit)	536	559	591	-	(432)	(464)
Amortization of actuarial loss (gain)	2,043	2,907	7,967	(1,336)	219	622
Net periodic benefit cost (credit)	$ (3,032)	$ (3,178)	$ 4,794	$ (558)	$ 1,783	$ 2,042

The Company records the underfunded/overfunded status of its pension and other post-retirement benefit plans on its consolidated balance sheets and records a regulatory asset/liability for these costs that would otherwise be charged to stockholders' equity, as the Company anticipates recoverability of the costs through customer rates to be probable. Changes in the plans' funded status will affect the assets and liabilities recorded on the balance sheet. Due to the Company's regulatory treatment, the recognition of the funded status is recorded as a regulatory asset pursuant to the FASB's accounting guidance for regulated operations.

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The following table provides the amounts recognized in regulatory assets and regulatory liabilities that have not been recognized as components of net periodic benefit cost as of December 31:

	Pension Benefits		Other Post-retirement Benefits	
	2022	2021	2022	2021
Net actuarial loss (gain)	$ 56,737	$ 64,247	$ (19,894)	$ (16,323)
Prior service cost	2,550	965	-	-
Total recognized in regulatory assets	$ 59,287	$ 65,212	$ (19,894)	$ (16,323)

Accounting for pensions and other post-retirement benefits requires an extensive use of assumptions about the discount rate, expected return on plan assets, the rate of future compensation increases received by the Company's employees, mortality, turnover and medical costs. Each assumption is reviewed annually with assistance from the Company's actuarial consultant who provides guidance in establishing the assumptions. The assumptions are selected to represent the average expected experience over time and may differ in any one year from actual experience due to changes in capital markets and the overall economy. These differences will impact the amount of pension and other post-retirement benefit expense that the Company recognizes.

The significant assumptions related to the Company's benefit obligations are as follows:

	Pension Benefits		Other Post-retirement Benefits	
	2022	2021	2022	2021
Weighted Average Assumptions Used to Determine Benefit Obligations as of December 31,				
Discount rate	5.51%	2.91%	5.45%	2.96%
Rate of compensation increase	3.0-4.0%	3.0-4.0%	n/a	n/a
Assumed Health Care Cost Trend Rates Used to Determine Benefit Obligations as of December 31,				
Health care cost trend rate	n/a	n/a	6.50%	6.25%
Rate to which the cost trend is assumed to decline (the ultimate trend rate)	n/a	n/a	5.0%	5.0%
Year that the rate reaches the ultimate trend rate	n/a	n/a	2029	2027

n/a – Assumption is not applicable.

The significant assumptions related to the Company's net periodic benefit costs are as follows:

	Pension Benefits			Other Post-retirement Benefits		
	2022	2021	2020	2022	2021	2020
Weighted Average Assumptions Used to Determine Net Periodic Benefit Costs for Years Ended December 31,						
Discount rate	2.91%	2.57%	3.35%	2.96%	2.68%	3.42%
Expected return on plan assets	5.40%	5.60%	6.00%	3.4%-5.4%	5.60%	6.00%
Rate of compensation increase	3.0-4.0%	3.0-4.0%	3.0-4.0%	n/a	n/a	n/a
Assumed Health Care Cost Trend Rates Used to Determine Net Periodic Benefit Costs for Years Ended December 31,						
Health care cost trend rate	n/a	n/a	n/a	6.25%	6.3%	6.3%
Rate to which the cost trend is assumed to decline (the ultimate trend rate)	n/a	n/a	n/a	5.0%	5.0%	5.0%
Year that the rate reaches the ultimate trend rate	n/a	n/a	n/a	2027	2025	2025

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n/a – Assumption is not applicable.

** In September 2022, the Company remeasured its qualified pension plan assets and liabilities in accordance with settlement accounting rules. The discount rate used for the remeasurement and for the calculation of the net periodic benefit cost for the remainder of the year was 5.58%.*

The Company's discount rate assumption, which is utilized to calculate the present value of the projected benefit payments of our post-retirement benefits, was determined by selecting a hypothetical portfolio of high quality corporate bonds appropriate to match the projected benefit payments of the plans. The selected bond portfolio was derived from a universe of Aa-graded corporate bonds. The discount rate was then developed as the rate that equates the market value of the bonds purchased to the discounted value of the plan's benefit payments. The Company's pension expense and liability (benefit obligations) increases as the discount rate is reduced.

The Company's expected return on plan assets is determined by evaluating the asset class return expectations with its advisors as well as actual, long-term, historical results of our asset returns. The Company's market related value of plan assets is equal to the fair value of the plan's assets as of the last day of its fiscal year, and is a determinant for the expected return on plan assets which is a component of post-retirement benefits expense. The Company's pension expense increases as the expected return on plan assets decreases. For 2022, the Company used a 5.4% expected return on plan assets assumption. The Company believes its actual long-term asset allocation on average will approximate the targeted allocation. The Company's investment strategy is to earn a reasonable rate of return while maintaining risk at acceptable levels. Risk is managed through fixed income investments to manage interest rate exposures that impact the valuation of liabilities and through the diversification of investments across and within various asset categories. Investment returns are compared to a total plan benchmark constructed by applying the plan's asset allocation target weightings to passive index returns representative of the respective asset classes in which the plan invests. The Retirement and Employee Benefits Committee meets quarterly to review plan investments and management monitors investment performance quarterly through a performance report prepared by an external consulting firm.

The Company's pension plan asset allocation and the target allocation by asset class are as follows:

		Percentage of Plan Assets at December 31,	
	Target Allocation	2022	2021
Return seeking assets	50 to 70%	56%	53%
Liability hedging assets	30 to 50%	44%	47%
Total	100%	100%	100%

The fair value of the Company's pension plans' assets at December 31, 2022 by asset class are as follows:

	Level 1	Level 2	Level 3	Assets measured at NAV (a)	Total
Common stock	$ 18,037	$ -	$ -	$ -	$ 18,037
Return seeking assets:					
Global equities	-	-	-	15,163	15,163
Hedge / diversifying strategies	-	-	-	102,038	102,038
Credit	-	-	-	52,048	52,048
Liability hedging assets	-	-	-	114,220	114,220
Cash and cash equivalents	31,670	-	-	-	31,670
Total pension assets	$ 49,707	$ -	$ -	$ 283,469	$ 333,176

(a) Assets that are measured at fair value using the NAV per share practical expedient have not been classified in the fair value hierarchy.

The fair value of the Company's pension plans' assets at December 31, 2021 by asset class are as follows:

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	Level 1	Level 2	Level 3	Assets measured at NAV (a)	Total
Common stock	$ 20,290	$ -	$ -	$ -	$ 20,290
Return seeking assets:					
Global equities	-	-	-	134,394	134,394
Hedge / diversifying strategies	-	-	-	39,163	39,163
Credit	-	-	-	56,191	56,191
Liability hedging assets	-	-	-	177,574	177,574
Cash and cash equivalents	5,509	-	-	-	5,509
Total pension assets	$ 25,799	$ -	$ -	$ 407,322	$ 433,121

Equity securities include our common stock in the amounts of $18,037 or 5.4% and $20,290 or 4.7% of total pension plans' assets as of December 31, 2022 and 2021, respectively.

The asset allocation for the Company's other post-retirement benefit plans and the target allocation by asset class are as follows:

		Percentage of Plan Assets at December 31,	
	Target Allocation	2022	2021
Return seeking assets	50 to 70%	62%	68%
Liability hedging assets	30 to 50%	38%	32%
Total	100%	100%	100%

The fair value of the Company's other post-retirement benefit plans' assets at December 31, 2022 by asset class are as follows:

	Level 1	Level 2	Level 3	Assets measured at NAV (a)	Total
Return seeking assets:					
Global equities	$ 27,258	$ -	$ -	$ 16,024	$ 43,282
Real estate securities	6,386	-	-	3,311	9,697
Liability hedging assets	15,131	-	-	9,159	24,290
Cash and cash equivalents	8,725	-	-	-	8,725
Total other post-retirement assets	$ 57,500	$ -	$ -	$ 28,494	$ 85,994

(a) Assets that are measured at fair value using the NAV per share practical expedient have not been classified in the fair value hierarchy.

The fair value of the Company's other post-retirement benefit plans' assets at December 31, 2021 by asset class are as follows:

	Level 1	Level 2	Level 3	Assets measured at NAV (a)	Total
Return seeking assets:					
Global equities	$ 36,753	$ -	$ -	$ 22,544	$ 59,297
Real estate securities	9,609	-	-	4,391	14,000
Liability hedging assets	17,241	-	-	12,364	29,605
Cash and cash equivalents	4,406	-	-	-	4,406
Total other post-retirement assets	$ 68,009	$ -	$ -	$ 39,299	$ 107,308

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Valuation Techniques Used to Determine Fair Value

- *Common Stocks* - Investments in common stocks are valued using unadjusted quoted prices obtained from active markets.
- *Return Seeking Assets* – Investments in return seeking assets consists of the following:
    - Global equities, which consist of common and preferred shares of stock, traded on U.S. or foreign exchanges that are valued using unadjusted quoted prices obtained from active markets, or commingled fund vehicles, consisting of such securities valued using NAV, which are not classified within the fair value hierarchy.
    - Real estate securities, which consist of securities, traded on U.S. or foreign exchanges that are valued using unadjusted quoted prices obtained from active markets, or for real estate commingle fund vehicles that are not publicly quoted, the fund administrators value the funds using the NAV per fund share, derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.
    - Hedge / diversifying strategies, which consist of a multi-manager fund vehicle having underlying exposures that collectively seek to provide low correlation of return to equity and fixed income markets, thereby offering diversification. As a multi-manager fund investment, NAV is derived from underlying manager NAVs, which are derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.
    - Credit, which consist of certain opportunistic, return-oriented credits which primarily include below investment grade bonds (i.e. high yield bonds), bank loans, and securitized debt. Credits are valued using the NAV per fund share, derived from either quoted prices in active markets of the underlying securities, or less active markets, or quotes of similar assets, and are not classified within the fair value hierarchy.
- *Liability Hedging Assets* – Investments in liability hedging assets consist of funds investing in high-quality fixed income securities (i.e. U.S. Treasury securities and government bonds), and for funds for which market quotations are readily available, are valued at the last reported closing price on the primary market or exchange on which they are traded. Funds for which market quotations are not readily available, are valued using the NAV per fund share, derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.
- *Cash and Cash Equivalents* – Investments in cash and cash equivalents are comprised of both uninvested cash and money market funds. The uninvested cash is valued based on its carrying value, and the money market funds are valued utilizing the net asset value per unit obtained from published market prices.

Funding requirements for qualified defined benefit pension plans are determined by government regulations and not by accounting pronouncements. In accordance with funding rules and the Company's funding policy, during 2023 our pension contribution is expected to be $20,343.

The Company has a 401(k) savings plan, which is a defined contribution plan and covers substantially all employees. The Company makes matching contributions that are based on a percentage of an employee's contribution, subject to specific limitations, as well as, non-discretionary contributions based on eligible hourly wages for certain union employees, discretionary year-end contributions based on an employee's eligible compensation, and employer profit sharing contributions. Participants may diversify their Company matching account balances into other investments offered under the 401(k) savings plan. The Company's contributions, which are recorded as compensation expense, were $21,758, $19,569, and $15,445, for the years ended December 31, 2022, 2021, and 2020, respectively.

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Note 17 –*Rate Activity*

On December 30, 2022, our water and wastewater utility operating divisions in Ohio filed an application with the Public Utilities Commission of Ohio designed to increase rates by $9,816 annually.

On September 21, 2022, our regulated water and wastewater utility operating divisions in Ohio received an order from the Public Utilities Commission of Ohio which will increase operating revenues by $5,483 annually. New rates for water and sewer service went into effect on September 21, 2022.

On June 30, 2022, the Company's regulated water and wastewater operating subsidiary in North Carolina, Aqua North Carolina, filed an application with the North Carolina Utilities Commission designed to increase rates by $18,064 in the first year of new rates being implemented, then an additional $4,303 and $4,577 in the second and third years, respectively.

On May 16, 2022, the Company's regulated water and wastewater operating subsidiary in Pennsylvania, Aqua Pennsylvania, received an order from the Pennsylvania Public Utility Commission that allowed base rate increases that would increase total annual operating revenues by $69,251. New rates went into effect on May 19, 2022. At the time the rate order was received, the rates in effect also included $35,470 in Distribution System Improvement Charges ("DSIC"), which was 7.2% above prior base rates. Consequently, the aggregate annual base rates increased by $104,721 since the last base rate increase and DSIC was reset to zero.

On January 3, 2022, the Company's natural gas operating division in Kentucky received an order from the Kentucky Public Service Commission resulting in an increase of $5,238 in annual revenues, and new rates went into effect on January 4, 2022. On June 7, 2022, an additional $260 was approved and made effective by the Commission, resulting from a rehearing requested by the operating division.

In addition to the Ohio, Pennsylvania, and Kentucky rate awards noted above, the Company's operating subsidiaries were allowed annualized rate increases of $1,378 in 2022, $3,390 in 2021, and $4,480 in 2020, represented by two, six, and five rate decisions, respectively. Annualized revenues in aggregate from all of the rate increases realized in the year of grant were approximately $51,163, $2,995, and $1,594 in 2022, 2021, and 2020, respectively.

Eight states in which the Company operates permit water and wastewater utilities to add a surcharge to their water or wastewater bills to offset the additional depreciation and capital costs related to infrastructure system replacement and rehabilitation projects completed and placed into service between base rate filings. Additionally, Pennsylvania and Kentucky allow for the use of an infrastructure rehabilitation surcharge for natural gas utility systems. The surcharge for infrastructure system replacements and rehabilitations is typically adjusted periodically based on additional qualified capital expenditures completed or anticipated in a future period, is capped as a percentage of base rates, generally at 5% to 12.75%, and is reset to zero when new base rates that reflect the costs of those additions become effective or when a utility's earnings exceed a regulatory benchmark. During 2022, the Company received approval to bill infrastructure rehabilitation surcharges designed to increase total operating revenues on an annual basis by $7,571 in its water and wastewater utility operating divisions in Pennsylvania, North Carolina, Illinois and Virginia. The surcharge for infrastructure system replacements and rehabilitations provided revenues in 2022, 2021, and 2020 of $26,902, $33,771, and $13,039, respectively.

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Note 18 – *Segment Information*

The Company has identified twelve operating segments and has two reportable segments, the Regulated Water segment and the Regulated Natural Gas segment. The Regulated Water segment is comprised of eight operating segments representing its water and wastewater regulated utility companies, which are organized by the states where the Company provides water and wastewater services. The eight water and wastewater utility operating segments are aggregated into one reportable segment, because each of these operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution or wastewater collection methods, and the nature of the regulatory environment. The Regulated Natural Gas segment is comprised of one operating segment representing natural gas utility companies, acquired in the Peoples Gas Acquisition, for which the Company provides natural gas distribution services. The operating results of Peoples are included in the consolidated financial statements for the period since the completion of its acquisition on March 16, 2020.

In addition to the Company's two reportable segments, we include three of our operating segments within the Other category below. These segments are not quantitatively significant and are comprised of our non-regulated natural gas operations, Aqua Infrastructure, and Aqua Resources. Our non-regulated natural gas operations consist of utility service line protection solutions and repair services to households and the operation of gas marketing and production entities. Prior to our October 30, 2020 sale of our investment in joint venture, Aqua Infrastructure provided non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources offers, through a third party, water and sewer service line protection solutions and repair services to households. In addition to these segments, Other is comprised of business activities not included in the reportable segments, corporate costs that have not been allocated to the Regulated Water and Regulated Natural Gas segments, and intersegment eliminations. Corporate costs include general and administrative expenses, and interest expense. The Company reports these corporate costs within Other as they relate to corporate-focused responsibilities and decisions and are not included in internal measures of segment operating performance used by the Company to measure the underlying performance of the operating segments.

The following table presents information about the Company's reportable segments:

2022	Regulated Water	Regulated Natural Gas	Other and Eliminations	Consolidated
Operating revenues	$ 1,082,972	$ 1,143,362	$ 61,698	$ 2,288,032
Operations and maintenance expense	$ 370,850	$ 239,506	$ 3,293	$ 613,649
Purchased gas	$ -	$ 551,009	$ 50,986	$ 601,995
Depreciation and amortization	$ 201,392	$ 118,955	$ 830	$ 321,177
Interest expense, net [(b)]	$ 111,938	$ 87,186	$ 35,317	$ 234,441
Allowance for funds used during construction	$ (20,950)	$ (2,715)	$ -	$ (23,665)
Provision for income taxes (benefit)	$ 47,510	$ (61,942)	$ 103	$ (14,329)
Net income (loss)	$ 314,352	$ 185,276	$ (34,391)	$ 465,237
Capital expenditures	$ 576,314	$ 479,335	$ 7,114	$ 1,062,763
Total assets	$ 8,792,633	$ 6,528,654	$ 397,820	$ 15,719,107

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2021	Regulated Water	Regulated Natural Gas	Other and Eliminations	Consolidated
Operating revenues	$ 980,203	$ 859,902	$ 38,039	$ 1,878,144
Operations and maintenance expense	$ 332,598	$ 226,194	$ (8,212)	$ 550,580
Purchased gas	$ -	$ 313,390	$ 26,872	$ 340,262
Depreciation and amortization	$ 182,074	$ 113,238	$ 2,640	$ 297,952
Interest expense, net [b]	$ 108,356	$ 75,628	$ 21,341	$ 205,325
Allowance for funds used during construction	$ (19,258)	$ (1,534)	$ -	$ (20,792)
Provision for income taxes (benefit)	$ 26,633	$ (40,013)	$ 3,768	$ (9,612)
Net income (loss)	$ 293,703	$ 148,193	$ (10,284)	$ 431,612
Capital expenditures	$ 621,595	$ 397,419	$ 1,020,519	$ 1,020,519
Total assets	$ 8,403,586	$ 5,960,602	$ 294,090	$ 14,658,278

2020 [a]	Regulated Water	Regulated Natural Gas	Other and Eliminations	Consolidated
Operating revenues	$ 938,540	$ 506,564	$ 17,594	$ 1,462,698
Operations and maintenance expense	$ 309,608	$ 198,383	$ 20,620	$ 528,611
Purchased gas	$ -	$ 154,103	$ 11,642	$ 165,745
Depreciation and amortization	$ 171,152	$ 84,201	$ 1,706	$ 257,059
Interest expense, net [b]	$ 101,810	$ 29,016	$ 52,246	$ 183,072
Allowance for funds used during construction	$ (11,231)	$ (1,456)	$ -	$ (12,687)
Provision for income taxes (benefit)	$ 22,481	$ (25,133)	$ (17,226)	$ (19,878)
Net income (loss)	$ 283,793	$ 56,451	$ (55,395)	$ 284,849
Capital expenditures	$ 542,199	$ 292,121	$ 1,322	$ 835,642
Total assets	$ 7,838,034	$ 5,303,507	$ 563,736	$ 13,705,277

[a] Includes the operating results and capital expenditures of the Regulated Natural Gas segment for the period since the completion of the Peoples Gas Acquisition on March 16, 2020.

[b] The regulated water and regulated natural gas segments report interest expense that includes long-term debt that was pushed-down to the regulated operating subsidiaries from Essential Utilities, Inc.

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Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure*

None.

Item 9A. *Controls and Procedures*

Evaluation of Disclosure Controls and Procedures – Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this Annual Report. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of the end of the period covered by this Annual Report are effective to provide reasonable assurance that the information required to be disclosed by us in reports filed under the Securities Exchange Act of 1934 is (i) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (ii) accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding disclosure. A controls system cannot provide absolute assurance, however, that the objectives of the controls system are met, and no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected.

Management's Report on Internal Control Over Financial Reporting
Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. The Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. The Company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In assessing the effectiveness of internal control over financial reporting, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control-Integrated Framework* (2013). As a result of management's assessment and based on the criteria in the framework, management has concluded that, as of December 31, 2022, the Company's internal control over financial reporting was effective.

Attestation Report of the Registered Public Accounting Firm – The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Changes in Internal Control Over Financial Reporting – We have implemented a new enterprise resource planning (ERP) system in 2022 for our Regulated Water business segment that enhances our business and financial processes and standardizes some of our information technology systems with our other segments. In connection with this new ERP

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implementation, we have changed our internal controls over financial reporting, as necessary, to accommodate modifications in our Regulated Water business processes and accounting procedures.

Except as described above, there were no changes in our internal control over financial reporting during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. *Other Information*

None.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information appearing in the sections captioned *Information Regarding Nominees*, *Corporate Governance – Code of Ethics*, *– Board and Board Committees*, and *Section 16(a) Beneficial Ownership Reporting Compliance* of the definitive Proxy Statement relating to our 2023 annual meeting of shareholders, to be filed within 120 days after the end of the fiscal year covered by this Annual Report is incorporated by reference herein.

We make available free of charge within the Corporate Governance portion of the investor relations section of our web site, at www.essential.co, our Corporate Governance Guidelines, the Charters of each Committee of our Board of Directors, and our Code of Ethical Business Conduct (the Code of Ethics). Amendments to the Code of Ethics, and any grant of a waiver from a provision of the Code requiring disclosure under applicable rules of the SEC, will be disclosed on our web site. The reference to our web site is intended to be an inactive textual reference only, and the contents of such web site are not incorporated by reference herein and should not be considered part of this or any other report that we file with or furnish to the SEC.

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Information About Our Executive Officers

The following table and the notes thereto set forth information with respect to our executive officers, including their names, ages, positions with Essential Utilities and business experience during the last five years:

Name	Age	Position with Essential Utilities (1)
Christopher H. Franklin	57	Chairman (January 2018 to present); President and Chief Executive Officer (July 2015 to present); Executive Vice President and President and Chief Operating Officer, Regulated Operations (January 2012 to July 2015); Regional President – Midwest and Southern Operations and Senior Vice President, Corporate and Public Affairs (January 2010 to January 2012); Regional President – Southern Operations and Senior Vice President, Public Affairs and Customer Operations (February 2007 to January 2010); Vice President, Public Affairs and Customer Operations (May 2005 to February 2007); Vice President, Corporate and Public Affairs (February 1997 to May 2005); Manager Corporate and Public Affairs (December 1992 to February 1997)
Daniel J. Schuller	53	Executive Vice President and Chief Financial Officer (October 2018 to present); Executive Vice President, Strategy and Corporate Development (July 2015 to October 2018); Investment Principal – J.P. Morgan Asset Management – Infrastructure Investments Group (2007 to 2015)
Colleen M. Arnold	52	President, Aqua Water (March 2020 to present); Deputy Chief Operating Officer, Aqua (September 2015 to March 2020)
Michael A. Huwar	59	President, Peoples Natural Gas (August 2020 to present); President Columbia Gas of Pennsylvania & Columbia Gas of Maryland (February 2017 to August 2020)
Christopher P. Luning	55	Executive Vice President and General Counsel (August 2022 to present); Executive Vice President, General Counsel, and Secretary (February 2019 to July 2022; Senior Vice President, General Counsel, and Secretary (April 2012 to February 2019); Vice President Corporate Development and Corporate Counsel (June 2008 to April 2012); Vice President and Deputy General Counsel (May 2005 to June 2008); Assistant General Counsel (March 2003 to May 2005)
Matthew R. Rhodes	45	Executive Vice President, Strategy and Corporate Development (June 2018 to present); Managing Director - Goldman Sachs, Global Natural Resources (July 2007 to April 2018)
Robert A. Rubin	60	Senior Vice President, Controller and Chief Accounting Officer (January 2012 to present); Vice President, Controller and Chief Accounting Officer (May 2005 to January 2012); Controller and Chief Accounting Officer (March 2004 to May 2005); Controller (March 1999 to March 2004); Assistant Controller (June 1994 to March 1999); Accounting Manager (June 1989 to June 1994)

(1) In addition to the capacities indicated, the individuals named in the above table hold other offices or directorships with subsidiaries of the Company. Officers serve at the discretion of the Board of Directors.

Item 11. *Executive Compensation*

The information responsive to this item will be included in the definitive Proxy Statement relating to our 2023 annual meeting of shareholders, to be filed within 120 days after the end of the fiscal year covered by this Annual Report, is incorporated by reference herein.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters*

Ownership of Common Stock - The information responsive to this item will be included in the definitive Proxy Statement relating to our 2023 annual meeting of shareholders, to be filed within 120 days after the end of the fiscal year covered by this Annual Report, and is incorporated by reference herein.

Securities Authorized for Issuance under Equity Compensation Plans - The following table provides information for our equity compensation plans as of December 31, 2022:

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Equity Compensation Plan Information

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	1,556,830 (1)	$ 36.29 (2)	1,754,295
Equity compensation plans not approved by security holders	-	-	-
Total	1,556,830	$ 36.29	1,754,295

(1) Consists of 820,061 shares issuable upon exercise of outstanding options, 556,463 shares issuable upon conversion of outstanding performance share units, and 180,306 shares issuable upon conversion of outstanding restricted share units.

(2) Calculated based upon outstanding options of 820,061 shares to acquire our common stock.

Item 13. *Certain Relationships and Related Transactions, and Director Independence*

The information responsive to this item will be included in the definitive Proxy Statement relating to our 2023 annual meeting of shareholders, to be filed within 120 days after the end of the fiscal year covered by this Annual Report, and is incorporated by reference herein.

Item 14. *Principal Accountant Fees and Services*

The information responsive to this item will be included in the definitive Proxy Statement relating to our 2023 annual meeting of shareholders, to be filed within 120 days after the end of the fiscal year covered by this Annual Report, and is incorporated by reference herein.

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PART IV

Item 15. *Exhibits and Financial Statement Schedules*

Financial Statements. The consolidated financial statements and supplementary data included in Part II, Item 8 are hereby incorporated by reference herein.

Financial Statement Schedules.

Schedule 1. – Condensed Parent Company Financial Statements. All other schedules are omitted because they are not applicable or not required, or because the required information is included in the consolidated financial statements or notes thereto.

Exhibits, Including Those Incorporated by Reference. A list of exhibits filed as part of this Annual Report is set forth in the Exhibit Index hereto which is incorporated by reference herein. Where so indicated, exhibits which were previously filed are incorporated by reference. For exhibits incorporated by reference, the location of the exhibit in the previous filing is indicated in the exhibit index.

Item 16. *Form 10-K Summary*

Registrants may voluntarily include a summary of information required by Form 10-K under this Item 16. The Company has elected not to include such summary information in this Annual Report.

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EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference to Form	File No.	Exhibit(s)	Filing Date
2.1	Purchase Agreement, dated October 22, 2018 by and between LDC Parent LLC, a Delaware limited liability company ("Seller") and the Registrant, a Pennsylvania corporation	8-K	001-06659	2.1	October 23, 2018
3.1	Utilities, Inc. Amended and Restated Articles of Incorporation Essential as of May 12, 2020	8-K	001-06659	3.1	May 18, 2020
3.2	Amended and Restated Bylaws of Essential Utilities, Inc. dated February 16, 2022	8-K	001-06659	3.1	February 18, 2022
4.1	Description of Securities of Essential Utilities, Inc.	10-K	001-06659	4.1	March 1, 2021
4.2	Indenture of Mortgage dated as of January 1, 1941 between Aqua Pennsylvania, Inc. (f/k/a Philadelphia Suburban Water Company) and The Bank of New York Mellon Trust Company, as successor trustee to First Pennsylvania Bank, N.A. (f/k/a The Pennsylvania Company for Insurance on Lives and Granting Annuities)	10-K	001-06659	4.1.1	February 26, 2016
4.2.1	Twenty-sixth Supplemental Indenture dated as of November 1, 1991	10-K	001-06659	4.1.3	February 26, 2016
4.2.2	Twenty-ninth Supplemental Indenture dated as of March 30, 1995	10-Q	001-06659	4.17	May 10, 1995
4.2.3	Thirty-third Supplemental Indenture, dated as of November 15, 1999	10-K	001-06659	4.27	March 29, 2000
4.2.4	Thirty-fifth Supplemental Indenture, dated as of January 1, 2002	10-K	001-06659	4.22	March 20, 2002
4.2.5	Forty-seventh Supplemental Indenture, dated as of October 15, 2012	10-K	001-06659	4.24	February 28, 2013
4.2.6	Forty-eighth Supplemental Indenture, dated as of October 1, 2013	10-K	001-06659	4.1.17	March 3, 2014
4.2.7	Form of Supplemental Indenture during and after 2014	10-K	001-06659	4.1.15	February 26, 2016
4.2.7.1	Schedule of Outstanding Supplemental Indentures during and after 2014	^	^	^	^
4.3	Bond Purchase Agreement, dated November 8, 2012, by and among Aqua Pennsylvania, Inc., Teachers Insurance and Annuity Association, John Hancock Life Insurance Company, John Hancock Life Insurance Company of New York, John Hancock Life & Health Insurance Company, The Lincoln National Life Insurance Company, Lincoln Life & Annuity Company of New York, New York Life Insurance Company, New York Life Insurance and Annuity Corporation, Minnesota Life Insurance Company, United Health Care Insurance Company, American Republic Insurance Company, Western Fraternal Life Association	10-K	001-06659	10.54	February 28, 2013

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4.4	Bond Purchase Agreement, dated October 24, 2013, by and among Aqua Pennsylvania, Inc., John Hancock Life Insurance Company (U.S.A), John Hancock Life Insurance Company of New York, John Hancock Life & Health Insurance Company, The Lincoln National Life Insurance Company, Thrivent Financial for Lutherans, United Insurance Company of America, Equitable Life & Casualty Insurance Company, Catholic United Financial, and Great Western Insurance Company	10-K	001-06659	10.45	March 3, 2014
4.5	Bond Purchase Agreement, dated December 29, 2014, by and among Aqua Pennsylvania, Inc., Thrivent Financial for Lutherans, State Farm Life Insurance Company, John Hancock Life Insurance Company (U.S.A), Phoenix Life Insurance Company, PHL Variable Insurance Company, United of Omaha Life Insurance Company, Mutual of Omaha Insurance Company, and Companion Life Insurance Company	10-K	001-06659	10.58	February 27, 2015
4.6	Bond Purchase Agreement, dated December 3, 2015 by and among Aqua Pennsylvania, Inc., Thrivent Financial for Lutherans, State Farm Life Insurance Company, John Hancock Life Insurance Company (U.S.A), The Lincoln National Life Insurance Company, Teachers Insurance And Annuity Association Of America, CMFG Life Insurance Company, Genworth Life Insurance Company, Phoenix Life Insurance Company, PHL Variable Insurance Company, United Of Omaha Life Insurance Company, The State Life Insurance Company, Pioneer Mutual Life Insurance Company, MONY Life Insurance Company	10-K	001-06659	4.12	February 26, 2016
4.7	Note Purchase Agreement, dated November 3, 2016, by and among the Registrant and the note purchasers thereto	10-K	001-06659	4.13	February 24, 2017
4.8	Bond Purchase Agreement, dated December 15, 2016 by and among Aqua Pennsylvania, Inc., Teachers Insurance and Annuity Association of America, New York Life Insurance Company, New York Life Insurance and Annuity Corporation, John Hancock Life Insurance Company, American Equity Investment Life Insurance Company, Genworth Life and Annuity Insurance Company, Phoenix Life Insurance Company, PHL Variable Insurance Company, American United Life Insurance Company, The State Life Insurance Company, and Pioneer Mutual Life Insurance Company	10-K	001-06659	4.14	February 24, 2017
4.9	Bond Purchase Agreement, dated July 10, 2017 by and among Aqua Illinois, Inc., Teachers Insurance and Annuity Association of America	10-Q	001-06659	4.1	November 2, 2017
4.10	Bond Purchase Agreement, dated July 20, 2017 by and among Aqua Pennsylvania, Inc., New York Life Insurance Company, New York Life Insurance and Annuity Corporation, New York Life Insurance and Annuity Corporation Institutionally Owned Life Insurance Separate Account (BOLI 3), New York Life Insurance and Annuity Corporation Institutionally Owned Life Insurance Separate Account (BOLI 3-2)	10-Q	001-06659	4.2	November 2, 2017

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4.11	Bond Purchase Agreement, dated June 29, 2018, by and among Aqua Pennsylvania, Inc., CMFG Life Insurance Company, Manufactures Life Reinsurance Limited, The Lincoln National Life Insurance Company, New York Life Insurance Company, The State Life Insurance Company, and Phoenix Life Insurance Company	10-Q	001-06659	4.1	August 3, 2018
4.12	Bond Purchase Agreement, dated November 15, 2018, by and among Aqua Pennsylvania, Inc., Teachers Insurance and Annuity Associated of America, American United Life Insurance Company, Pioneer Mutual Life Insurance Company, The State Life Insurance Company, The Lincoln National Life Insurance Company, Lincoln Life & Annuity Company of New York, and United of Omaha Life Insurance Company	10-K	001-06659	4.15	February 26, 2019
4.13	Purchase Contract Agreement, dated April 23, 2019, between the Registrant. and U.S. Bank N.A, as purchase contract agent, as attorney-in-fact for the Holders from time to time as provided therein and as trustee under the indenture referred to therein	8-K	001-06659	4.1	April 23, 2019
4.13.1	Form of Unit (included in Exhibit 4.13 above)	8-K	001-06659	4.1	April 23, 2019
4.13.2	Form of Purchase Contract (included with Exhibit 4.13 above)	8-K	001-06659	4.1	April 23, 2019
4.14	Indenture, dated as of April 23, 2019, between the Registrant and U.S. Bank N.A., as trustee	8-K	001-06659	4.4	April 23, 2019
4.14.1	First Supplemental Indenture, dated as of April 23, 2019, between the Registrant and U.S. Bank N.A., as trustee	8-K	001-06659	4.5	April 23, 2019
4.14.2	Second Supplemental Indenture, dated as of April 23, 2019, between the Registrant and U.S. Bank N.A., as trustee	8-K	001-06659	4.6	April 23, 2019
4.14.3	Form of Amortizing Note (included with Exhibit 4.14.2 above)	8-K	001-06659	4.7	April 23, 2019
4.14.4	Third Supplemental Indenture, dated as of April 26, 2019, between the Registrant and U.S. Bank N.A., as trustee	8-K	001-06659	4.3	April 26, 2019
4.14.5	Form of Global Note for the 2029 Notes (included in Exhibit 4.14.4 above)	8-K	001-06659	4.4	April 26, 2019
4.14.6	Form of Global Note for the 2049 Notes (included in Exhibit 4.14.4 above)	8-K	001-06659	4.5	April 26, 2019
4.14.7	Fourth Supplemental Indenture, dated April 13, 2020, by and between Essential Utilities, Inc. and U.S. Bank N.A.	8-K	001-06659	4.3	April 15, 2020
4.14.8	Fifth Supplemental Indenture, dated April 19, 2021, between Essential Utilities, Inc. and U.S. Bank N.A., as trustee	8-K	001-06659	4.3	April 19, 2021
4.14.9	Sixth Supplemental Indenture, dated May 20, 2022, between Essential Utilities, Inc. and U.S. Bank Trust Company N.A, as trustee	8-K	001-06659	4.3	May 20, 2022

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4.15	Bond Purchase Agreement, dated May 31, 2019, by and among Aqua Pennsylvania, Inc., Athene Annuity and Life Company, Athene Annuity & Life Assurance Company, Genworth Life and Annuity Insurance Company, Genworth Life Insurance Company, John Hancock Life Insurance Company (U.S.A), John Hancock Life Insurance Company of New York, John Hancock Life & Health Insurance Company, Metropolitan Life Insurance Company, Metropolitan Tower Life Insurance Company, MetLife Insurance K.K., Brighthouse Life Insurance Company, United of Omaha Life Insurance Company, New York Life Insurance Company, New York Life Insurance and Annuity Corporation, New York Life Insurance and Annuity Corporation Institutionally Owned Life Insurance Separate Accounts (BOLI 30C, 30E, 3-2), The Northwestern Mutual Life Insurance Company, The Northwestern Mutual Life Insurance Company, and Life Insurance Company of the Southwest	10-Q	001-06659	4.11	August 8, 2019
4.16	Bond Purchase Agreement, dated December 20, 2019, by and among Aqua Pennsylvania, Inc., MetLife Insurance K.K, Metropolitan Life Insurance Company, The Ohio National Life Insurance Company, Ohio National Life Assurance Corporation, National Guardian Life Insurance Company, Country Life Insurance Company, Horizon Blue Cross Blue Shield of New Jersey, and Farm Bureau Life Insurance Company	10-K	001-06659	4.18	February 28, 2020
4.17	Bond Purchase Agreement, dated May 1, 2020, by and among Aqua Pennsylvania, Inc. and bond purchasers thereto	10-Q	001-06659	4.4	May 8, 2020
4.18	Bond Purchase Agreement, dated October 13, 2020, by and among Aqua Pennsylvania, Inc., American General Life Insurance Company, The Variable Life Insurance Company, The United States Life Insurance Company in the City of New York, MetLife Insurance K.K., Pacific Life Insurance Company, Equitable Financial Life Insurance Company, Transamerica Life Insurance Company, Transamerica Life (Bermuda) LTD, Principal Life Insurance Company, Ameritas Life Insurance Company, Ameritas Life Insurance Corp. of New York, The State Life Insurance Company, Nassau Life Insurance Company, Life Insurance Company of the Southwest, United Farm Family Life Insurance Company, and Farm Bureau Life Insurance Company	10-K	001-06659	4.18	March 1, 2021
4.19	Bond Purchase Agreement, dated April 15, 2021, by and among Aqua Ohio, Inc., Teachers Insurance and Annuity Association of America, State Farm Life Insurance Company, State Farm Life and Accident Assurance Company, and State Farm Insurance Companies Employee Retirement Trust	10-K	001-06659	4.19	March 1, 2022
4.20	Bond Purchase Agreement, dated September 19, 2022, by and among Aqua Pennsylvania, Inc. and the Purchasers	10-Q	001-06659	4.1	November 9, 2022
4.21	Bond Purchase Agreement, dated December 15, 2022, by and among Aqua Pennsylvania, Inc. and State Farm Life Insurance Company, State Farm Life and Accident Assurance Company, State Farm Insurance Companies Employee Retirement Trust	^	^	^	^

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10.1	Credit Agreement, dated December 14, 2022, between Essential Utilities, Inc., PNC Bank, National Association, CoBank, ACB, Bank of America, N.A., Royal Bank of Canada, The Huntington National Bank, Barclays Bank PLC, Citizens Bank, N.A., The Toronto-Dominion Bank, and Wells Fargo Bank, N.A	^	^	^	^
10.2	Amended and Restated Revolving Credit Agreement, dated as of November 17, 2016 between Aqua Pennsylvania and PNC Bank, National Association, TD Bank, N.A., Citizens Bank of Pennsylvania, and Huntington National Bank	10-K	001-06659	10.2.4	February 24, 2017
10.2.1	First Amendment to Revolving Credit Agreement, dated as of November 16, 2017, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank of Pennsylvania, TD Bank, N.A., and Huntington National Bank	10-K	001-06659	10.1.5	February 28, 2018
10.2.2	Second Amendment to Revolving Credit Agreement, dated as of November 9, 2018, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank of Pennsylvania, TD Bank, N.A., and Huntington National Bank	10-K	001-06659	10.2.2	February 26, 2019
10.2.3	Third Amendment to Credit Agreement, dated as of November 8, 2019, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank of Pennsylvania, TD Bank, N.A., and Huntington National Bank	10-Q	001-06659	10.1	May 8, 2020
10.2.4	Fourth Amendment to Credit Agreement, dated as of November 6, 2020, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank, N.A., TD Bank, N.A., and Huntington National Bank	10-K	001-06659	10.2.4	March 1, 2022
10.2.5	Fifth Amendment to Credit Agreement, dated as of November 5, 2021, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank, N.A., TD Bank, N.A., and Huntington National Bank	10-K	001-06659	10.2.5	March 1, 2022
10.3	The Registrant's Deferred Compensation Plan Master Trust Agreement with PNC Bank, National Association, dated as of December 31, 1996*	10-K	001-06659	10.24	March 25, 1997
10.3.1	Amendment 2008-1 to the Registrant's Deferred Compensation Plan Master Trust Agreement, dated as of December 15, 2008*	10-K	001-06659	10.50	February 27, 2009
10.4	The Registrant's 2009 Executive Deferral Plan (as amended and restated effective January 1, 2009)*	S-8	333-156047	4.1	December 10, 2008
10.5	The Registrant's Supplemental Pension Benefit Plan for Salaried Employees (as amended and restated effective January 1, 2011)*	10-K	001-06659	10.58	February 27, 2012
10.6	The Registrant's Dividend Reinvestment and Direct Stock Purchase Plan	S-3ASR	333-240088	N/A	July 24, 2020
10.7.1	Performance-Based Share Unit Grant Terms and Conditions*	^	^	^	^
10.7.2	Restricted Stock Unit Grant Terms and Conditions for Chief Executive Officer*	10-Q	001-06659	10.2	May 4, 2017
10.7.3	Restricted Stock Unit Grant Terms and Conditions for all other executive officers*	^	^	^	^
10.7.4	Stock Option Grant Terms and Conditions*	^	^	^	^
10.8	The Registrant's 2012 Employee Stock Purchase Plan*	10-K	001-06659	10.10	February 26, 2016
10.9	The Registrant's Annual Cash Incentive Compensation Plan (adopted February 26, 2013)*	10-K	001-06659	10.56	February 28, 2013

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10.10	Form of Change in Control Agreement between the Company and executive officers*	^	^	^	^
10.10.1	Schedule of Change in Control Agreement between the Company and executive officers*	^	^	^	^
10.11	Non-Employee Directors' Compensation, effective January 1, 2023*	8-K	001-06659	10.1	December 9, 2022
10.12	Employment Agreement dated July 1, 2021, between the Registrant and Christopher Franklin*	8-K	001-06659	10.1	June 25, 2021
10.13		8-K	001-00659	1.1	October 17, 2022
10.14	The Registrant Amended and Restated Omnibus Equity Compensation Plan	^	^	^	^
10.15	Essential Utilities, Inc. Stock Award Grant Instrument dated as of March 16, 2020*	10-Q	001-06659	10.4	May 8, 2020
10.16	Incremental Facility Amendment Agreement, dated March 13, 2020, by and among Essential Utilities, Inc., Incremental Lender, and the PNC Bank, National Association	8-K	001-06659	10.1	March 16, 2020
10.17	Credit Agreement, dated March 13, 2020, by and among Essential Utilities, Inc., Lenders, and the PNC Bank, National Association	8-K	001-06659	10.2	March 16, 2020
10.18	Credit Agreement, dated April 3, 2020, by and among Essential Utilities, Inc., Lenders, and the PNC Bank, National Association	8-K	001-06659	10.1	April 3, 2020
10.19	Note Purchase Agreement, dated February 26, 2010, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1	April 13, 2020
10.19.1	First Amendment to Note Purchase Agreement, dated August 10, 2011, by and between PNG Companies, LLC and the noteholders	8-K/A	001-06659	10.1.1	April 13, 2020
10.19.2	Second Amendment to Note Purchase Agreement, dated August 22, 2013, by and between PNG Companies, LLC and the noteholders	8-K/A	001-06659	10.1.2	April 13, 2020
10.19.3	Third Amendment to Note Purchase Agreement, dated November 9, 2017, by and between PNG Companies, LLC and the noteholders	8-K/A	001-06659	10.1.3	April 13, 2020
10.19.4	First Supplement to Note Purchase Agreement, dated December 12, 2013, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1.4	April 13, 2020
10.19.5	Second Supplement to Note Purchase Agreement, dated July 14, 2017, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1.5	April 13, 2020
10.19.6	Third Supplement to Note Purchase Agreement, dated September 20, 2017, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1.6	April 13, 2020
10.19.7	Fourth Supplement to Note Purchase Agreement, dated November 9, 2017, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1.7	April 13, 2020
10.19.8	Fifth Supplement to Note Purchase Agreement, dated December 20, 2017, by and between PNG Companies, LLC and the note purchasers thereto	8-K/A	001-06659	10.1.8	April 13, 2020

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10.19.9	Sixth Amendment to Credit Agreement, dated June 30, 2022, between Aqua Pennsylvania and PNC Bank, National Association, Citizens Bank, N.A., TD Bank, N.A., and The Huntington National Bank	10-Q	002-06659	10.2	August 9, 2022
10.19.10	Credit Agreement, dated November 25, 2020, by and between PNG Companies, LLC and PNC Bank, National Association and TD Bank, N.A.	10-K	001-06659	10.21.9	March 1, 2022
10.19.11	First Amendment to Credit Agreement, dated November 5, 2021, by and between PNG Companies, LLC and PNC Bank, National Association and TD Bank, N.A.	10-K	001-06659	10.21.10	March 1, 2022
10.19.12	Second Amendment to Credit Agreement, dated June 30, 2022, by and between PNG Companies, LLC and PNC Bank National Association, TD Bank, N.A. and Citizens Bank N.A.	10-Q	001-06659	10.1	August 9, 2022
21.1	Subsidiaries of Essential Utilities, Inc.	^	^	^	^
23.1	Consent of Independent Registered Public Accounting Firm – PricewaterhouseCoopers LLP	^	^	^	^
31.1	Certification of Chief Executive Officer, pursuant to Rule 13a-14(a) under the Securities and Exchange Act of 1934	^	^	^	^
31.2	Certification of Chief Financial Officer, pursuant to Rule 13a-14(a) under the Securities and Exchange Act of 1934	^	^	^	^
32.1	Certification of Chief Executive Officer, pursuant to 18 U.S.C. Section 1350	^^	^^	^^	^^
32.2	Certification of Chief Financial Officer, pursuant to 18 U.S.C. Section 1350	^^	^^	^^	^^
101.INS	Inline XBRL Instance Document	^	^	^	^
101.SCH	Inline XBRL Taxonomy Extension Schema Document	^	^	^	^
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	^	^	^	^
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	^	^	^	^
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	^	^	^	^
101.PRES	Inline XBRL Taxonomy Extension Presentation Linkbase Document	^	^	^	^
104	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2022 formatted in Inline XBRL (included in Exhibit 101)	^	^	^	^

In accordance with Item 601(b)(4)(iii)(A) of Regulation S-K, copies of specific instruments defining the rights of holders of long-term debt of the Company or its subsidiaries are not filed herewith. Pursuant to this regulation, we hereby agree to furnish a copy of any such instrument to the SEC upon request.

*Indicates management contract or compensatory plan or arrangement

^ Filed herewith

^^Furnished herewith

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ESSENTIAL UTILITIES, INC.

/s/ Christopher H. Franklin

Christopher H. Franklin

Chairman, President and Chief Executive Officer

Date: March 1, 2023

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Pursuant to the requirements of the Securities and Exchange Act of 1934, this report on Form 10-K has been signed below by the following persons on behalf of the Registrant on March 1, 2023 in the capacities indicated below.

Signature	Title
/s/ Christopher H. Franklin Christopher H. Franklin	Chairman, President and Chief Executive Officer, Director (Principal Executive Officer)
/s/ Daniel J. Schuller Daniel J. Schuller	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Robert A. Rubin Robert A. Rubin	Senior Vice President, Controller and Chief Accounting Officer (Principal Accounting Officer)
/s/ Elizabeth B. Amato Elizabeth B. Amato	Director
/s/ David Ciesinski David Ciesinski	Director
/s/ Daniel J. Hilferty Daniel J. Hilferty	Director
/s/ Edwina Kelly Edwina Kelly	Director
/s/ W. Bryan Lewis W. Bryan Lewis	Director
/s/ Ellen T. Ruff Ellen T. Ruff	Director
/s/ Lee C. Stewart Lee C. Stewart	Director
/s/ Christopher C. Womack Christopher C. Womack	Director

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Essential Utilities, Inc.
Schedule 1 – Condensed Parent Company Financial Statements
Condensed Balance Sheets
(In thousands of dollars)

	December 31,	
	2022	2021
Assets		
Current assets:		
Accounts receivable, net	$ 575	$ 122
Accounts receivable - affiliates	1,601,064	117,504
Prepayments and other current assets	14,256	12,754
Total current assets	1,615,895	130,380
Deferred charges and other assets, net	69,455	52,512
Notes receivable - affiliates	2,276,670	2,015,570
Deferred income tax asset	42,206	1,310
Investment in subsidiaries	6,512,224	6,005,927
Total assets	$ 10,516,450	$ 8,205,699
Liabilities and Equity		
Stockholders' equity	$ 5,377,386	$ 5,184,450
Long-term debt, excluding current portion, net of debt issuance costs	3,503,636	2,819,590
Current liabilities:		
Current portion of long-term debt	-	20,470
Accrued interest	20,923	15,550
Accounts payable - affiliates	1,418,574	58,962
Dividends payable	75,808	-
Other accrued liabilities	21,234	16,109
Total current liabilities	1,536,539	111,091
Other liabilities	98,889	90,568
Total liabilities and equity	$ 10,516,450	$ 8,205,699

The accompanying condensed notes are an integral part of these condensed financial statements.

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Essential Utilities, Inc.
Schedule 1 – Condensed Parent Company Financial Statements
Condensed Statements of Income and Comprehensive Income
(In thousands, except per share amounts)

	Years ended December 31,		
	2022	2021	2020
Other income	$ 5,368	$ 8,388	$ 4,973
Operating expense and other expenses	10,724	5,821	29,483
Operating income (loss)	(5,356)	2,567	(24,510)
Interest expense	35,817	21,729	53,702
Interest income	(107)	(9)	(5,256)
Other (income) expense	893	(609)	(494)
Loss before equity in earnings of subsidiaries and income taxes	(41,959)	(18,544)	(72,462)
Equity in earnings of subsidiaries	495,556	445,951	341,653
Income before income taxes	453,597	427,407	269,191
Income tax benefit	(11,640)	(4,205)	(15,658)
Net income	$ 465,237	$ 431,612	$ 284,849
Comprehensive income	$ 465,237	$ 431,612	$ 284,849
Net income per common share:			
Basic	$ 1.77	$ 1.68	$ 1.14
Diluted	$ 1.77	$ 1.67	$ 1.12
Average common shares outstanding during the period:			
Basic	262,246	257,487	249,768
Diluted	262,868	258,180	254,629

The accompanying condensed notes are an integral part of these condensed financial statements.

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Essential Utilities, Inc.
Schedule 1 – Condensed Parent Company Financial Statements
Condensed Statements of Cash Flows
(In thousands of dollars)

	Years ended December 31,		
	2022	2021	2020
Net cash flows used in operating activities	$ (169,778)	$ (239,320)	$ (315,329)
Cash flows from investing activities:			
Acquisitions of utility systems and other, net	(116,627)	(36,237)	(34,665)
Acquisition of natural gas system and other, net	-	-	(3,465,344)
Decrease (increase) in investment in subsidiaries	(162,662)	(53,467)	6,085
Other	299	(987)	341
Net cash flows used in investing activities	(278,990)	(90,691)	(3,493,583)
Cash flows from financing activities:			
Net proceeds (repayments) of short-term debt	-	-	(881)
Proceeds from long-term debt	1,522,157	995,458	3,042,274
Repayments of long-term debt	(865,469)	(725,033)	(1,607,854)
Proceeds from issuance of common stock from private placement	-	-	729,301
Proceeds from issuance of common stock from at-the market sale agreement	63,040	-	-
Proceeds from issuance of common stock under dividend reinvestment plan	16,619	16,799	16,522
Proceeds from exercised stock options	2,475	4,172	1,589
Proceeds from issuance of common stock from forward equity sale agreement	-	299,739	-
Repurchase of common stock	(1,192)	(3,291)	(4,365)
Dividends paid on common stock	(288,632)	(258,650)	(232,571)
Other	(230)	817	(96)
Net cash flows from financing activities	448,768	330,011	1,943,919
Net change in cash and cash equivalents	-	-	(1,864,993)
Cash and cash equivalents at beginning of year	-	-	1,864,993
Cash and cash equivalents at end of year	$ -	$ -	$ -

See Note 1 - *Basis of Presentation*

The accompanying condensed notes are an integral part of these condensed financial statements.

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Note 1 – *Basis of Presentation* – The accompanying condensed financial statements of Essential Utilities, Inc. (the "Parent") should be read in conjunction with the consolidated financial statements and notes thereto of Essential Utilities, Inc. and subsidiaries (collectively, the "Registrant") included in Part II, Item 8 of the Annual Report. The Parent's significant accounting policies are consistent with those of the Registrant.

The Parent borrows from third parties and provides funds to its subsidiaries, in support of their operations. Amounts owed to the Parent for borrowings under this facility are reflected as inter-company receivables on the condensed balance sheets. The interest rate charged to the subsidiaries is sufficient to cover the Parent's interest costs under its associated borrowings.

As of December 31, 2022 and 2021, the Parent had a current accounts receivable – affiliates balance of $1,601,064 and $117,504, respectively. As of December 31, 2022 and 2021, the Parent had a notes receivable – affiliates balance of $2,276,670 and $2,015,570, respectively. The changes in these balances represent non-cash adjustments that are recorded through the Parent's investment in subsidiaries.

In the ordinary course of business, the Parent indemnifies a third-party for surety bonds issued on behalf of subsidiary companies, guarantees the performance of one of its regulated utilities in a jurisdiction that requires such guarantees, and guarantees several projects associated with the treatment of water in a jurisdiction.

Note 2 – *Dividends from subsidiaries* – Dividends in the amount of $0, $0, and $1,050,000 were paid to the Parent by its wholly-owned subsidiaries during the years ended December 31, 2022, 2021, and 2020, respectively.

Note 3 – *Long-term debt* – The Parent has long-term debt under unsecured note purchase agreements with investors in addition to its $1,000,000 revolving credit agreement. Excluding amounts due under the revolving credit agreement, the debt maturities of the Parent's long-term debt are as follows:

Year	Debt Maturity
2023	$ -
2024	-
2025	-
2026	-
2027	-
Thereafter	3,025,000