



PEOPLES
NATURAL GAS

2020 ESG REPORT

NATURAL RESOURCES FOR LIFE

About Essential

With the closing of the Peoples acquisition in March 2020, Essential Utilities Inc. became one of the largest publicly traded water, wastewater and natural gas providers in the U.S., serving approximately 5 million people across 10 states under the Aqua and Peoples brands.

With each utility lending more than 130 years of experience, Essential is committed to proactive infrastructure investment, regulatory expertise, operational efficiency and environmental stewardship.

As utility infrastructure experts, we are passionate about responsibly making improvements that strengthen the reliability and safety of our nation's infrastructure. We are grounded in a deep-rooted purpose that empowers people to live better lives. Integrity, respect and excellence are the core values that guide us. We put the wellbeing of our customers and communities at the heart of all we do, while preserving the culture of trust and safety for our employees. We recognize the importance water and natural gas play in everyday life and are proud to deliver safe and reliable services for the greater good of the communities we serve. We are Essential – providing natural resources for life.

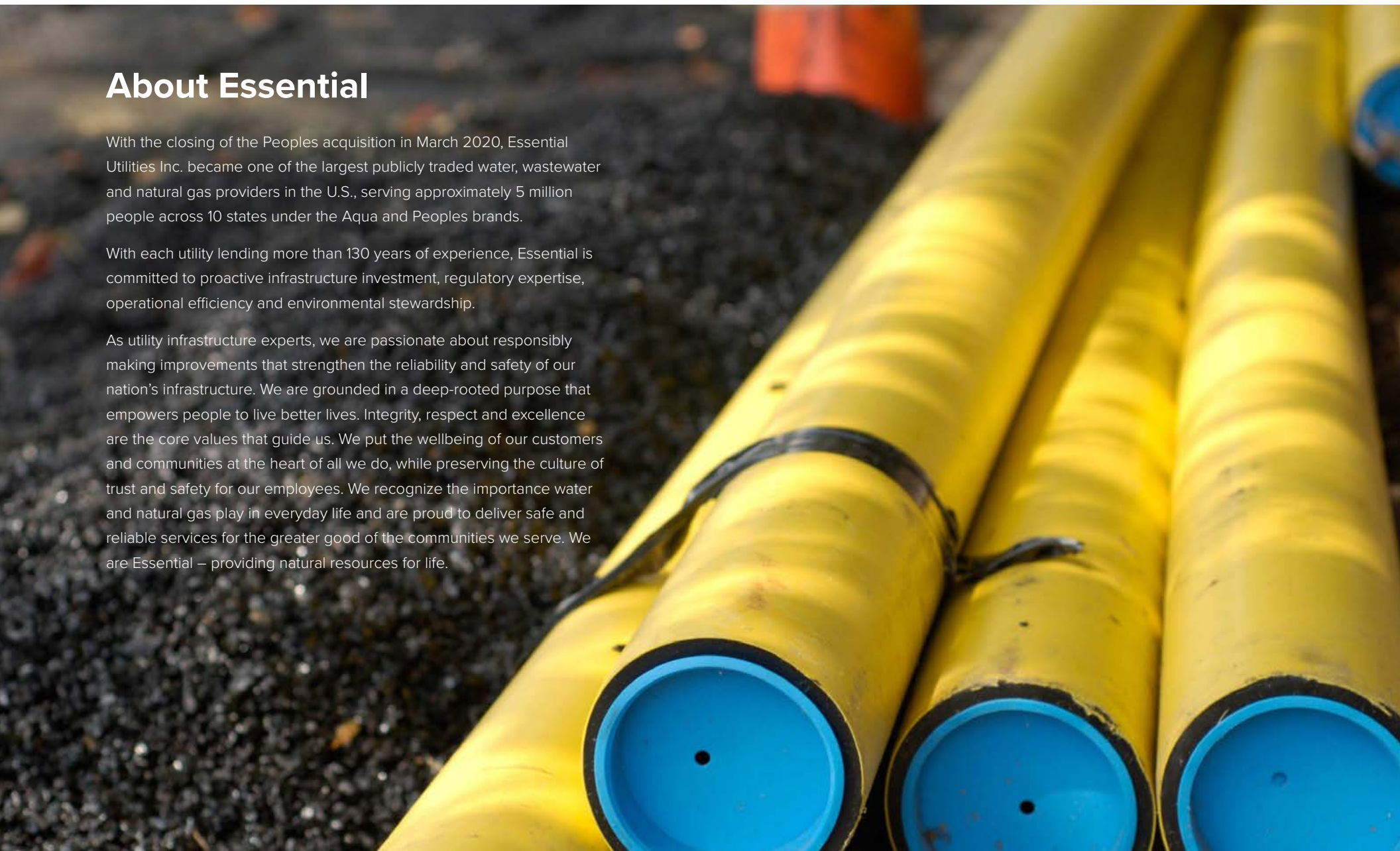


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Mission

To sustain life and improve economic prosperity by safely and reliably delivering Earth's most essential resources to our customers and communities.

Vision

Safe and reliable access to natural resources sustains the lives of the people we serve. Essential Utilities is uniquely positioned to strengthen our communities by renewing and improving infrastructure, delivering excellent service, acting as stewards of the environment, enhancing economic development, and making charitable contributions. We are committed to attracting and nurturing a workforce that reflects the diversity of the communities we serve and to providing fair and equitable opportunities for all employees. We're dedicated to working safely and managing our operations sustainably to protect each other and our environment. We believe our efforts will bring value to our customers, employees and shareholders and enable us to continue to fulfill our mission. Together, we will make a difference for generations to come.

Our Utilities



Corporate Profile*

\$1.46B

Revenue

3,100+

Employees (full-time)

5.0M

Approximately 5 million people served from almost 1.8 million connections

10

States (IL, IN, KY, NC, NJ, OH, PA, TX, VA, WV)

1,522

Water systems

895,336

Water connections

85.4B

Gallons of drinking water produced

221

Wastewater systems

151,965

Wastewater connections

11.5B

Gallons of wastewater treated

751,502

Gas connections

155.4Bcf

Gas delivered to customers

*Figures are as of December 31, 2020





Essential Utilities Chairman and Chief Executive Officer Christopher H. Franklin

A Message from the Chairman & CEO

I am pleased to share the Essential Utilities 2020 Environmental, Social and Governance (ESG) report with you. This report is another important milestone on our ESG journey: Essential has now been operating as a combined water and natural gas company for more than a full calendar year. This report marks the first time we are reporting ESG results for all of Essential, across both the Aqua and Peoples brands.

During our first year as a water, wastewater and natural gas utility, we have built upon the strong ESG foundation of both organizations to make incredible progress toward our goals. But we have not been complacent in our success and have publicly reported new, aggressive targets across our business to become a more sustainable and a more equitable company.

COVID-19

While we are seeing important signs of recovery from the COVID-19 pandemic, it is difficult to look back to 2020 without addressing the global health crisis and its impact on our business, our employees and our customers. Throughout the pandemic, we followed the guidance of the Centers for Disease Control and Prevention, state and local health departments to address the constantly evolving situation. We strived to keep our essential employees safe and healthy, and employees were asked to work from home when the pandemic worsened. For those who could not, like our field employees, Essential provided personal

protective equipment and established COVID mitigation procedures to minimize risk of transmission. We continued vital infrastructure and construction work to keep communities safe and services reliable, and we kept contracts with subcontractors to ensure those in our communities could keep their jobs. Essential also donated directly to community organizations to help our neighbors who struggled economically during the pandemic.

Now, as we begin to roll out return to work plans and it seems we are about to come out on the other side of this pandemic, I can say Essential and our employees have emerged from this challenging time stronger, more resilient and ready to take on the future.

Sustainability and Conservation

Early in 2021, Essential announced that by 2035 we will reduce our Scope 1 and 2 greenhouse gas emissions by 60% from our 2019 baseline. This is consistent with the rate of reduction necessary over the next 15 years to keep on track with the Paris Agreement, which aims to limit the global temperature increase to well below 2 degrees Celsius. This target is based on reductions achievable from proven efforts using existing technology. As we move ahead and technology continues to develop rapidly, we will continually innovate to transform our operations and processes to achieve our ultimate aspiration of net zero.

In addition, we are on schedule to source nearly 100% renewable electricity, via certified wind power credits, for water and wastewater operations in Illinois, New Jersey, Ohio and Pennsylvania by early 2022. Switching to renewable energy options throughout our

footprint will help drive immediate and considerable progress toward our emissions reduction target.

Beyond our operational commitments to reduce our carbon footprint, Essential is steadfast in our dedication to ensure the safety and reliability of the natural resources we provide to customers. This is why we were proud to open our brand-new testing lab in Bryn Mawr, Pennsylvania. This new state-of-the-art 14,700 square-foot facility more than doubles the size of our previous lab, and helps our microbiologists and chemists keep up with advancements in water quality science. We will be testing for scores of regulated contaminants, as well as other contaminants, which include the PFAS family of chemicals; our lab will continue to be one of two commercial labs in Pennsylvania accredited to test for PFAS. This reinforces our commitment to install mitigation technology at water treatment facilities where source water exceeds 13 parts per trillion for three PFAS substances, well below any current health advisory level set by the EPA.

Diversity, Equity and Inclusion

In early 2021, Essential made a commitment to build on our foundation of diversity, equity and inclusion (DE&I), and we announced formal diverse employee and diverse supplier targets. This includes a multiyear plan to increase our diverse supplier spending to 15%, and increase employee diversity by 20%, the latter of which is based on a detailed assessment of the demographic makeup of our service footprint to ensure our company's employee base reflects the demographics of the communities where we operate.

Given our ongoing commitment to DEI, we reflected on our first year as a company and developed a new mission and vision that accurately reflects our passion for inclusivity and equity, along with our deep commitment to customers, employees, shareholders and the communities we serve.

Our mission and vision will help us navigate the many issues we will face and will serve as a guiding light for our ambitious DE&I and ESG goals. In reflection, I am grateful for all we were able to accomplish during such a challenging year, and we remain confident and excited about the ambitious goals we have set for our strong company.

Thank you for taking time to review our 2020 ESG report. I encourage you to check back throughout the year for updates on our progress and our new commitments.

Sincerely,



Christopher H. Franklin
Chairman and Chief Executive Officer

About this Report

This report is Essential Utilities Inc.'s environmental, social and governance (ESG) report, for the calendar year 2020. Formerly Aqua America, Essential's new name became effective Feb. 3, 2020 to reflect the combination of regulated water utilities, Aqua, and natural gas utilities, Peoples, that offer essential utility services to customers. Data in this report reflects the company as of Dec. 31, 2020, unless otherwise noted, and includes information for the entirety of 2020 for the water, wastewater, and natural gas utilities that comprise Essential.

The foundation of ESG at Essential has been underway for many years through both divisions' commitments to the communities we service, our employees, and the environment. Ongoing updates of this report present an excellent opportunity to transparently share and evaluate our progress.

This 2020 ESG report integrates various reporting frameworks, namely the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD). For more information, please explore our ESG Hub, which, in addition to this report, houses our [SASB and ESG Metrics Index](#) and [TCFD report](#).

For more information on Essential's ESG initiatives, contact ESG@Essential.co with questions or comments.

Forward-Looking Statements

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, which generally include words such as “believes,” “expects,” “intends,” “anticipates,” “estimates” and similar expressions. The company can give no assurance that any actual or future results or events discussed in these statements will be achieved. Any forward-looking statements represent its views only as of today and should not be relied upon as representing its views as of any subsequent date. Readers are cautioned that such forward-looking statements are subject to a variety of risks and uncertainties that could cause the company's actual results to differ materially from the statements contained in this release. Such forward-looking statements include, but are not limited to, statements relating to the capital to be invested by the water, wastewater, and gas distribution divisions of the company. There are important factors that could cause actual results to differ materially from those expressed or implied by such forward-looking statements including the factors discussed in our Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q, which is filed with the Securities and Exchange Commission. For more information regarding risks and uncertainties associated with the company's business, please refer to the company's annual, quarterly and other SEC filings. The company is not under any obligation — and expressly disclaims any such obligation — to update or alter its forward-looking statements whether as a result of new information, future events or otherwise.





Alignment with UN SDGs

Essential is committed to supporting the achievement of the United Nations' Sustainable Development Goals (SDGs), which aim to address global challenges and achieve peace and prosperity for all.

Of the SDGs, our business can most significantly positively impact:



Clean Water and Sanitation

Our Approach: Clean Water and Sanitation is fundamental for Essential Utilities – its aims have been constant themes during our 135-year-old legacy and are at the core of our water and wastewater operations. All the ways Essential addresses SDG 6 can be found throughout our ESG Report.

Universal and equitable access to safe and affordable water for all is one of our foundational beliefs, and we believe we are the only water utility in the country with a standalone [Human Rights to Water Policy](#) which outlines how our company's operations are aligned with the stated aims of the United Nations. As described in our response to SDG 3: Good Health and Well-Being, our commitment to deliver safe water to customers is paramount and we are proud of our excellent record. Essential has also consistently improved its wastewater compliance and reduced its sanitary sewer overflow volume.

Sustainable water production and security for future generations is also critical. While we do not operate in threatened areas or withdraw from sources that experience acute water scarcity, Essential still seeks ways to increase efficiency and recycle water, such as when we provide irrigation to golf courses or reuse clean wastewater effluent for plant maintenance and cleaning. We educate customers on the importance of reducing water use and have seen steady reductions of water usage in the average household over the past few decades. We have also strived to be environmental stewards for local ecosystems, restoring about 1,000 acres with native tree species in Pennsylvania through our TreeVitalize Watersheds program and protecting more than 7,600 acres of natural area across our national footprint. Plants we seed or conserve help to protect water and habitat quality by stabilizing stream banks, cooling temperatures, soaking up contaminated runoff and recharging groundwater. Among their many benefits, trees also help to reduce air pollution, absorb carbon dioxide, enhance open space and improve wildlife habitat.



Affordable and Clean Energy and Climate Action

Our Approach: Affordable and Clean Energy and Climate Action are at the core of our gas operations. We strive to deliver affordable, efficient, safe and plentiful energy to customers through resilient infrastructure. At Essential, we recognize that the energy landscape is rapidly shifting and evolving. Across the country, there is a massive investment in renewable technologies, especially for electric generation. We are excited to witness these developments and look forward to the future because we believe the complementary attributes of natural gas and renewables will enable a low-carbon economy to thrive while avoiding the worst impacts of climate change. Natural gas infrastructure mitigates the intermittency of renewable sources like wind and solar, and adds resiliency, reliability and efficiency to energy markets. We believe the future of natural gas is particularly strong in distribution to homes and businesses to supply heating and other daily needs. Essential is also innovating and imagining gas delivery for the future. We transport renewable natural gas, sourced from landfills, through our pipelines, and are excited about developments in the energy industry related to hydrogen and other technologies that can transform energy supply.

For more details on our commitment to this SDG, please see the [Meeting our Communities' Energy Needs](#), [Greenhouse Gas Emissions Reduction](#), and [Affordability and Access](#) sections of our ESG Report.

Among those remaining, our ESG program most directly supports:



Good Health and Well-Being

Our Approach: At Essential, we recognize the enormous responsibility that comes with providing water and wastewater services to our communities and helping to safeguard public health. We must be ever-vigilant in the face of emerging contaminants from pollutive industries, threats of water-borne diseases, and storms or other events that can raise obstacles to treatment capacity. Utilities such as ours are critical in securing the goals that underpin this SDG.

With the concerning state of crumbling infrastructure in the country and many under-resourced municipal systems operating in a highly fractured environment, Americans should not become complacent about the safety of their water supplies. Fortunately, Essential brings 135 years of experience to the fore, with a staff of talented engineers and scientists, a state-of-the-art laboratory, and significant resources to modernize and maintain infrastructure throughout our footprint. We consistently outperform national averages on water quality, as measured by our much lower prevalence of health-based system violations and have taken an industry-leading position on addressing the pernicious threat of PFAS substances in water supplies. The good health and well-being of our customers and communities are our single greatest priority and guide every one of our actions.

For more detail on these efforts, please review the [Compliance with Regulations](#) and [Managing Contaminants of Emerging Concern](#) sections of the ESG Report.



Gender Equality and Reduced Inequalities

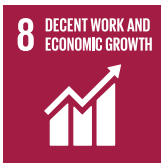
Our Approach: All companies in all industries must work to end all forms of discrimination, strive for full and effective participation and equal opportunities in corporate operations at all levels. Transparently, the utilities industry has trailed others in progress on diversity, equity and inclusion (DE&I); this is not a fact that can remain. Creating an environment in which every person is valued and every team member feels a sense of belonging and engagement supports a thriving organization that passionately cares about our customers. We are rooted in a firm belief that our team members, our most valuable internal resource, should reflect the communities we live and serve each day. Our suppliers, many of which are locally based and small businesses, should have ownership reflective of the communities we live and serve each day.

In 2020 Essential:

- Initiated a DE&I strategy to support a more inclusive workforce;
- Formed a DE&I Advisory Council led by senior executives; and
- Committed to searching for diverse candidates for senior roles within the organization.

Essential is among the first utilities in our peer group to publicly announce both employee and supplier diversity targets that span all of our state operations and all of our utilities. During the coming years, we will nearly double our diverse supplier controllable spend and increase the percentage of our employees of color by 20%, based on a detailed assessment of the demographics of the communities where we operate.

For more detail on these efforts, please review the [Diversity, Equity and Inclusion](#) and [Supplier Diversity](#) sections of the ESG Report.



Decent Work and Economic Growth

Our Approach: Although we operate in many municipalities across 10 states, the nature of our business is extremely local. We are an important fixture in the communities we serve. Our employees are often our customers, and our customers are often our suppliers and business partners. These multifaceted and deep connections between Essential and our fellow community members enrich and strengthen neighborhoods, as well as develop a more resilient local economy. We often improve local infrastructure using local suppliers, with rates we collect from customers recirculating in their very community through multiple avenues. Our governance policies make clear that principles of decent work, equal pay, fair treatment and human rights are critical within our company and also the vendors and partners we work with each day. In these ways, Essential Utilities is an important component of local economies, an ethical and reliable employer, and a driver of economic and societal growth.

For more information, please refer to the [Supplier Diversity](#), [Commitment to Human Rights](#), and [Diversity, Equity and Inclusion](#) sections of the ESG Report.



Industry, Innovation and Infrastructure

Our Approach: The U.S. has a very fragmented network of aging water systems, with more than 150,000 water systems serving nearly 320 million people. Most Americans – just under 300 million people – receive their drinking water from one of the nation’s 51,000 community water systems, many of which are municipally managed. While many of these municipally-managed systems are well run, there are also many that are facing serious compliance challenges, due to aging water and wastewater infrastructure, increasingly stringent drinking water and wastewater regulations, and budgetary constraints. Prolonging an investment in water infrastructure is a risky decision that can have serious consequences on the safety and reliability of a water system over time.

Similarly, gas distribution infrastructure is aging as well. The use of stronger and more durable materials and techniques can reduce methane leaks. We are currently undertaking a long-term capital infrastructure improvement program that features the replacement of thousands of miles of main with more modern materials.

Essential does not just supply water, wastewater and gas services to our customers – we are builders that invest in communities and bolster their resiliency. We engineer solutions to infrastructure issues that have been unresolved for years under different management or ownership. This requires a long-term commitment to the places and people we serve. Unlike some other industries, the time horizon for our investments are measured in decades, not years. We invest billions of dollars over time across our 10 states of operation, repairing and constructing thousands of miles of pipe. Our customers may not see this each day, as it is beneath their feet, but they can rest assured that Essential is the ideal steward of their vital water, wastewater and energy infrastructure.

For more information, please refer to the [Water Infrastructure and Resiliency](#) and [Gas Infrastructure and Resiliency](#) sections of the ESG Report.

COVID-19 Response

In 2020, the COVID-19 pandemic threw a sharp light on the importance of reliable, equitable access to life-sustaining resources like safe water and reliable natural gas. Throughout this uniquely challenging time, we continued to ensure that our customers and communities would have essential resources necessary to stay safe at home during the pandemic, and to support our commercial—particularly our healthcare—facilities.

From the start of the outbreak, the team across Essential's 10-state footprint has been following guidance from the Centers for Disease Control and Prevention and local health authorities to continuously address the situation and evaluate operational response plans with the well-being of our customers and employees at the forefront.

Essential has been firmly dedicated to keeping our employees safe and healthy during the COVID-19 pandemic. Essential took immediate action to support employees' health and safety. Effective mid-March, employees whose jobs allowed them to work remotely immediately began working from home, and those required to be physically present to operate plants, upgrade infrastructure or support our company's operations were supplied with personal protective equipment (PPE), began operating under procedures to limit employee interaction and saw an increase in cleaning and sanitation of their workspaces and vehicles. Throughout the pandemic, Essential sought to be as transparent as possible and frequently

communicated with all employees via email, dedicated COVID-19 intranet resources, routine huddles and weekly CEO town halls. Each of the communications focused on health and safety, including mental health. Essential enhanced medical and childcare leave benefits in the event an employee needed time off for COVID-19 illness or to take care of children during school closures. Additionally, we offered telemedicine and tele counseling resources for employees and their dependents.

Essential also thoughtfully balanced the non-emergency interactions between our customers and our field personnel. These procedures adhered to social distancing guidelines and have minimized the need for multiple employees in a vehicle. Critical construction work continued in order to keep our communities safe and helped maintain employment for the companies and vendors who support these projects.

Essential workers were truly essential, and kept hospitals heated and water flowing out of the taps. Knowing their sacrifice, our CEO [asked the community to join him in thanking essential workers](#).

Essential provided support to natural gas customers through the Dollar Energy Fund, which provided \$1.2 million in grants to more than 3,000 households. The Emergency Furnace and Service Line Repair Program served nearly 250 homes at a cost of \$637,000, and Peoples also weatherized 224 homes, helping to prevent the loss of heat. Pennsylvania's heating assistance program, LIHEAP, also provided more than \$11.5 million in relief to our customers.

In our water operations, [we enhanced our low-income assistance programs to help customers struggling to pay their bills](#) and to ensure that they continued to receive our vital services. Essential offered additional customer assistance programs across its footprint. Aqua Aid—operating in Illinois, New Jersey, and Ohio—distributed more than \$1.1 million in customer assistance in 2020.

We also understand that, beyond needing our essential resources, many of our customers are struggling with a difficult economic situation. In order to support our customers and communities during the COVID-19 pandemic, Essential made donations to several nonprofits to help make an impact. Among those contributions, Essential donated \$290,000 to multiple food banks across all 10 states to help address a critical need across our local communities. Employee donations, with a match from the Essential Foundation, led to our team being able to donate \$800,000 to the United Way.

We deeply care for the continued success and happiness of each household we serve, which is why our customers are at the forefront of our business. Essential will continue our work to strengthen communities and enhance economic development, one town, one street and one customer at a time.

For more information about our response and actions in light of the pandemic, please visit our COVID-19 webpages for [Essential](#), [Aqua](#) and [Peoples](#).





ENVIRONMENT

Conservation and Stewardship

The mission of Essential is “to sustain life and improve economic prosperity by safely and reliably delivering Earth’s most essential resources to our customers and communities”. Our company has taken these commitments seriously for more than 135 years. With regards to our legacy water and wastewater operations, we have participated in environmental conservation and stewardship with numerous partners to preserve and protect sensitive lands, plant thousands of trees, manage invasive species, reintroduce and reestablish native species, and protect habitats in the watersheds for its water supplies. We believe that proper stewardship of our lands leads to healthy and resilient water supplies. Fresh water is a limited resource on our planet, and we need to manage it responsibly through conservation and stewardship to safeguard water security for future generations.

In Peoples Gas, we saw a company with a very similar approach and record of environmental stewardship. It was apparent that Peoples was a gas utility with a strong profile in many respects, but we believe we can elevate the ability of the company to remain on the leading edge of investments, innovation, communication, and commitments on climate change

and emissions reduction. Essential’s expertise and resources are now being deployed to match our shared aspiration to be among the industry leaders in addressing this critical issue. In less than one year since the acquisition, we released an ambitious emissions reduction target and outlined concrete actions to be taken to achieve this. Essential strives to operate a safe, resilient gas distribution system that provides affordable and reliable energy to our customers.

This integration of two storied companies, each with more than a century of experience providing essential resources to the community, provides an opportunity share best environmental practices and expertise.

Our [Sustainability and Environmental Policy](#) outlines the ways in which we apply our mission to various aspects of our environmental profile. These are carried out by values that permeate our team and operations around the country. To further ensure environmental stewardship remains a priority for company management, it comprises 10% of Essential’s short-term incentive plan. Water compliance, wastewater compliance, gas pipeline replacement, and gas leaks all contribute an equal weighting.



Environmental Management System

As a large and diversified utility, having a strong environmental management system is critical to our operations. The objective of the Environmental, Health, and Safety management program is to identify, prioritize, communicate, address, mitigate, and manage risks to ensure safe and reliable service for our customers. The performance and risk reporting for these areas are coordinated from the unit and state level up to the Chief Environmental, Safety, and Sustainability Officer to the Chief Operating Officer to the Board of Directors quarterly.

The Compliance Assurance Program (CAP) serves as Essential's Environmental Management System (EMS). Each Essential company has designated personnel (environmental directors, environmental managers, environmental specialists, etc.) that are responsible for supporting the CAP, specifically focusing on environmental compliance. As part of our alignment with the elements of ISO 14001, Essential's CAP is founded on the concept of "Plan-Do-Check Act".

Plan-Do-Check-Act

PLAN	DO	CHECK	ACT
Policy	Corporate Programs	Compliance Tracking	Root Cause Analysis
Benchmarking	State SOPs	Water Quality Tracking	Corrective Actions
Target Setting	Communications	CAP Meetings	Programmatic Changes
Regulatory Register	Training	Auditing	External Support
Risk Analysis	Emergency Planning	Management Reviews	Peer Reviews

In addition to routine communications and activities, special CAP meetings are held multiple times per year for each state and business and are attended by presidents, vice presidents, directors, managers and operations staff from corporate and state compliance, operations and engineering. Topics covered in these meetings include compliance metrics, water quality, environmental events, regulatory and company hot topics, and system/project review. Actions, events, activities, documents and records are tracked and managed in our Environmental Health and Safety Data Management System software.

Additionally, Essential is in the process of implementing a water quality data management system across its water and wastewater utilities. This will ultimately serve as the central repository for all water and wastewater quality data, providing company-wide access to trends and early identification of developing issues.

Managing Water and Wastewater Systems

Essential provides water and wastewater services in the communities it operates. As a publicly regulated utility, Essential follows all federal and state water compliance regulations, including those from the Environmental Protection Agency (EPA). We work hard to meet our goal that all of the 1,500+ water systems we own and operate are in compliance with the Safe Drinking Water Act, providing safe and reliable drinking water for all customers.

We also take seriously our responsibility to provide reliable and efficient wastewater treatment, striving to operate our 200+ wastewater systems in compliance with the Clean Water Act. Between showering, cooking, laundry and dishes, the average Essential customer connection produced 238 gallons of wastewater per day in 2019, prior to changes in behavior brought on by the COVID-19 pandemic. Most of that wastewater ultimately ends up back in local rivers or streams, so it is vital that Essential treats all wastewater before it is discharged.

We have the technical expertise and experience to offer superior wastewater services that meet all environmental and public health standards. At Essential, we are continuously modernizing wastewater treatment methods, ensuring our systems are protective of the surrounding environment and adhering to current standards. Our goal is for wastewater treated by Essential to be rendered free of disease-causing bacteria, and safe for all living things – people, animals and plants. After an intensive and thorough treatment process, including screening, primary clarification and biological treatment, most of the wastewater is returned to local rivers and streams. We operate several plants that feature a wastewater reuse program that provides safe and treated irrigation water to local businesses, such as golf courses. This prevents discharge to streams and efficiently reduces demand for freshwater supply. We continue to proactively identify opportunities for wastewater reuse.

DRINKING WATER

1,522 Water systems

895,336 Connections

85.4 Billion gallons of total
water production
(85.9 Billion gallons withdrawn)

WATER SOURCES

57% Surface

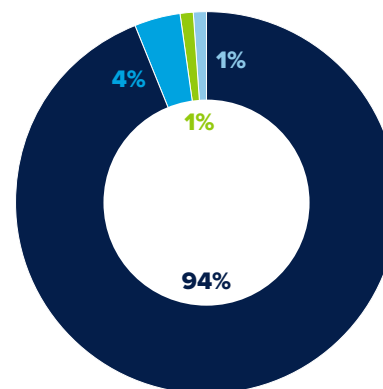
39% Ground

4% Purchased from other systems

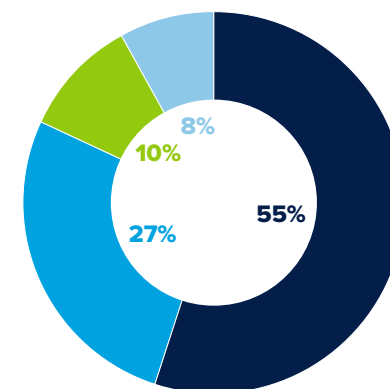
Size of Drinking Water Systems

(Measured by number of connections and presented as percent of water systems)

● < 500 ● 501 - 3,300 ● 3,301 - 10,000 ● > 10,000



ESSENTIAL



UNITED STATES



WASTEWATER

221 Wastewater systems

11.5 Billion gallons treated

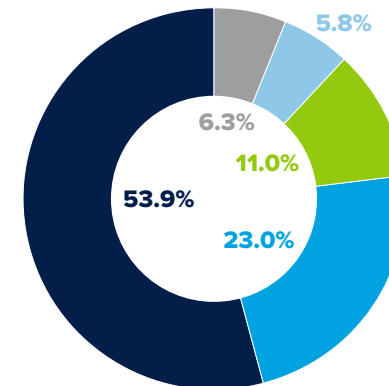
151,965 Connections

67.6% of capacity*

Size of Essential's Wastewater Treatment Plants

(Measured by gallons of permitted capacity and displayed as percent of wastewater treatment plants)

● < 100K ● 100K - 249,999 ● 250K - 499,999 ● 500K - 999,999 ● > 1M



Wastewater treatment removes nearly 10,403 metric tons of suspended solids and another 10,000+ metrics tons of organic material, each year**

*17.0 billion gallons of permitted capacity

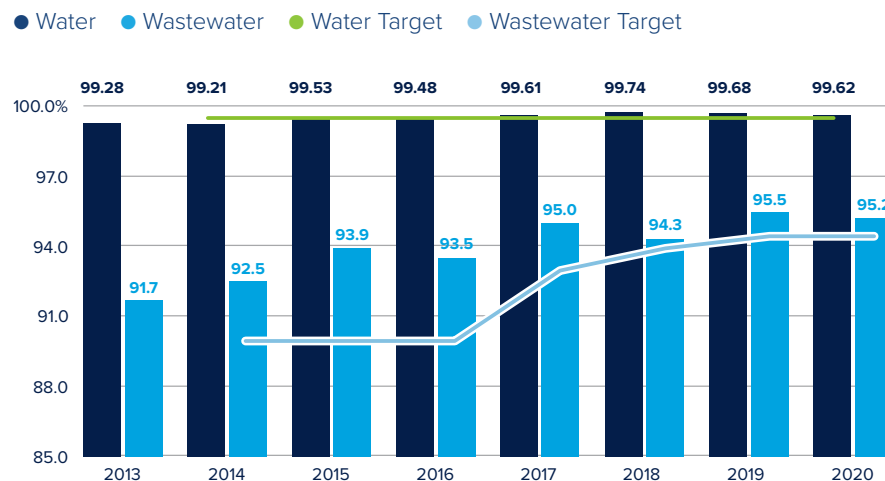
**Estimated

Compliance with Regulations - Water and Wastewater

Essential maintains a rigorous compliance program in order to meet the requirements of all local, state and federal regulations across our eight-state water and wastewater utility footprint. This includes permits for air, water, wastewater and related materials stored or disposed of as the result of our operational activities. Our [Environmental Management System](#) and related governance process also supports our compliance efforts.

We track and measure our compliance performance, in accordance with the American Water Works Association's (AWWA) [Utility Benchmarking program](#). The program tracks the number of days Essential operates in compliance with given permits and regulations for both water and wastewater operations.

Water and Wastewater Percentage of Days in Compliance



Y – axis on figure above is the % of days in compliance using the AWWA benchmarking method. It is calculated by taking the number of days out of compliance and dividing by the total days of compliance available (365 X # of systems) and subtracting from 100%.

Water Compliance

In 2020, 8.2% of community water systems in the United States observed a health-based EPA violation*. **In 2020, Essential performed 6.8 times better than community water systems nationwide**, with just 1.2% of our systems experiencing a health-based violation. We continually strive to reduce this number year over year.

*There were 49,790 CWS in 2020. 18,453 had a violation and 4,108 had health-based violations according to [EPA's ECHO Database](#).

Water Compliance Metrics

	2020	2019	2018
Tier 1 violations	4	12	16
Tier 2 violations	15	8	9
Tier 3 violations	76	63	57
Total tier violations	95	83	82
% of systems with tiered violations	6.2%	5.5%	5.5%
% of systems with tier 1 + tier 2	1.2%	1.3%	1.8%
% of systems with tier 3 only	5.0%	4.2%	3.8%
Total # of systems	1,522	1,497	1,490

Tiers as defined as per EPA regulations. <https://www.epa.gov/dwreginfo/public-notification-rule>

Tier 1 violations are defined as those violations of the National Primary Drinking Water Regulations (NPDWR) that require public notice and have significant potential to have serious adverse effects on human health as a result of short-term exposure.

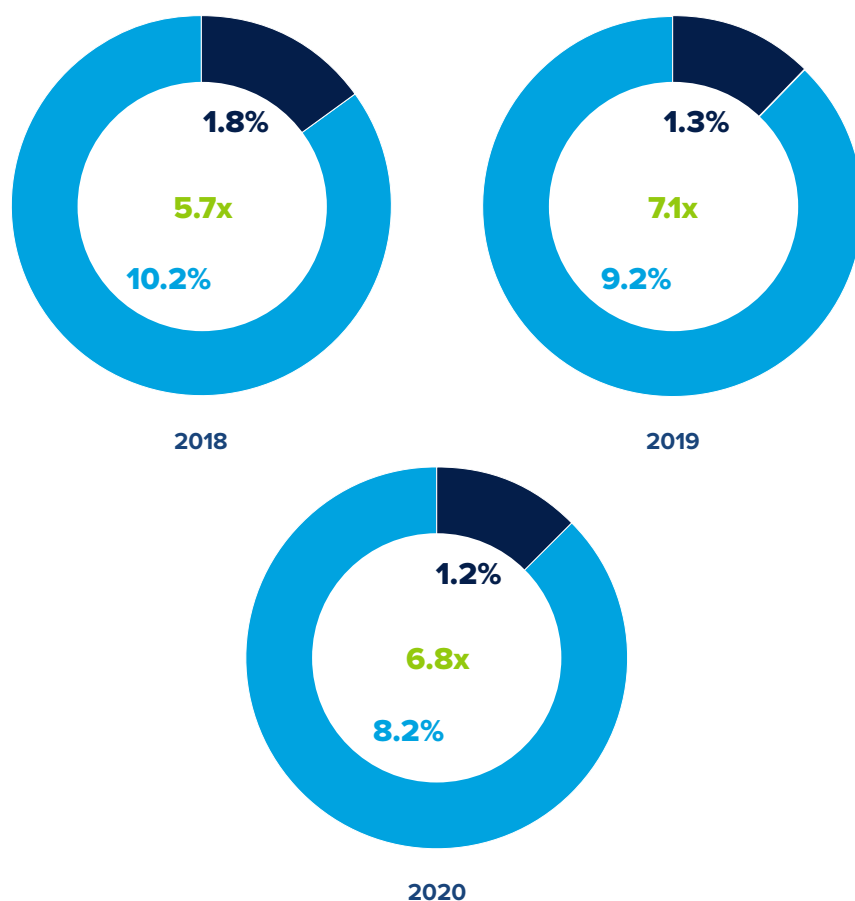
Tier 2 violations are defined as violations of the NPDWR that require public notice and have potential to have serious adverse effects on human health.

Tier 3 violations are defined as violations of the NPDWR not included in Tier 1 and Tier 2 that require public notice but are not considered to have a direct impact on human health (such as violations of monitoring and reporting).

Water Compliance Vs. U.S. Averages

(Note: Measured as percentage of community water systems with health-based violations. U.S. averages compiled from the [EPA's ECHO Database](#))

● Essential ● U.S. ● Outperformance



According to the EPA, about one in 10 U.S. community water systems have health-based violations. Fewer than one in 50 Essential community water systems have had health-based violations in any given year. We are proud of our track record of out-performing the U.S. at-large by, typically, at least six times and are consistently working towards improving that figure through investments in water treatment and infrastructure. About 93% of our water systems are comprised of fewer than 500 connections. Even when Essential's very small water systems are compared with U.S. averages for this specific size bracket, the trend still holds: we perform about six to seven times better.

Annually, Essential publishes water quality reports, or Consumer Confidence Reports (CCRs), on its website. CCRs summarize the quality of water Essential provides for each water system, including information about its water sources, what its drinking water contains and how it compares to standards established by the EPA. Please visit our [customer service center](#) for more information and to access these reports. We also encourage our customers to [contact](#) our customer service center with any questions or concerns about water quality and service.

More than 90 different constituents are regulated in drinking water with testing required for these constituents at different frequencies and locations in a system depending on a variety of factors. These results for required monitoring are published in our CCRs. Also, we conduct operational monitoring to manage the optimization of our processes and source water monitoring to understand if water quality is changing over time in our systems. This data enables proactive improvements to treatment and investigation of better sources of water to develop and use.

Essential has also been active in advocating for the health and safety of water supplies across our footprint, such as our successful efforts in 2018 to urge the passing of Act 120 in Pennsylvania, which grants the state's Public Utility Commission additional authority to support water utilities' efforts to protect customers from lead entering their drinking water from customer-owned service lines.

In March 2021, we were excited to open a brand new, state-of-the-art environmental laboratory at our Bryn Mawr headquarters. The new lab is just one example of our commitment to operational excellence and our mission to protect the public health and ensure high-quality water.

The new two-story building more than doubles the size of the previous laboratory that served the company for more than 70 years, allowing us to adapt to the dynamic regulatory environment that will require additional sampling and equipment necessary for water and wastewater operations and also accommodate the increasing needs as customers and systems are added through acquisitions.

The lab employs a professional staff of 20 including microbiologists and chemists who perform approximately 300,000 tests on 30,000 water samples each year. These scientists use 50 different analytical methods for 240 different water quality parameters. The laboratory is certified by the Pennsylvania Department of Environmental Protection and four other state environmental or health regulatory agencies. And as we've gone from measuring in parts per million to parts per trillion, a million-fold increase in detection levels, we feel confident that we will be able to deliver water that is safe and that the wastewater we treat and return to our rivers, lakes and streams is cleaner than it is when we remove it to treat it for drinking water.



The lab employs a professional staff of 20 including microbiologists and chemists who perform approximately 300,000 tests on 30,000 water samples each year. These scientists use 50 different analytical methods for 240 different water quality parameters.

Wastewater Compliance

Essential's primary duty is to meet the requirements of all local, state and federal regulations for its wastewater treatment plants. This requires that our wastewater systems achieve greater than 90% removal of regulated elements during the treatment process.

In 2020, more than 99.99% of the wastewater volume was able to be treated to achieve this high level of compliance through the use of secondary treatment processes to remove organics and solid materials. However, in many areas – such as in the sensitive Chesapeake Bay area – we use tertiary treatment to remove nutrients such as nitrogen and phosphorus.

Wastewater Operations Compliance Summary

		2020	2019	2018
Number of events of non-compliance associated with water effluent quality permits, standards, and regulations	Events	334	290	377
	Days in compliance	95.2%	95.5%	94.3%

Managing Contaminants of Emerging Concern

Managing emerging contaminants is a continuous process as science improves our ability to detect and understand the impacts of chemicals in use for decades as well as newly developed chemicals. We consider the latest science and research to identify potential contaminants of concern for further review, evaluation, or action. This typically includes the prevalence and levels of the chemicals, as well as their potential to cause human health or environmental harm. We also are involved in industry research, committees, and organizations that track and study the latest in emerging contaminants to help us prepare for future needs of the company. Based upon this information, we may choose to look at specific geographic locations or types of systems to further understand the environmental occurrence and behavior of these compounds. If the levels warrant action, then remediation of the source of the chemical is the first preferred method, to avoid removal in the water or wastewater process. If the source is too diverse or not easily identifiable, then treatment technologies are evaluated for installation to protect customers. With this knowledge we work with environmental regulators and with public utility commissions to gain the necessary acceptance and permissions to implement the treatment solutions. As this is conducted, efforts are developed to communicate findings with various agencies, organizations, and customers. Finally, we review all the impacts from our activity footprint to consider long term sustainability impacts on activities like material disposal.

In the past, Essential has reviewed chemicals such as pesticides, pharmaceuticals, and personal care products. Currently we are conducting and monitoring scientific activities for per and poly-fluoro alkyl substances (PFAS – PFOA, PFOS, etc.), cyanotoxins, lead and manganese.

In February 2020, we [announced](#) that we will, over several years, install treatment technology at water treatment facilities where source water exceeds 13 parts per trillion (ppt) for three PFAS substances, individually: PFOA, PFOS, and PFNA. PFAS are a concern in communities across the country where groundwater is believed to have been contaminated by nearby military bases or other causes. Setting a company-wide standard of 13 ppt, well below the EPA's non-enforceable health advisory level of 70 ppt, will enable Essential to address the contaminant uniformly across its footprint.

Key Emerging Contaminants

CYANOTOXINS

What is it?

Blue-green algae source, called by specific sub-names of microcystin, saxitoxin, and cylindrospermospin.

What are the risks?

Found in surface waters due to harmful algae blooms (sometimes referred to as HABs). If levels are not removed during treatment, very low levels of cyanotoxins can trigger health advisory levels leading to “do not drink” or “do not use” orders for customers.

How does Essential manage this contaminant?

We implement source water protection practices, monitoring, removal technologies, and the latest software that uses learning based upon data to develop algorithms to predict cyanotoxin levels and optimize treatment of cyanotoxins to safe levels.

ENVIRONMENT

LEAD

What is it?

Source is lead solder, lead pipes, and lead in older fixtures.

What are the risks?

If corrosion control is not properly maintained or the material is physically disturbed, dissolved and particulate lead can be released. Lead is toxic and can potentially impact children's development.

How does Essential manage this contaminant?

Our lead efforts focus on water quality optimization to prevent lead release, customer education to raise awareness of how to minimize lead exposure, monitoring to identify sources and confirm water quality is optimized, and removal of lead service lines.

PFAS

What is it?

Per or poly-fluoro alkyl substances, called PFAS, is a family of almost 5,000 constituents used in common household items, military use, and manufacturing since the 1940s including the more well-known sub-species of PFOS and PFOA. PFOS was primarily used in firefighting foams while PFOA was used in most non-stick materials including common household items, clothing, office supplies, and even food containers.

What are the risks?

Some PFAS sub-species have been linked to cancer and non-cancer health impacts at very low levels of exposure. The ubiquitous presence in the environment and requirements to remove to very low levels require expensive treatment systems. Regulations in states differ on the safe levels and standards while a federal standard has not yet been adopted.

How does Essential manage this contaminant?

Essential has surveyed all its systems for PFAS and has capability to conduct the analysis at its lab. We have adopted a policy to treat any system with a level of PFOA, PFOS, or PFNA of 13 ppt or greater individually. Essential has installed treatment systems on several systems with elevated PFAS and continues to participate in studies and research to proactively manage PFAS.



Helping our Customers Conserve Water

Essential tracks the water consumption trends of our customers to better manage water resources and to help safeguard sustainable sources of water for future generations. One of the most impactful findings has been a steady decline in water consumption by our customers over the past several decades. Improvements in home appliance technologies have enabled greater water efficiency. In 1971, we observed a peak consumption of 7,200 gallons per customer, per month in Pennsylvania. Prior to the COVID-19 pandemic, when customer behavior temporarily changed, that number had decreased by more than 45% to about 3,900 gallons per customer, per month.

Essential proactively shares information with our customers to enhance their experience and provide additional information on topics that help them save money and conserve water. These include tips on properly disposing of fats, oils and grease during the holidays to prevent clogs, water conservation tips and how to prevent the occurrence of frozen pipes during cold months. We share this content through our customer mailers and our social media properties including Facebook and Twitter. We also created an interactive and educational [website](#) for our customers to learn about sustainable and efficient practices they can implement in their homes.

We also provide WaterSmart alerts, an automated customer notification designed for quick, reliable communications on a customer's water safety and service in case of disruption.

The EPA's Fix a Leak Week, which serves as an annual reminder for households to check their fixtures for leaks, also provided an opportunity to engage customers via social media and in media pieces such as this [interview](#) on a Virginia news program.



We join our customers in pursuing opportunities for efficiency and strive to model environmentally friendly practices. Across our corporate office and facilities footprint, Essential seeks to use efficient appliances, fixtures and building systems where feasible. In various locations, we have implemented low-flow water faucets, water-saving toilets, LED lighting systems and have evaluated solar and energy savings opportunities across the company where possible.

Promoting Sustainable Water Sourcing

Essential continuously strives to be a responsible user of its water sources by reducing leakage and encouraging conservation. In addition, routine efforts are conducted to responsibly manage its water resources and sources against situations that could stress sources including drought planning and future demands from growth. As mentioned previously, Essential produced 85.4 billion gallons of water in 2020. An analysis was conducted using the WRI Aqueduct tool to look at our systems and production by WRI's Aqueduct Baseline Water Stress (BWS). As defined by WRI Aqueduct, Baseline Water Stress measures the ratio of total water withdrawals to available renewable surface and ground-water supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and non-consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users^{*}.

This analysis is considered a broad high level regional analysis and may not represent the true level of stress on a source locally, nor does it take into account management of sources by groundwater conservation districts, river basin commissions, or other local, state, and federal agencies. Regardless, the exercise was conducted to understand the potential regional water stress in Essential's service areas. The analysis was conducted by comparing in GIS the location of Essential systems to the BWS coverage provided by WRI Aqueduct. The representative annual production in 2020 for the system was then allocated to the BWS categories of low, low-medium, medium-high, high, or extremely high as indicated by WRI. As shown in the table below, roughly 11% of Essential's water produced in 2020 was sourced from regions with baseline water stress identified as high or extremely high. However, it is important to note that several large systems make up significant portions of our water production and thus can significantly influence these results. For example, the Essential main system serving a large region of Southeastern Pennsylvania makes up approximately 33% of 2020 annual

production and is in the Delaware River basin. The entire Delaware River basin baseline water stress is labeled as medium-high in the WRI Aqueduct tool, but this does not include the significant regulation and careful management of the entire basin's water resources by the Delaware River Basin Commission and surrounding states that has been occurring since the 1960s.

Essential will continue to evaluate and examine potential opportunities and technologies to recycle water and reuse wastewater. Sites that are more prone to water scarcity are monitored and addressed on an individual basis. In 2020, we recycled to the groundwater recharge via spray irrigation, drip irrigation and subsurface infiltration approximately 526.6 million gallons of treated wastewater. This is 5% of the total wastewater treated in 2020, with the remainder safely discharged to streams, rivers, or lakes.

Estimated Water Production from Regions of Baseline Water Stress

BWS Level	Low (<10%)	Low - Medium (10-20%)	Medium - High (20-40%)	High (40-80%)	Extremely High (>80%)
% of 2020 production volume	19%	5%	65%	10%	1%

^{*}Hofste, R., S. Kuzma, S. Walker, E.H. Sutanudjaja, et. al. 2019. "Aqueduct 3.0: Updated Decision- Relevant Global Water Risk Indicators." Technical Note. Washington, DC: World Resources Institute. Available online at: <https://www.wri.org/publication/aqueduct-30>.

Water Infrastructure and Resiliency

Investing in Our Nation's Infrastructure

The U.S. has a very fragmented network of aging water systems, with more than 150,000 water systems serving nearly 320 million people. Most Americans – just under 300 million people – receive their drinking water from one of the nation's 51,000 community water systems, many of which are municipally managed. While many of these municipally-managed systems are well run, there are also many that are facing serious compliance challenges, due to aging water and wastewater infrastructure, increasingly stringent drinking water and wastewater regulations, and budgetary constraints.

Prolonging an investment in water infrastructure is a risky decision that can have serious consequences on the safety and reliability of a water system over time. We are proud to play a leading role in providing solutions for water and wastewater systems that are struggling with these challenges.

Essential is committed to renewing and improving water and wastewater infrastructure through thoughtful and continuous capital investment. By leveraging our compliance expertise, purchasing power and operational efficiencies, we have infused needed capital and resources into the systems we own and acquire to rehabilitate the infrastructure required for reliable water and efficient wastewater services. It's a responsibility about which we feel strongly – and it's why we have invested approximately \$3.5 billion in infrastructure improvements and replaced more than 1,300 miles of aging water main since 2012. Essential has invested \$1.6 billion in water-related infrastructure in just the past three years.



Essential has invested \$1.6 billion in water-related infrastructure in just the past three years.

The capital planning programs utilize several strategies to evaluate both the short-term and long-term infrastructure needs across the footprint. Our processes evaluate the water and wastewater capacity, condition and operational performance of our systems. The capital planning program includes master planning to determine supply against projected customer growth, treatment performance evaluations for current and future contaminants, asset condition assessments for efficiency,

compliance management, and safety requirements. Essential conducts a rotational facility audits of our surface water plants to ensure timely assessment of our infrastructure investment requirements. Our asset management program relies on concepts of likelihood and consequence of failure to drive decision-making on which infrastructure to prioritize for repair or replacement.

Our Geographic Information System (GIS) captures water and wastewater assets within a spatial database. The GIS provides the basic asset inventory needed to support an effective asset management program. The GIS also provides the ability to address spatial questions such as “Which pressure zones experience the highest rate of water main breaks?” or “Which wastewater treatment plants lie within the 100-year flood zone?” The answers to such questions help to direct capital investment to specific areas. The GIS is also used to generate data required to construct hydraulic models of water and wastewater systems which are used to evaluate potential system improvements to identify the most effective and cost-efficient solutions.

Unplanned Service Disruptions

	2020	2019	2018
Number of unplanned service disruptions	1,805	2,486	2,407
Number of unplanned service disruptions (normalized per 100 miles)	13.2	18.2	17.6

Note: These year-on-year changes are likely primarily driven by better data collection and data quality that we have been working towards in recent years, across each of our states. The company is focusing efforts on more comprehensive disruption tracking and training which may increase our tracking numbers in the near term while providing us the opportunity in the long term to focus attention and remediation measures to reduce this impact to our customers.



Minimizing Sanitary Sewer Overflow

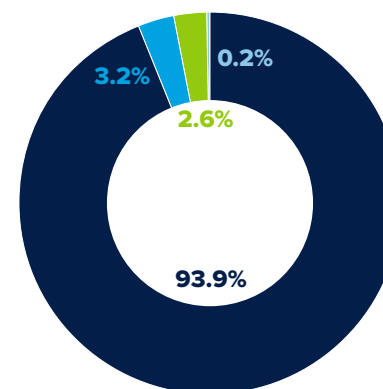
By industry standards, a sanitary sewer overflow (SSO) is an event where untreated sewage is discharged from a sanitary sewer into the environment prior to reaching sewage treatment facilities. At Essential, we internally define an SSO event more broadly to include any discharge of untreated or partially treated sewage from the collection system and the wastewater treatment plant to the ground or water body. This helps provide a greater awareness and emphasis on environmental impacts that should be mitigated. For example, in 2020, only 3.2% of the SSO volumes that we track would be regarded by industry standards as stemming from a traditional SSO event related to the collection system piping. Weather can and does drive material differences in these values year-on-year.

An SSO can be caused by a variety of things, including pipe clogging. An SSO can also be caused during wet weather periods when the sewer system capacity is exceeded by infiltration and inflow of groundwater through cracks in the pipe system. It is also caused by equipment failures at pump stations due to mechanical or electrical failures causing the system to overflow. In 2020, we observed 194 sewage related events (as Essential defines this) that discharged 6.8 million gallons of untreated or partially treated sewage (0.06% of our total treated annual volume). We observed that 98% of this volume was related to a precipitation event, thus showing that weather can drive material differences year-on-year.

At Essential, we work to reduce SSOs and sewage related events by regularly inspecting sewer pipes, cleaning sewer pipes, replacing aging sewer pipes to reduce inflow and infiltration, maintaining and upgrading our pump stations, educating customers about what not to put down the drain and monitoring fats, oils and grease from businesses. We also work to improve the capacity of our wastewater treatment facilities to handle peak flows.

2020 Untreated or Partially Treated Sewage Discharge Types*

- Unanticipated Plant Bypass
- Sanitary Sewer Overflow
- Plant WW Spill
- Collection Pipe Break



*This chart includes SSO data that meets Essential's more expansive definition.

SSO Occurrences (Industry-Defined) in Our Wastewater System

	2020	2019	2018
# Events	118*	118	138
SSO volume (gallons)	226,050	511,945	909,780
Total volume of wastewater treated (billion gallons)	11.5	12.3	11.4
% SSO	0.002%	0.004%	0.008%
% of annual wastewater volume that is treated without an SSO	99.998%	99.996%	99.992%
Miles of system	2,506	2,090	1,548
# SSO/100 mile system	4.7	5.6	8.9

*As stated, this count of SSO events is as defined by industry, which is consistent with SASB standards. This will not tie to the figure of 194 provided earlier in the text, because Essential has a more expansive definition of SSO.

At Essential, we capture and treat >99.99% of the wastewater from our customers despite challenges arising from heavy storms, hurricanes, clogs, and blocks.

Extreme flooding can also pose a risk to the integrity of operations at wastewater treatment plants, presenting a situation where a sanitary sewer overflow, as Essential more broadly defines this, can develop as untreated wastewater escapes into the surrounding environment. In the past year, we have performed a detailed analysis of how much of our wastewater capacity falls within 100-year flood zones. We determined that this proportion is 22%. Essential operates 199 wastewater treatment plants across its footprint. Using GIS, the location of each plant was compared to the FEMA National Flood Hazard Layer to determine which plants are located within the 100-year flood zone (1% annual chance of flooding). 31 Essential WWTPs were determined to fall within the 100-year flood zone. Those 31 WWTPs represent a combined treatment capacity of approximately 8.6 million gallons per day (MGD) or about 22% of Essential's 40 MGD total treatment capacity across its 199 WWTPs. Note that this analysis only considered whether or not the WWTP was located within the 100-year flood zone, and did not account for any flood prevention measures that might already be in place at those WWTPs. Essential carefully plans for such events and has implemented considerable mitigation efforts and processes to substantially reduce such a risk.

Reducing Water Loss

One of Essential's primary responsibilities is to manage water resources carefully. We do this in part by identifying ways to reduce water loss. Some of the ways we reduce water loss include:

- Replacing aging pipes and water mains before they leak or break
- Updating water meters to more accurately measure water consumption in real time and identify possible leaks in our distribution system or our customers' service lines or homes
- Reusing water in various, essential ways at our water and wastewater treatment plants.

Our significant investment in water infrastructure has proven to be a very successful way to reduce water main breaks and water loss. For example, in 2000, Essential experienced nearly 25 main breaks per 100 miles on the pipe we own in southeastern Pennsylvania. Since then, we invested more than \$3 billion in infrastructure in the same region. As a result, in 2020, we experienced fewer than 7 main breaks per 100 miles on that system. This not only reduced water loss, but reduced the volume and cost of emergency repairs, reduced service interruptions and improved water service for customers.

Keeping to this commitment, Essential replaced more than 170 miles of water pipes in 2020 and plans on replacing 180 miles of water pipes in 2021 to continue to address water loss, as well as improve reliability and service for customers.

Mapping software such as Geographic Information System (GIS), combined with in-situ acoustic monitoring technology and satellite imagery have yielded material results towards increasing effectiveness in locating leaks and reducing water loss. Essential has implemented innovative tools to advise our teams of potential sources of contamination from various sources under a GIS-based mapping tool.

Main Breaks per 100 Miles

	2020	2019	2018
Main breaks per 100 miles	22.9	20.4	18.3

Note: This apparent increase is likely the result of better data collection and data quality that we have been working towards in recent years, across each of our states. We believe that, in actuality, there has been a decrease in main breaks across the company and this is true when we look at certain individual state operations, such as our largest state of Pennsylvania. We hope these data improvements will allow for more direct year-on-year comparisons in the future. We believe it is likely that these figures are artificially inflated due to a different definition of "main break" used in some of our operations. The company is implementing new standardized processes and applications to consistently track information in 2022.

Water Main Replacement

	2020	2019	2018
Miles of main replaced	178	130	181

Non-Revenue Water Loss

	2020	2019	2018
Volume (billions of gallons)	17.8	16.8	17.7
% of total production	20.9%	20.0%	21.1%

Note: Data is displayed here in both the absolute value of volume as well as a percentage of total production. This normalizes the data and accounts for changes in total water production, or send out, across years. We believe that, due to our acquisition of new water systems over time, and the practical margin of error with measurement equipment in the field, our levels of non-revenue real water loss have remained materially consistent over the past three years.

Non-revenue water losses represented here include leakage (real losses), apparent losses, (such as theft and meter inaccuracies) and other instances, such as water main flushing and water for emergency fire services. These values are determined based on the difference between water production and water ultimately delivered to customers and billed.

Gas Infrastructure and Resiliency

General overview: Essential's gas utility operation serves approximately 740,000 customers in southwestern Pennsylvania, northern West Virginia and eastern Kentucky. We operate more than 14,500 miles of distribution and transmission pipelines in these areas. Peoples also owns and operates more than 2,000 miles of gathering pipelines, 29 compressor stations and seven underground storage fields. These facilities primarily function as midstream assets for local producers to transport their locally produced gas to Essential's customers and interstate pipelines. This provides for low-cost gas for customers.

Breakdown of Material Composition: Of the 14,500 miles of distribution and transmission pipelines, approximately 21% is of older vintage (prior to 1970) bare steel or cast/wrought iron and identified as aging infrastructure in the company's Long-Term Infrastructure Replacement Program (LTIRP). This modernization program targets replacement of all aging infrastructure by 2034. The operation and maintenance of these facilities are governed by the company's Distribution Integrity Management Program (DIMP), and Transmission Integrity Management Program (TRIMP), each of which formalize thorough processes and procedures for management of such assets. Newer pipeline materials being integrated into our system, most notably plastic, are more environmentally friendly over their lifetime than the materials commonly used previously. They are more durable, safer and more resistant to corrosion and leaks, which lead to methane emissions.

Leak-Prone Distribution Pipe

	2020	2019	2018
Percentage of distribution pipeline that is (1) cast and/or wrought iron and (2) unprotected steel	0.51% cast or wrought iron 21.3% bare steel	0.54% cast or wrought iron 22.2% bare steel	0.57% cast or wrought iron 23.1% bare steel

Inspections and Pipeline Integrity: Our robust inspection and maintenance activities, which are aligned with state regulations that outline the use of various leak detection technologies and methods, mitigate significant pipeline incidents. The plans and activities are reviewed and audited annually by the Pennsylvania Public Utility Commission (PA PUC) for compliance with all requirements and regulations.

Minimizing Third-Party Damage: Essential has an aggressive Damage Prevention program to minimize third party excavation damages. Over the three-year period 2018-2020, we experienced a 4% reduction of pipe hits per 1,000 tickets, which are requests from third parties to dig, from 6.7 to 6.4, despite a nearly 15% increase in tickets for digging during that time. In 2020, we filed a Damage Prevention Improvement plan with the PA PUC that identifies several new enhancements to the damage prevention program to further improve performance.



Compliance with Regulations - Gas

Essential has developed standard operating procedures that detail the requirements and inspection intervals for all operations and maintenance activities to comply with codes and regulations that govern pipeline safety. A dedicated team of engineers serve as the primary liaisons with the state regulatory bodies that audit and inspect these activities. In 2020, the Pennsylvania Public Utility Commission (PA PUC) conducted 104 audits of field operations and associated records, with no violations, fines, or citations. Five letters of potential Non-Compliance (NC letters) were issued by the Pipeline Safety Division of the PA PUC that recommended minor revisions to procedures and policies to enhance the pipeline safety performance.

Gas Safety Compliance

	2020	2019	2018
Number of (1) reportable pipeline incidents, (2) Corrective Action Orders (CAO), and (3) Notices of Probable Violation (NOPV)	2 reportable incidents	2 reportable incidents	1 reportable incident
Note: In the interest of transparency, Essential also discloses non-compliance letters received (NC), which do not rise to the level of an NOPV and which we generally categorize as relatively minor.	0 CAO	0 CAO	0 CAO
	0 NOPV	0 NOPV	0 NOPV
	5 NC	3 NC	4 NC
Percentage of gas (1) transmission and (2) distribution pipelines inspected	100%	100%	100%
	38.4%	35.5%	35.5%

Customer and Pipeline Safety

Providing safe and reliable service is the foremost priority for Essential's operations. Our pipeline integrity programs focus on meeting all regulatory requirements and inspections associated with pipeline safety. The Peoples Gas website has a [section](#) dedicated to safety for customers and the general public. In addition, the safety and training team conducts natural gas emergency response sessions for municipalities and fire departments, reaching more than 600 emergency responders. Our ongoing public awareness program sends various communications (such as emails, bill inserts and mailings) to customers, school districts and rural property owners to alert them of the potential hazards of natural gas, and the presence of facilities in their proximity. We are proud of our pipeline safety record and will continue to improve and innovate our community outreach and coordination efforts. Our [website](#) for first responders, as well as various in-person trainings and events, provides resources and information that promotes safety in various emergency situations.



In 2020, Essential achieved an average emergency response time in the top performing quartile of regional peer gas operators. Over the past three years, we have steadily improved our strong performance.

Average response time and percentage responded within 60 minutes are critical emergency response operating metrics and are reported monthly to the Pennsylvania Public Utility Commission and benchmarked annually by the American Gas Association. In 2020, Essential achieved an average response time of 24.2 minutes (with a goal of 27.5 minutes), and 98.9% within 60 minutes (on a goal of 98.8%), of which both place Essential in the top performing quartile of regional peer gas operators. Over the past three years, we have steadily improved our strong performance.

Average Response Time to Potential Gas Emergencies

	2020	2019	2018
Average minutes to respond	24.2	25.0	27.6
% Response within 60 minutes	98.9	98.4	98.3

Promoting Alternative and Innovative Energy

Combined Heat and Power: Essential is currently partnering with leading innovators and developers, such as Carnegie Mellon University and the University of Pittsburgh Energy Institute, to offer new products and services that provide cheaper, cleaner and more reliable energy solutions to our customers. Essential has partnered with natural gas producers, energy equipment providers, as well as energy plant operators in developing proposals for microgrids for large customers (such as a college campus or hospital) where combined heat and power (CHP), micro turbine and fuel cell technologies come together to provide nearly all of the customer's energy needs with reduced system-wide greenhouse gas emissions.

In 2019, the Allegheny County Airport Authority selected Essential to build a 20 megawatt (MW) gas generator, providing primary power for Pittsburgh International Airport. The gas generation will connect to the existing airport's microgrid, distributing electricity to the land and airside terminal buildings, hangar buildings, Hyatt hotel, and Sunoco gas station. The generation plant will go into service in mid-2021.

Airports are turning to CHP-based microgrids in order to make airport facilities and the critical transportation services they offer more resilient. Our Peoples' comprehensive energy solution approach for the Pittsburgh Airport leads to economic benefits, greater affordability, on-property energy production, redundant electrical capacity to harden the grid, and modular design for easy distribution across the airport complex.

Similarly, Allegheny Health Network engaged Essential for a central energy plant that includes a 2 MW CHP system, boilers, chillers and emergency generators. This system went into service in December 2020.

WATT Fuel Cell Program: Essential has partnered with WATT Fuel Cell Corp., a company based in Mt. Pleasant Township, Pennsylvania, to launch a pilot program aimed at offering the manufacturer's Solid Oxide Fuel Cell (SOFC) system throughout our gas service territory, which includes 740,000 natural gas customers in Pennsylvania, West Virginia and Kentucky.



WATT developed a hybrid SOFC power management system that creates small-scale power, 500W to 1.5kW, from natural gas, although the use of hydrogen is also feasible. The company already sells fuel cells using propane for RVs and small watercrafts. Through an electrochemical reaction, the fuel cell transforms the energy in gas to electricity with low direct emissions.

WATT has developed a proprietary manufacturing technique that creates an entire fuel cell tube using an additive manufacturing process. Additive manufacturing, or 3-D printing, utilizes plastics, resins and metals to print a product by adding layers, unlike traditional manufacturing that subtracts or cuts out raw material to create parts.

Facilitating Customer Adoption of Compressed Natural Gas Vehicles (NGVs):

Essential encourages the use of natural gas vehicles (NGVs) by our commercial customers as a lower emissions alternative to traditional gasoline-powered vehicles. We provide customer education, promote the NGV technology through various channels and communications, and advise customers on leveraging existing federal and state policy incentives, we will add the following sentence: NGVs are particularly well-adapted to heavy commercial vehicles. NGVs emit lower levels of CO₂ than conventionally powered vehicles and, in addition to adopting them within our corporate fleet, we are eager to guide the businesses we serve through the process as well.

Strategic Partnerships

Southwestern Pennsylvania Energy Efficiency Roundtable: Essential is a founding member of the Pennsylvania Department of Environmental Protection's Southwestern Pennsylvania Energy Efficiency Roundtable. This group is a consortium of energy efficiency stakeholders in Southwestern Pennsylvania. The primary mission of the Southwestern Pennsylvania Energy Efficiency Roundtable is to help business and industry in Southwestern Pennsylvania reduce energy costs through improved energy management, energy efficiency and cutting-edge technology. The roundtable is expected to provide a forum for large energy users to share information and attract experts on various energy topics, from energy efficient technologies to energy management strategies.

U.S. Department of Energy CHP Accelerator: Essential entered into an agreement with the U.S. Department of Energy (DOE) to become one of the founding CHP Engagement Partners that will utilize the CHP eCatalog that is being developed by DOE. As a DOE CHP Engagement Partner, Essential has agreed to:

- Engage potential CHP project candidates on applications of CHP systems
- Coordinate with CHP Suppliers Partners to validate package CHP installation, cost and performance data

University of Pittsburgh's Center for Sustainable Business: Essential is a founding sponsor of the University of Pittsburgh's Center for Sustainable Business at the Joseph M. Katz Graduate School of Business. The mission of the Center is to maximize the value of investments in sustainable business strategies for all stakeholders. It accomplishes this by leveraging the unique expertise and capabilities of an active research and teaching community together with the applied knowledge and industry experience of some of the world's most influential companies. The Center consists of three broad programmatic areas: thought leadership, research, and education. In all three of these areas, the Center seeks to utilize its position as a leading academic institution to engage companies in the adoption of more sustainable business practices, as well as help companies and other stakeholders

capitalize on short-, medium-, and long-term investments in the human resources, intellectual know-how, and physical and social infrastructure needed to realize a more sustainable future for its local and global communities. Essential is enthusiastic in supporting the Center for Sustainable Business to help raise awareness about sustainable business practices and to further its own sustainability and ESG-related commitment.

Pittsburgh Region Clean Cities: Essential is a long-time member of the Pittsburgh Region Clean Cities (PRCC). PRCC advances the energy, economic and environmental security of the United States by supporting local actions to reduce petroleum use in transportation. PRCC also serves as the designated regional organization for all U.S. Department of Energy Clean Cities initiatives, including project funding. The mission of PRCC aligns with Essential's own mission through the promotion and advancement of cleaner alternative vehicle fuels that help reduce harmful pollutants and help clean the air of our communities.

Energy Innovation Center: Essential has sponsored the Energy Innovation Center (EIC) for several years. The Energy Innovation Center is a Pittsburgh based, not-for-profit organization with a mission to engage corporate and community leaders, align workforce development and education, develop and demonstrate technology, and incubate businesses, to support emerging clean and sustainable energy markets. The EIC has joined with key stakeholders to transform a vacant property in into a LEED Platinum Certified beacon for clean, efficient and sustainable energy solutions and technologies. Located in Pittsburgh's Lower Hill District this 200,000 square foot building functions as a 'living laboratory' for industry-informed education and training programs and a center that co-locates diverse tenants, including energy sector corporations, national energy research laboratories, political and community leaders, economic development organizations, and leading academic institutions. Essential was a key stakeholder and was instrumental in the adoption of two microturbine-CHP systems that provide the LEED Platinum Certified facility with resilient and efficient heat and power.

Meeting Our Communities' Energy Needs

At Essential, we recognize that the energy landscape is rapidly shifting and evolving. Across the country, there is a massive investment in renewable technologies, especially for electric generation. We are excited to witness these developments and look forward to the future because we believe the complementary attributes of natural gas and renewables will enable a low-carbon economy to thrive while avoiding the worst impacts of climate change. Natural gas infrastructure mitigates the intermittency of renewable sources like wind and solar and adds resiliency, reliability, and efficiency to energy markets.

We believe the future of natural gas is particularly strong in distribution to homes and businesses to supply heating and other daily needs.

AFFORDABILITY

\$879

Households that use natural gas for heating, cooking and clothes drying save an average of \$879 per year compared to homes using electricity for those applications*

0.5%

The U.S. Energy Information Administration (EIA) projects only 0.5% annual growth in the residential price of natural gas through 2050*

\$143B

The low cost of natural gas has saved families a total of \$143 billion over 10 years*

\$910

Policy-driven electrification would increase average household energy-related costs up to \$910 per year*

EFFICIENCY

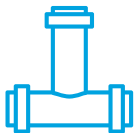
73%

Since 1990, greenhouse emissions from natural gas distribution systems across the country have declined 73%, comprising less than 5% of total U.S. emissions today*. Utilities like Essential are planning substantial reductions in the coming years as well

91%

The natural gas delivery system is 91% efficient from production to customer, compared to 36% for electric supply*

RESILIENCY AND SAFETY



Pipeline infrastructure is underground, looped and shielded from many disruptive events, such as severe weather



The ability to store gas further strengthens resiliency



Essential is making significant investment in pipeline safety and employee safety, which are both the top priorities

MARCELLUS SHALE



Pennsylvania is the second-largest natural gas producer in the U.S.**



Essential's proximity to the Marcellus Shale provides direct access to ample supply of low-cost gas



Sources:

*<http://playbook.aga.org/>

**<https://marcelluscoalition.org/resources/industry-at-a-glance/>

Waste and Non-GHG Air Emissions

At Essential, we are committed to minimizing the amount of waste produced at our treatment facilities and corporate offices and ensuring that any waste created is handled responsibly. Because the waste produced at our treatment facilities is organic matter, in many cases, it is able to be beneficially reused in farming and land application. The nutrients in the organic solid waste are valuable to crops and can help replenish soil, and therefore can be applied to the land in the place of fertilizer or manure. When it cannot be reused, the waste is sent to a landfill or to be further processed at another facility.

2020 Waste Generation (Dry Metric Tons)

Description	Beneficial Reuse / Recycled	Landfill	Incineration	Total
Treatment of water	26,469 (Land application)	6,764 (88% in company owned landfills)	0	33,233
Treatment of wastewater	2,535 (Land application)	3,099	527	6,161
Office waste / miscellaneous non-hazardous waste	402 (Recycled)	2,156	0	2,558
Natural gas liquids	498 (Fuel blending)	0	0	498
Hazardous waste	0	0	8	8
Total waste	29,904	12,019	535	42,458

ESSENTIAL PRODUCED 42,458 TONS OF WASTE

78%

78% of this waste came from the treatment of water and 14.5% of this waste came from the treatment of wastewater

70%

70% (29,904 tons) of this waste is beneficially reused while the remaining 30% (12,554 tons) of this waste was sent to landfills, or further processed at another facility

< 1%

Less than 1% (535 tons) of this waste was incinerated at a permitted facility

6%

6% (2,558 tons) came from our offices. Of this 2,558 tons of material, 16% was recycled. The remaining 84% of office waste was sent to landfills

8 tons

Approximately 8 tons of hazardous waste was disposed via incineration and this amount is attributed to our gas operations

4%

Gas company activities accounted for only 4% of our waste, while water/wastewater company activities accounted for the large majority (96%) of the waste

Most of our waste is organic residual from our treatment processes. As stated, over half is beneficially reused.

Because there is a very limited generation of hazardous waste as part of our operations, we do not have an active hazardous waste management program at an enterprise level. We are, however, working on building better waste management manifests for each of our states, as well as a contractor database to promote vendors' tracking of this information as well. Any accidental chemical spills or fuel waste from vehicles and generators are remediated following all local, state, and federal environmental rules by certified contractors.

The air emission data presented below represents non-greenhouse gas emission data that has been reported to state agencies for the Essential footprint. These include facilities with compressor stations or multiple large emergency generators. The data below does not include air emissions generated from vehicles and permit exempt emergency generators.

2020 Air Emissions*

Emission Type	Dry Metric Tons
Nitrogen Oxides (NOx)**	264.2
Particulate Matter (PM10)	< 10
Sulfur Oxides (SOx)	<1
Volatile Organic Compounds (VOCs)	201.3
Hazardous Air Pollutants (HAPs)	45.2

*Emission data from sources within the scope of our required regulatory air emissions reporting

**Nitrous oxide (N₂O) is a greenhouse gas, but we have included it in this section summed with other nitrogen oxides for completeness and because it constitutes a small amount of our total NO_x emissions





Business Continuity and Emergency Preparedness

Business Continuity Plan- Water and Wastewater Operations

The purpose of our business continuity plan is to keep all our water and wastewater plants and operating facilities online and in compliance with regulatory regulations and requirements. In conjunction with keeping the plants operating, this also promotes appropriate maintenance of distribution systems, uninterrupted water supply and wastewater processing, and the health and welfare of our employees, customers and their families.

The plan covers numerous key areas:

- Worker safety
- Permit compliance
- Sustainability of critical operations
- List of primary and back up operators (licenses), as well as information pertaining to who has been trained and prepared to step in during cases of emergency
- Modification to normal and routine business workflow
- List all facilities, along with their classifications and licenses
- Pandemic trigger points, assessed on a three-tier level system

Business Continuity Plan- Gas Operations

Similarly, Essential's gas utility also has a detailed emergency response plan that outlines the procedures, guidelines, organizational support, and communication to respond to natural gas emergencies on pipeline systems, customer service outages, or other natural disasters that present potential hazards to the public, property, or environment. The purpose of this emergency response plan is to keep all our gas facilities and systems online and in compliance with regulatory regulations and requirements. The plan, which has many similar components as that of the water and wastewater business, is reviewed and updated annually with all operating personnel, and tabletop exercises and emergency simulations are conducted to provide the general knowledge and preparedness to respond to these types of events.

Eastern Seaboard Hurricane Plan

Our Eastern Seaboard Hurricane Plan is applicable to New Jersey, North Carolina, Pennsylvania and Virginia water and wastewater operations. The plan document is updated annually, and its purpose is to aid in the mitigation, preparedness, response, and recovery from hurricane and severe storm conditions that threaten or impact Essential's community water system facilities. It also includes intracompany mutual aid. A similar plan is also used in Texas.

Once a hurricane's path has been identified, with a probability that it will affect any of our water systems, it is the responsibility of the state presidents, or their designees, to initiate interstate company communication and preparation for the impending hurricane or severe storm. An EPA Hurricane Incident Action Checklist for water utilities is used as a template to assist the states. It includes individual checklists which should be completed for the start of hurricane season, before an impending hurricane, and after a hurricane.

For each state, the plan contains tables with company contacts and phone numbers of key personnel who play a vital role in the planning and response to a hurricane. The document also includes each state's crisis notification chain of command detailing who needs to be contacted, including local, state, federal and regulatory personnel.

Local and national contractors and vendors are listed to facilitate appropriate level of coordination prior to any event. Regions are required to contact their local contractors and vendors first, with national contractors and vendors to follow.

The communication section lists the communications manager for each state. Operations works with communications managers when there is a need to release any type of public notification. Additionally, the communications section includes templates for press releases, public notifications, emergency outreach, boil water templates, and other items to facilitate dissemination of information to our customers and community is swift and efficient.

Essential's Business Continuity Journey

To help support our organization's business continuity, we have kicked off a multi-year effort to achieve the following:

- Increase Essential's preparedness for high impact uncertainties and its response and recovery
- Improve upon Essential's prevention capabilities and its ability to achieve operational resiliency
- Develop Essential's proactiveness as it relates to mitigation and management measures taken to decrease impact.

The first portion of the work will be completed in 2021 and is an initiative to develop an integrated Incident Management Plan for Essential Utilities, along with a Crisis Communication Plan, and with the existing business continuity plans embedded as sub-plans. The Incident Management Plan will memorialize the processes, procedures, and protocol necessary for responding to a business interruption occurrence, or any other high-level uncertainties. The plan will concentrate on safety, including the protection of life, assets, and environment. We will also develop and exercise complimentary training for the new plan to ensure effective execution.

Once developed, these corporate-level plans will be updated annually for content and contacts.

The second portion of the work is a long-term initiative that will deliver new operation-specific Business Continuity Plans, which will be master plans for operational resiliency and recovery following a business interruption occurrence.

Another goal of this effort is to standardize the frequency and cadence for testing and simulation exercises across the organization. Today, this is performed throughout the organization but varies across state operations.

Energy Consumption

Essential

Essential Utilities - Energy Consumption by Source Type

	Percentage of Total kWh of Energy Consumed
Electricity (grid electric)	39.4%
Electricity (purchased wind)	4.2%
Electricity (onsite solar)*	0.5%
Motor gasoline	11.1%
Natural gas	41.6%
Motor diesel	2.8%
Compressed natural gas	0.4%

*While Essential consumes the energy generated from onsite solar installations, we sell the associated renewable energy credits (RECs) in the marketplace.

Essential Utilities - Renewable Energy

Energy consumed (MWh total energy consumed)	747,018
Energy derived from renewables (percentage renewable)	4%

Water and Wastewater Operations

The physics of moving vast amounts of water and wastewater through networks of pipes to and from Essential's plants requires extensive amounts of energy; 81% of the total energy consumption required across our operations is related to water operations and 19% is related to wastewater services. We rely on several different sources of energy for various business activities.

Electricity is our most consumed form of energy and 95% of the electricity we use is needed to operate pumps and treatment equipment at our plants. The remaining approximately 5% is used in our offices. Vehicle fuel is the second largest source of energy for Essential, as we operate a fleet of vehicles for regular physical monitoring of our infrastructure. Natural gas is used to heat our facilities and is our third largest energy source.

Water and Wastewater Operations - Energy Consumption by Source Type

	Percentage of Total kWh of Energy Consumed
Electricity (grid electric)	73.3%
Electricity (purchased wind)	8.0%
Electricity (onsite solar)*	0.9%
Motor gasoline	10.9%
Natural gas	4.9%
Motor diesel	1.5%
Compressed natural gas	0.5%

*While Essential consumes the energy generated from onsite solar installations, we sell the associated renewable energy credits (RECs) in the marketplace.

Our total energy consumption has been relatively consistent over the last three years with increases attributed to acquisitions and the organic growth of our business. In 2020, several developments occurred that will significantly increase our proportion of renewable energy consumption in coming years. Essential contracted to source 25% of its electricity in Aqua Texas through an offsite solar power purchase agreement (PPA), which started in June 2020. We also contracted with a retail power supplier for 100% wind power through Green-e Renewable Energy Certificates beginning in 2022 for our water and wastewater operations in Illinois, New Jersey, Ohio, and Pennsylvania. These states feature deregulated energy markets which allow for this arrangement. Aqua Illinois also entered into onsite solar PPA agreements to build two solar fields totaling 3 megawatts. The first, at our Manteno wastewater facility, began operation in January 2021 and the second, at our Danville water facility, was operational as of July 2021. These two solar fields are expected

to provide 75% of the power for our Danville water and Manteno wastewater plants. These three initiatives will increase our energy derived from renewables from 8% today to 59% in 2022. In volumetric terms of production, we expect renewable energy usage to cover 62% of water and 42% of wastewater treated in 2022.



Essential's water and wastewater operations will increase its energy derived from renewables from 8% today to 59% in 2022.

Water and Wastewater Operations -Renewable Energy

	2020	2019	2018
Energy consumed (MWh total energy consumed)	390,831	383,886	389,750
Energy derived from renewables (percentage renewable)	8%	5%	5%

The above table shows the total amount of energy consumed by Essential. 8% of our total energy consumed, of which electricity is the primary but not sole source, is renewable. This is in the form of wind power through Green-e Renewable Energy Certificates. The increase of 3% from 2019 was a result of the start of the PPA in Aqua Texas. Excluded from this figure is energy from onsite solar generation, for which we sell renewable energy credits in the marketplace and, thus, do not retain its renewable attributes. In our path forward to achieve our goals, we estimate that approximately 71% of our electrical power will be supported through RECs starting in 2022.



Gas Operations

Gas Operations - Energy Consumption by Source Type

	Percentage of Total kWh of Energy Consumed
Electricity (grid electric)	2.4%
Motor gasoline	11.3%
Natural gas	81.8%
Motor diesel	4.3%
Compressed natural gas	0.2%

Gas Operations - Renewable Energy

Energy consumed (MWh total energy consumed)	356,187
Energy derived from renewables (percentage renewable)	0%

Energy Intensity

Water and Wastewater Operations

Tracking energy intensity, or measuring energy efficiency from an economical perspective, allows Essential to benchmark operations across our regions and states and compare them to each other and against national metrics. Intensity tracking takes on additional importance with our very diverse network of water systems across eight states. While our median water system is 64 connections and economy of scale favors larger systems for single efficiency opportunities, our large number of nearly identical smaller systems provides an opportunity to replicate energy efficient methods across many similar systems.

For water, energy intensity is expressed as kilowatt hours (kWh) of energy usage, from both electricity and natural gas, per 1,000 gallons of water (kgal) produced. This is calculated across all eight states and, in 2020, the company averaged 3.1 kWh/kgal. These energy intensity values are highly dependent on physical factors, which vary not only state to state, but by region and location. Changes in regulations may also lead to more energy-intensive practices over time, making long-term trend analysis difficult. The depth and lift required to gather water and the pressure required to pump water across distance and elevation are the most significant factors in energy intensity. Because of our large number of smaller systems, heating pump stations during the winter can often cause the intensity factor to double during the colder months. For wastewater, energy intensity is expressed as kWh of energy usage, from both electricity and natural gas, per kgal of wastewater treated. In 2020, the company averaged 5.4 kWh/kgal.

In 2019, to help managers and operators control and reduce energy consumption, these metrics were made available on a monthly basis throughout the company's data dashboard. This allows them to understand their locations' unique energy signature and use this information to improve efficiency. We have already observed considerable efficiency gains, as operators can better identify well systems with higher energy consumption compared to similar Essential systems and enacting measures to address this. Utilizing energy intensity metrics has also identified potential projects for station retrofit to enhance efficiency.

Energy Intensity by Business

	2020	2019	2018
Water (kWh/kgal)	3.1	3.2	3.3
Wastewater (kWh/kgal)	5.4	4.8	5.4
Gas (kWh/MMcf)	2.3	—	—

Reducing Energy Use

Water and Wastewater Operations

In 2020, Essential's water and wastewater utilities implemented an energy analysis dashboard to analyze energy performance for systems, facilities, and assets. This was made possible by combining energy and water production data, allowing users, such as facility operators, to track energy intensity over time and by season. This system, which utilizes modern hydrologic modeling techniques, has allowed Essential to begin a triaged approach to identifying energy improvement opportunities. Our facility operators also now have greater visibility into underperforming assets and when the asset is due for reoccurring major maintenance, allowing them to better plan for and manage energy usage. We are also able to better identify locations which may utilize excess heating during winter months.

Aged assets provide great opportunities to save energy. For example, an energy intensity analysis identified Hall Road Well in southeastern Pennsylvania as having a high energy intensity relative to similar wells in our operating footprint. An investigation showed that the well was outside of the original design operating parameters and we subsequently replaced the pump and motor with a more efficient design, reducing energy usage by 35% annually.



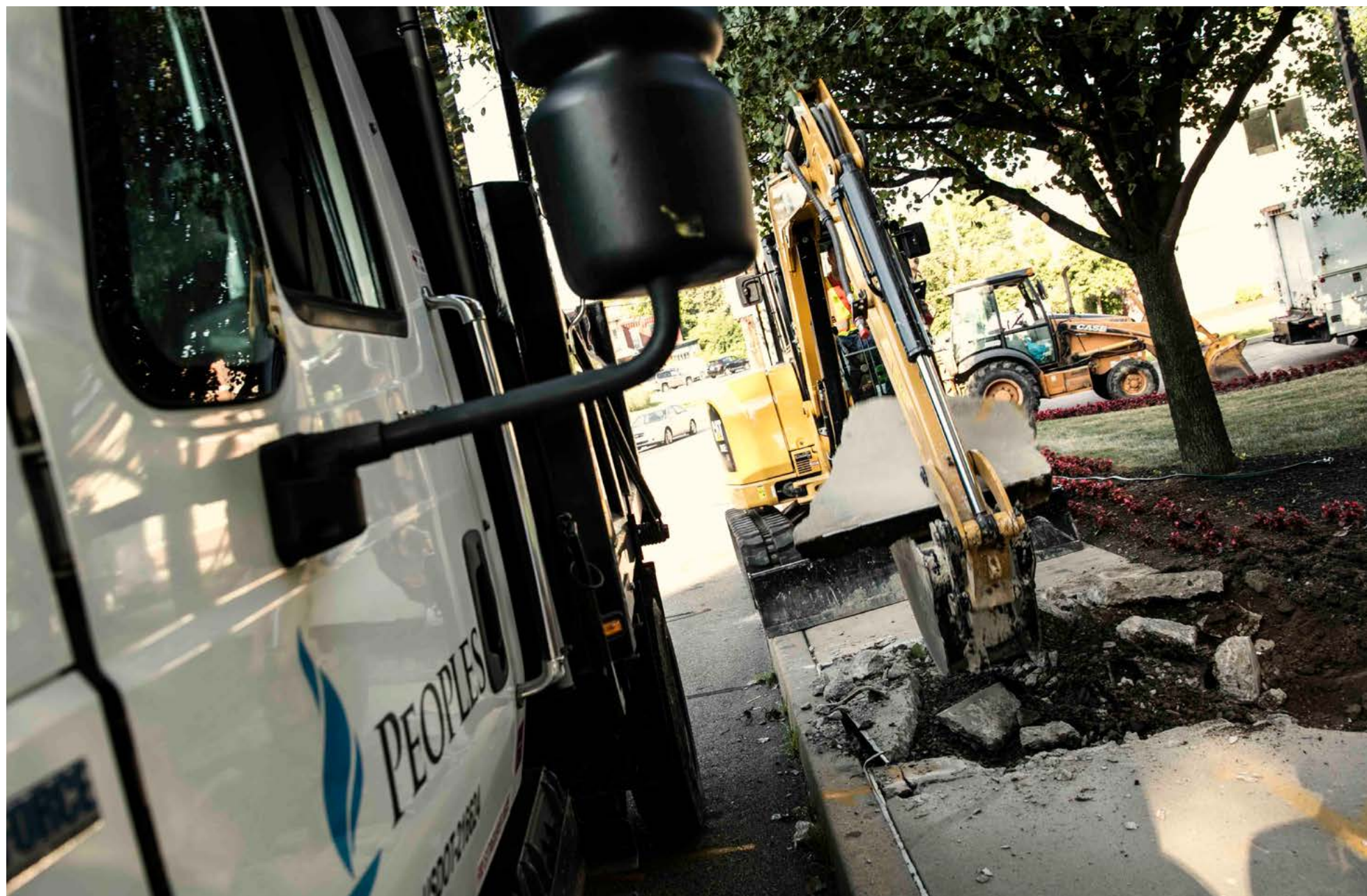
Climate Risk Management and Oversight

Essential understands the urgency of the Paris Agreement and the UN Intergovernmental Panel on Climate Change's science-based target of limiting the global temperature increase to well below 2 degrees Celsius. Addressing climate change requires a holistic management approach and tracking of our Scope 1, 2 and 3 greenhouse gas (GHG) emissions. Our executive and management teams understand there are two distinct elements of climate change: adaptation and mitigation. Essential is addressing both items and has implemented a robust management system to identify associated risks and opportunities.

Essential defines its climate-related impacts through a model which weights likelihood, cost, magnitude of impact and time horizon. The process also allows for implications to be updated and easily re-evaluated on an annual basis. This re-evaluation takes into consideration updates to climate models and the addition of new topics and implications as the businesses and business locations change.

Essential's management of climate change matters consists of significant board-level oversight of climate-related issues through various channels and reporting paths to review the risks facing the organization and evaluate our operations with respect to many issues, including the risk factors associated with climate change. At the management level, Essential's ESG Oversight Committee, a group of about a dozen of the company's senior leaders from across the organization as well as the CEO, meet at least once each quarter to discuss these topics and there are numerous other opportunities each month for various members of senior management to engage on climate change matters.

We provide much more information on Essential's climate scenario analysis, board and executive oversight, risks, and opportunities in our [CDP](#) and [TCFD](#) reports.



Greenhouse Gas Emissions Reduction (Essential)

In January of 2021, Essential announced a commitment to substantially reduce Scope 1 and 2 greenhouse gas emissions. By 2035, Essential will reduce its emissions by 60% from its 2019 baseline. This reduction is roughly equivalent to the emissions from 80,000 cars on the road over the course of the year. This will be achieved by extensive gas pipeline replacement, renewable energy purchasing, accelerated methane leak detection and repair, and various other planned initiatives that are highly feasible with proven technology. This science-based commitment is consistent with the rate of reduction necessary over the next 15 years to keep on track with the Paris Agreement, which aims to limit the global temperature increase to well below 2 degrees Celsius. All our utilities- gas, water, and wastewater- across all 10 of our states will be contributing to this enterprise-wide target and building on important work and progress in recent years. Our legacy water and wastewater operations as well as our new gas operations will each be contributing about a 60% Scope 1 and 2 emissions reduction individually.

Transparency is at the center of our ESG program and a core value of our company, so we will report on our progress toward this goal twice a year until we meet the target. This is a strong first step toward an ultimate aspiration of net zero emissions, which we acknowledge will only be possible with further technological and engineering innovation. While we're optimistic and excited about the pace of technological advancement, this initial 60% Scope 1 and 2 emissions reduction comes from projects and initiatives we have already planned or put into place. They utilize existing and proven technology and methods and are real and tangible. Importantly and uncommonly in the utilities space, the baseline is very recent, 2019.

Essential's Commitment in Perspective¹

By 2035, Essential will reduce annual emissions by 369,991 MT CO₂e compared to its 2019 baseline. This figure is roughly equivalent to each of the following activities taking place over one year:

80K

Emissions from 80,000 cars on the road

67K

Emissions from 67,000 homes' electricity usage

453K

CO₂ sequestered by over 453,000 acres of U.S. forest, which is enough land area to cover more than the entire expanse of Sequoia National Park

Source: U.S. Environmental Protection Agency Equivalencies Calculator

What are Scope 1 and 2 Emissions?

Scope 1 Emissions- Direct GHG emissions occur from sources that are owned or controlled by our company, for example, emissions from combustion in owned or controlled boilers, furnaces, and vehicles. Most notably, these include methane emissions from our gas pipelines.

Scope 2 Emissions- GHG emissions from the generation of purchased electricity consumed by Essential. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of our company. Scope 2 emissions physically occur at the facility where electricity is generated.

Charting a Course for Aggressive Emissions Reduction

	2019 Baseline	2035 Target	% Reduction
Essential	616,652	246,661	60.0%
Gas Distribution	485,471	196,580	59.5%
Water and Wastewater	131,181	50,081	61.8%

Note: Essential has recalculated its 2019 Scope 1 and 2 baseline from 583,408 metric tons CO₂e to 616,652 metric tons CO₂e. This decision was driven by changes to methodology for the calculation of emissions relating to our gas utility. These changes have led to a more complete and accurate representation of 2019 emissions. Essential's 60% Scope 1 and 2 emissions reduction commitment remains confidently in place.

Below are Essential's 2020 GHG emissions by scope. For historical and more detailed disclosure, please refer to the Gas Operations and Water and Wastewater Operations subsections.

Greenhouse Gas Emissions (Metric Tons CO₂e)

	2020	2019	2018
Scope 1 emissions	483,214	499,259	*
Scope 2 emissions (market-based)	111,262	117,393	
Scope 1 and 2 emissions (market-based)	594,476	616,652	
Scope 3 emissions	8,653,218	*	

*2019 was the first year for which Essential disclosed Scope 1 and 2 GHG emissions for its combined water, wastewater and gas utilities. This served as the baseline for our emissions reduction target. 2020 is the first year for which Essential is disclosing Scope 3 emissions for its combined water, wastewater and gas utilities.



Greenhouse Gas Emissions Reduction (Gas Operations)

Almost all of Essential's Scope 1 emissions are emitted by our gas operations. Of this, the large majority of such emissions relate to fugitive methane from pipeline leaks. As natural gas, which is primarily methane, travels through our network of underground pipes on its way to the customer, a very small portion of this volume leaks out and escapes into the atmosphere, often due to corrosion leaks, material defects or excavation damages. Our Long-Term Infrastructure Improvement Plan seeks to, over time, systematically replace older and more vulnerable sections of pipe made of materials that are leak-prone. Additionally, as is common across our industry and consistent with regulations, we utilize various leak detection technologies to proactively identify sources of fugitive methane and repair leaks as quickly as possible.

Our gas operations contribute a relatively very small amount of Essential's Scope 2 emissions. Gas distribution is not an electricity-intensive operation. Even so, we continue to assess ways to increase energy efficiency and reduce consumption.

Materially all of Essential's Scope 3 emissions are driven by our gas operations and specifically by carbon dioxide emitted by customers upon combustion of natural gas in their home or business. We continue to assess opportunities and initiatives to reduce these emissions, aware that Scope 3 emissions are more challenging to address directly than Scope 1 and 2 emissions, as is the case with other industries. Like most of our peer gas utilities, we are examining exciting opportunities for alternative fuels, such as renewable natural gas or hydrogen, which also serve to reduce Scope 3 emissions.

Greenhouse Gas Emissions (Metric Tons CO₂e)

	2020	2019	2018
Scope 1 emissions	467,063	483,202	(Not calculated)
Scope 2 emissions (market-based)	3,156	2,269	(Not calculated)
Total Scope 1 and 2 emissions (market-based)	470,219	485,471	(Not calculated)
Total Scope 3 emissions	8,533,075	(Not calculated)	(Not calculated)

Note: Essential chooses to present Scope 2 emissions using the market-based method, as this approach incorporates the impact of various sourcing decisions, such as our procurement of renewable energy. In contrast, the location-based method reflects the average emissions intensity of grids on which energy consumption occurs. We wish to footnote Essential's gas operations' location-based Scope 2 emissions (measured in metric tons CO₂e): 3,951. We did not calculate this figure in 2018 or 2019.

GHG Emissions Reduction Overview

Of Essential's Scope 1 and 2 emissions, 79% is driven by the gas distribution business. As such, almost all our emissions reduction will be driven by the company's aggressive Long-Term Infrastructure Improvement Plan (LTIIP), which has a stated goal to replace 3,000 miles of bare steel and cast-iron pipe. In addition to the LTIIP, there are other initiatives currently underway to reduce emissions. Essential is implementing a gathering system repair program, which allows for accelerated detection and leak repair. Construction techniques that minimize methane emissions during replacement and repair activity are also being employed. The company is using new equipment that captures gas used during construction and reinjects it into the system. Further, we continue to replace some of our gasoline and diesel-powered vehicles with compressed natural gas (CNG)-powered vehicles to reduce our fleet emissions.

The following are major initiatives that we are undertaking to reduce emissions in our gas operations:

- Long term infrastructure improvement plan to replace 3,000 miles of leak-prone pipe over 20 years
- Gathering system repair program
- Accelerated leak detection and repair
- Fugitive gas reinjection during construction
- Transitioning to compressed natural gas fleet vehicles

EPA Star Methane Challenge

In 2016, Essential joined the EPA's STAR Methane Challenge, which is a program by which partners transparently report systematic and comprehensive actions to reduce methane emissions. Our profile is viewable on the EPA website. At this time, we made a commitment to replace at least 1.5% of cast iron and unprotected steel main in our distribution system per year, and to report all data elements related to excavation damages. Essential is meeting or exceeding these commitments and looks forward to continued involvement with this program.

Long-Term Infrastructure Improvement Plan

The start of Essential's gas operations can be traced back to 1885, during the Industrial Era. Our pipe network grew from a single line stretching 10 miles between Murrysville and Pittsburgh to our current 15,000+ miles of pipeline in the 18 southwestern Pennsylvania counties we serve, as well as select areas of West Virginia and Kentucky. Since then, we have been dedicated to safety and that meant replacing pipelines when they corroded or became damaged. However, safety took on a broader meaning recently, as the relationship between fugitive methane leaks and climate change have become more widely studied and understood.

Today, this expanded definition of safety and environmental responsibility establishes the foundation for our dedication to reducing the methane leakage from our

pipes. Work began in 2012, when we started to strategically examine our system's replacement needs and assess our pipelines. Among our first actions would be the replacement of almost all the cast iron pipes, which represent older infrastructure that tends to be more leak-prone.

In 2013, we launched our LTIP, an aggressive 20-year effort to replace and upgrade more than 3,000 miles of natural gas pipelines with new plastic pipelines that will not corrode. These lines are also flexible and can withstand the region's seasonal freeze and thaw cycle. To date, Peoples has replaced or removed from service more than 800 miles of leak-prone pipe. Pipelines selected for replacement are based on operating history and location. We assess about 450,000 segments of pipe and assign a relative risk ranking based on probability of failure times and consequence of failure to help us determine prioritization of action. The capital outlay varies from year to year, but we expect to spend approximately \$275 million or more each year.

A significant part of our plan is retiring pipes especially in and around Pittsburgh because is the only major American city that has had different gas companies, and their separate and redundant gas pipes, under its streets. Peoples acquired other major companies in the area and began to systematically eliminate older pipelines, where practical, to transport gas via one line within a community.

LTIP is currently the most significant of our Scope 1 and 2 greenhouse gas emissions reduction efforts and is an excellent example of how operational efficiency, reliability, safety and mitigation of climate change can mutually reinforce each other, for the benefit of all our stakeholders.

Gathering System Repair Program

Due to the on-system gas production in our service territory, Essential has a considerable gathering line system that is used to transport natural gas from the wellhead to the distribution system. The replacement of gathering assets is addressed in a separate replacement plan. The original plan began in 2017 and focused on removal or replacement of over 135 miles of gathering line at a cost of \$20 million. As of year-end 2020, the plan was on schedule and over 61 miles of gathering line has been replaced or removed from the system.

Identified Leaks Per Mile of Pipe Surveyed

As a result of LTIP and our Gathering System Repair Program, Essential has reduced identified leaks per mile of utility pipe surveyed (inclusive of distribution and gathering pipe but excludes that of the Goodwin-Tombaugh system) from 1.72 in 2015 to 1.33 in 2020, a 23% decrease. For the past three years, this metric has remained consistent. We are surveying gathering pipe more often and have chosen to normalize for this by disclosing leaks in relation to miles of pipe we surveyed in the given year.

Identified Leaks Per Mile of Pipe Surveyed

2020	2019	2018
1.33	1.33	1.32





Emerging Technologies

Essential is currently investigating various emerging technologies and alternative fuels that have the potential to further reduce our emissions and even transform our operations. We are committed to examining potential initiatives and their feasibility. We do not currently have investments in the below list of technologies and alternative fuels but Essential will continue to update stakeholders in the future on any related developments. The pace of change in the gas industry is accelerating and this is cause for great optimism. For purposes of this ESG Report, we would like to give an overview of some of the technologies that excite both us and our peers in gas distribution as well:

Renewable Natural Gas

Renewable natural gas (RNG) or biomethane, is typically the result of anaerobic digestion of organic matter, such as manure, agricultural waste, food waste or landfill. Since the carbon dioxide emissions produced when RNG is used as a fuel are substantially or completely offset by methane captured during the formation of the source feeds, RNG combines low or zero full-cycle carbon emissions with the high energy density and transportability of natural gas. After suitable treatment, the RNG can be injected directly into the natural gas pipeline network and can therefore make use of the extensive existing natural gas infrastructure, and installed base of customer natural gas equipment. It has the potential to reduce Scope 3 emissions when the utility owns the associated renewable credits.

Currently, Essential has six interconnections with landfills producing RNG, with gas being delivered directly into our pipeline system. In 2020, this measured to more than 1.4 Bcf, or about 1.2% of our total gas throughput. About 56% of this RNG is transported by Essential into an interstate pipeline or to a third-party pool operator. The remaining 44% is directly purchased by Essential, blended with our traditional natural gas supply, and delivered directly to our customers.

Essential does not currently purchase renewable credits associated with the physical supply of RNG due largely to least-cost gas procurement guidelines set by regulators. Thus, we cannot apply this emissions reduction to our greenhouse gas inventory. However, we believe we play a constructive and positive role in the development and function of the RNG market across our footprint by facilitating trade and transport of this environmentally friendly energy source. Essential is also working with other companies on developing potential additional RNG interconnections in our service territory and we look forward to expanding the number of partnerships with producers in the region.

Hydrogen

Hydrogen is a promising alternative fuel that may be efficiently blended with natural gas in energy supply to customers in future years. It can be used as a feedstock, a fuel, an energy carrier or an energy storage medium, and also emits no end-use carbon emissions and minimal air pollution when used. There are several “types” of hydrogen, classified based on their production method and resulting lifecycle emissions profile. The gas industry is currently examining the feasibility to blend hydrogen within pipelines at scale and examining how this would be efficiently produced at necessary volumes.

Hydrogen-blending targets for existing natural gas infrastructure do not exist today, but there is increasing demand for the alternative fuel. The U.S. National Renewable Energy Laboratory and other researchers have reported that current projects that blend up to 20% hydrogen without requiring end-use customers to upgrade boilers and burners are being demonstrated worldwide.

Responsibly Sourced Gas

We recognize the importance of responsibly sourced gas, or the procurement of natural gas from well pad sites and production facilities that have undergone third-party certification to verify that the operator has utilized the highest standards and practices in all phases of their operations. This market is currently developing and maturing in the gas industry, requiring coordination between various parties in the natural gas supply chain.

District Geothermal

Geothermal Heat Pump systems (GHPs) are a technology that uses the earth’s thermal properties in conjunction with electricity to provide space conditioning and water heating to facilities. GHPs can be grouped into two types: closed-loop and open systems. The closed-loop systems circulate a fluid through a subsurface loop of pipe, and then to the heat pump. Open systems (groundwater heat pump systems) circulate groundwater to the heat pump and then discharge. This feasibility of this new infrastructure, at a large utility and community level, is being examined by the gas industry, and is of interest to Essential.

Carbon Capture

Carbon capture and storage captures carbon dioxide emissions from fuel combustion. Methods include post-combustion capture, direct air capture, and bioenergy with carbon capture and storage. This is an area of study for many energy experts and as this technology develops, could have additional applications for various elements of the natural gas supply chain.

Helping our Customers Conserve Gas

Essential works to continuously educate our customers on conservation and energy efficiency opportunities. Some of our key customer conservation messages for Peoples customers include:

- [Energy-saving and winter safety tips](#)
- e-Billing options available in the Peoples e-Account customer portal and through Google Pay and Apple Wallet
- Customer gas usage information available in Peoples e-Account
- [Customer assistance programs](#) like the weatherization program and the Emergency Furnace and Service Line Repair Program for qualified low-income customers to help increase energy efficiency and prevent the loss of heat through implementation of home improvements and replacement of inefficient heating systems.
- By using a variety of channels, our goal is to establish multiple customer touchpoints for these key conservation messages. We use tools like digital marketing, traditional advertising opportunities, bill inserts, and community partnership activation to share this information and drive customers to our website as a central education hub. Some examples of how we promoted these messages to Peoples customers in 2020 include:
 - Paid social media and digital marketing campaigns to share energy-saving tips, including promotion of the [“Gas Guys” YouTube series](#), highlighting at-home energy conservation efforts

- Facebook Live panel with customer assistance experts, spotlighting our home weatherization program and Emergency Furnace and Service Line Repair Program
- “Destination Conservation” community partnership with the Pittsburgh Zoo & PPG Aquarium, sharing stories about conservation efforts around the world, in southwestern Pennsylvania and at your own home
- Email marketing communications to over 410,000 customers, promoting energy-saving tips
- Cold weather-triggered radio spots advertising customer assistance programs
- Bill inserts spotlighting customer assistance programs and winter safety tips, including ways to avoid freezing pipes and prevent water line leaks

Greenhouse Gas Emissions Reduction (Water and Wastewater Operations)

Essential reports Scope 1 and 2 GHG emissions, resulting from energy which is directly consumed, but the impact of indirect emissions, Scope 3, is also notable. Tracking and reducing those emissions comprise an important component of our overall carbon reduction strategy.

Pipe replacement activities, which are necessary to address aging infrastructure, are the largest contributor to Scope 3 emissions. The methods and materials used today extend the serviceable usefulness up to 100 years compared to piping installed just 30 years ago, which translates to reduced frequency of pipe replacement over time. Pipe replacement activities also offer an ancillary benefit to our Scope 2 emissions as better and newer piping means less lost water through leaks and main breaks, resulting in a reduction of water that needs to be produced. In 2020, our rate of pipe replacement increased by 37% as compared to the previous year, which was the largest contributing factor to the increase in Scope 3 emissions in 2020.

Essential's purchase of chemicals is the second largest source of Scope 3 emissions but are required for water safety and quality. We also acknowledge that warmer water temperatures brought on by climate change will require Essential to use more chemicals to produce safe drinking water. By tracking GHG impacts from chemical purchases, we are able to better understand the impact of climate change on treatment operations.

Upstream impacts of fuel and energy-related activities of the fuel needed to generate electricity is also a significant element of our Scope 3 emissions. By reducing the amount of electricity consumed and increasing our use of renewables, we can reduce this impact. Other Scope 3 items are not as material, but we maintain awareness of these items nonetheless.

Greenhouse Gas Emissions (Metric Tons CO₂e)

	2020	2019	2018
Scope 1 emissions	16,151	16,057	16,304
Scope 2 emissions (market-based)	108,106	115,124	128,612
Total Scope 1 and 2 emissions (market-based)	124,257	131,181	144,916
Total Scope 3 emissions	120,143	110,675	150,780

Note: Essential chooses to present Scope 2 emissions using the market-based method, as this approach incorporates the impact of various sourcing decisions, such as our procurement of renewable energy. In contrast, the location-based method reflects the average emissions intensity of grids on which energy consumption occurs. We wish to footnote Essential's location-based Scope 2 emissions for its water and wastewater business (measured in metric tons CO₂e) as follows: 120,776 (2020), 123,639 (2019) and 130,997 (2018). The overall reduction of our location-based emissions is largely a reflection of the energy grid's mix transitioning away from coal to natural gas and renewables and we expect this trend to continue.

Breakdown of Scope 3 Emissions

	Metric Tons CO ₂ e	Percentage of Total
Capital goods	48,207	40.1%
Purchased goods and services	40,672	33.9%
Fuel-and-energy-related activities (not included in Scopes 1 or 2)	25,661	21.4%
Other (upstream)	3,973	3.3%
Waste generated in operations	905	0.8%
Investments	725	0.6%
Total Scope 3 emissions	120,143	100%

Note: In 2020, Scope 3 emissions for business travel and employee travel were not included as they were, upon analysis, deemed immaterial due to the COVID-19 pandemic's impact. In 2019, they only comprised 2.3% of Scope 3 emissions.





Fleet Emissions

Reducing our fleet footprint is an important and effective aspect of our reduction of greenhouse gas emissions.

Essential's gas, water and wastewater utilities have a diverse geographical footprint across ten states, covering thousands of square miles of service area and almost 2,000 individual locations. Many of the locations require visits from employees daily or several times a week, which requires frequent vehicle usage.

Fleet is currently about 3% of Essential's Scope 1 and 2 emissions. Our heavy-duty fleet contributes about 20% of these emissions while our light-duty fleet comprises the remaining 80%.

The current fleet composition is made up of 2,595 vehicles. Cars, pickups, small utilities, and vans (our light-duty fleet) accounts for a total of 1,902 (73%) of the total fleet. The remaining 693 units (27%) consist of our large utility trucks, dump trucks, tank trucks, stake bodies, and backhoes. Our current alternative fuel vehicle fleet is approximately 91 vehicles (3.5%). These alternative vehicles include one electric, and the remainder compressed natural gas (CNG). Since our strategic partner, General Motors, has put an emphasis on the light-duty market, we will first focus on expanding the electrification of the light-duty segment of our fleet.

Restoring Habitats

Essential is a proud environmental steward, working to preserve, treat and manage water and gas resources for a sustainable future. We play an active role in protecting and restoring land and water habitats, which are essential for biodiversity and source water protection, in the communities we serve and beyond.

Land and Water Stewardship

Essential owns and protects more than 7,600 acres of natural area at more than a dozen locations across our footprint, and many more acres have been given to government entities for permanent protection. Most of this land is forested, which serves to protect the groundwater, streams and rivers we use for drinking water. These areas are strongholds of terrestrial and aquatic habitat to support diverse species, including many at-risk species.

Essential's reservoir properties are home to nesting bald eagles, great blue herons, redbelly turtles, brook trout and many rare plant species. Our Green Lane Reservoir in Montgomery County, Pennsylvania, serves as a bird sanctuary to protect resident and migrating waterfowl in an Audubon Important Bird Area, where more than 270 bird species have been recorded.

The reservoir is also a rearing site for freshwater mussels to help save these important native species. While we work to keep invasive bivalves like the zebra mussel out of our reservoirs, there are many native species of freshwater mussels that are beneficial to our waterways. As "filter feeders," mussels help to clean the water, removing sediment, excess nutrients, and harmful algae. An adult mussel can filter 10 gallons of water a day in the summer.

Healthy mussel beds reduce erosion of streams, provide food for other organisms and improve habitat conditions. Unfortunately, 70% of North American mussel species are imperiled due to pollution, loss of fish hosts needed for reproduction and other factors. To help restore mussel populations, and the ecosystem services they provide, Essential has partnered with the Academy of Natural Sciences of Drexel University, the Partnership for the Delaware Estuary and others to help grow native mussels that will be used to re-populate our streams.

Other recent biodiversity efforts include:

- Safely removing nuisance aquatic plants that are clogging a reservoir, threatening biodiversity and impacting water quality
- Restoring native trees adjacent to reservoirs to improve biodiversity and protect water quality
- Observing protective buffer zones around eagle nesting locations
- Expanding the biodiversity benefits of a planned dam removal by changing the project footprint to avoid a potential bog turtle habitat

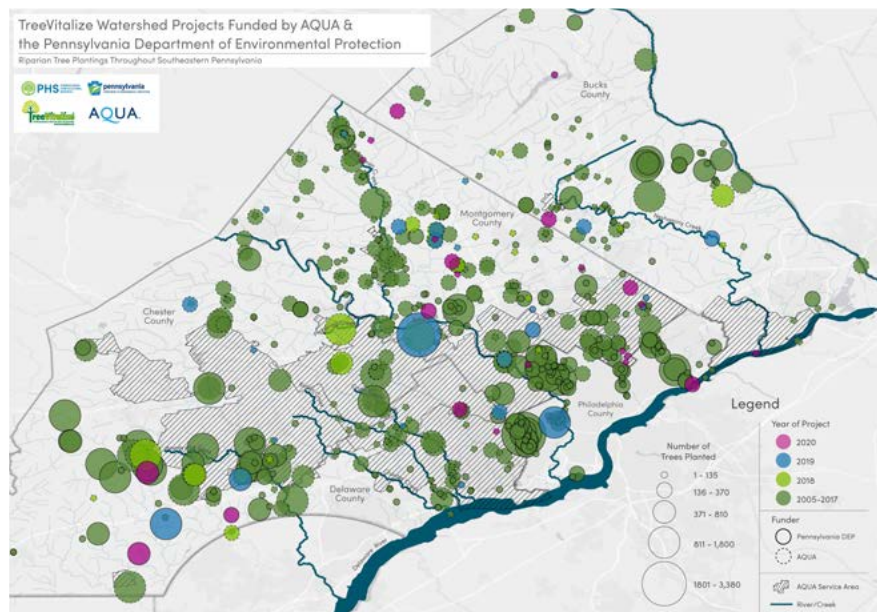
Essential is committed to protecting and guiding its properties to retain their ecological value for generations to come, as well as partnering on innovative projects to restore ecosystems.

Investments in Restoration

In order to protect its water sources, Essential invests in and works with community partners to complete on-the-ground restoration projects. From 2005-2020, our Pennsylvania operations invested about \$1.9 million in watershed improvement projects, including tree plantings, stream channel restorations, stormwater management and agricultural improvement projects. Our work to keep pollution out of waterways has protected and created vital habitat while providing countless other benefits to the environment, our customers and upstream communities.

Since 2005, our Pennsylvania operations have partnered with the Pennsylvania Horticultural Society, local conservation districts and the Pennsylvania Department of Environmental Protection on a program with the ambitious goal of restoring tree canopy in southeast Pennsylvania. The program, called TreeVitalize Watersheds, focuses on reforesting stream corridors and other areas where the trees will help improve water quality.

After over 15 years, the program has reached some important milestones. More than 178,000 trees and shrubs have been planted— all by volunteers— to restore upwards of 1,000 acres with native species. These plants help to protect water and habitat quality by stabilizing stream banks, cooling temperatures, soaking up contaminated runoff and recharging groundwater. Among their many benefits, trees also help to reduce air pollution, enhance open space and improve wildlife habitat.



Geographic illustration of our tree planting projects in southeast Pennsylvania.



Native freshwater mussels in a "grow basket" at Green Lane Reservoir.



Our Pennsylvania employees weed European water chestnut, an invasive aquatic plant threatening aquatic habitats.



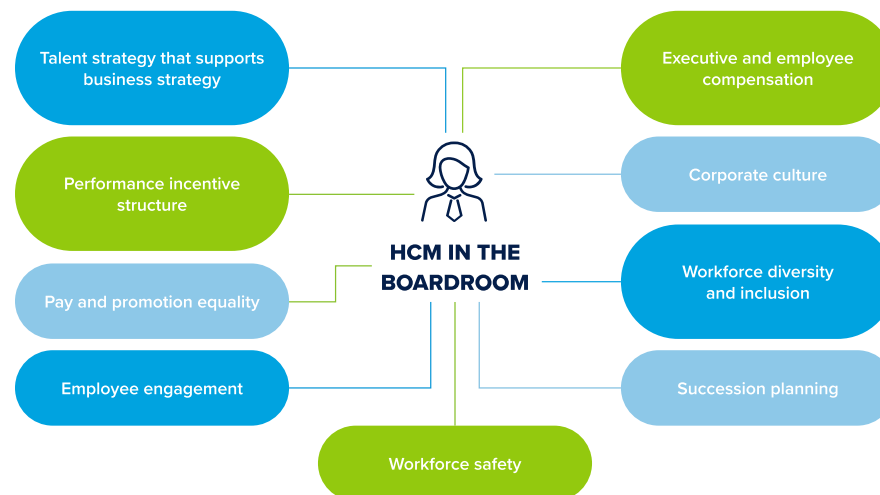
Employees

As a premier infrastructure company, Essential offers a wide array of exciting and challenging opportunities for careers and jobs that support our mission to provide natural resources for life. We recognize our 3,000+ employees are our greatest asset in delivering life's most essential resources, and we seek to build our talented, skilled and diverse workforce that values teamwork as well as a steadfast commitment to our customers and to the environment. The Essential companies, including our Aqua water and Peoples Natural Gas utilities, are committed to providing professional opportunities for career growth, competitive benefits packages and a respectful workplace to every employee across the communities we serve in our 10 states. We're dedicated to creating a culture that empowers employees and where all feel welcomed, respected and recognized for their contributions. At our core, our team is about respect, integrity and the pursuit of excellence.

Board Oversight of Human Capital Management

Essential's board of directors takes a keen interest in all aspects of human capital management and recognizes that our ability to attract, retain, and develop exceptional talent is a key strategic driver for our organization. The Chief Human Resources Officer regularly presents updates to the board, engaging in strategic discussion with the group regarding various topics as outlined below.

Human Capital Management in the Boardroom



Health and Safety

Safety as a Priority

Safety is one of Essential's primary commitments and through continuous improvement efforts, we are establishing a high performing and cohesive safety program across our gas and water businesses. With this program we proactively manage employee safety risks, support a healthy safety culture, and position Essential as a leader among peers through safety prioritization and encouragement of safety ownership at all levels. This commitment is evident through the implementation of the many facets of our safety program, which is flexible and adaptive in order to meet the varying needs of our complex businesses. The core components of this program include:

Management Commitment: Essential's leaders are dedicated to supporting safety by incorporating it into corporate targets and goals, such as Essential's short-term incentive plan (20% weighting). Focusing on these goals not only helps us compare ourselves to industry peers but also helps us to evaluate ourselves with an eye toward our own past performance. With this commitment we emphasize the outcomes of our safety efforts, which concentrate on striving towards zero injuries and accidents.

Employee Engagement: The basis of our safety culture is an engaged workforce, which is nurtured through positive reinforcement of safety program participation, establishing mechanisms for employees to raise safety concerns, rigorously addressing hazards and thoroughly investigating incidents. Not only have our employees internalized their authority to stop work but are actively involved in identifying safety solutions. In this way we promote a speak-up culture and work to proactively address the safety hazards our employees may face. For those hazards, we work to communicate to all levels of our workforce to share lessons learned through safety briefs, newsletters, internal website publications and all-employee video events. In 2020, shortly after the acquisition of our gas utility, we set a baseline for our respective safety cultures by conducting a Safety Culture Survey. This

survey was conducted by a third party and provided us feedback from employees on strengths and opportunities for improvement as we align organizations; 77% of employees participated and 89% of participants indicated positive perceptions of our safety programs, leadership and employee engagement on these issues.

Hazard Identification and Mitigation: Identifying the hazards that our employees face is paramount to maintaining our safety culture, and mitigating these hazards is key to protecting our work family. Therefore, safety hazard analysis is one of the most critical aspects of our safety program and is a focal point in our safety training programs, pre-job safety briefs, safety alerts, and frequent safety discussions. Hazard recognition and control are also integral to our incident investigation processes, and emergency response plans. Essential employees have access to an anonymous helpline and website, which is available 24 / 7 to confidentially report concerns regarding ethics, compliance, or safety issues.

Through these hazard identification efforts, we work to control our risks, with management and employees working together to either eliminate hazards or control the threats to employee safety. The effectiveness of the controls is reviewed and improved during root cause analyses of incidents and near misses.

Safety Training: Another important tool to reduce safety risks in the workplace is through effective safety training. Training is vital for employees to understand the safety practices and expectations that are part of their jobs. Training also empowers employees to recognize safety hazards in the moment and take steps to correct them to prevent a potential injury. Essential provides safety-related training through multiple methods, from in-person courses, to on-the-job training, to computer-based lessons, and informal safety discussions and meetings. In this way, Essential's leadership and management team continues to support and strengthen safety in our workplaces.

Growing Essential Safety

In addition to our core safety program components at Aqua and Peoples, the creation of the combined Essential Utilities organization has put us in a unique position to leverage the wide range of experience and expertise available in our safety organizations across the Essential companies. Not only can we take advantage of resources within our growing company to help us meet these new and exciting changes, but it also offers the opportunity to further solidify our new company culture with a strong and consistent focus on safety.

To assist in aligning and leveraging the vast experience and knowledge available to the Essential businesses, we hired a national safety director. Additionally, we've developed a strategy for managing safety and strengthening our safety programs going forward as one company. As part of this safety strategy, we've established three teams to guide and support our current and future initiatives. Through these teams and this process, we have embarked on some exciting initiatives, including:

- Expansion of consistent methods to track incidents and trend hazards
- A process to assess risks and identify employee safety hazards
- Creation of a Frontline Leadership Safety Training course
- Completion of an Essential-wide safety culture survey
- Development of leading indicators to assist in measuring predictive aspects of safety performance

One of many benefits of cross-company alignment will be the expansion of implementation of an incident documentation application that was previously used by Aqua in water and wastewater utilities to gas at Peoples. Expanding this safety management system to the gas businesses, which is currently targeted for late 2021 implementation, improves the management of incident reporting, corrective and preventative action tracking and root cause analysis consistency. Additionally, it enables the development of capabilities such as more effective tracking of leading indicators, including near miss reporting and safety observations, strengthens consistency between companies and assists efforts to improve safety performance while reducing risk.



Measuring Safety

No program is complete without effective ways to measure safety performance and make improvements based on these metrics. To accomplish this, Essential monitors safety through a variety of mechanisms. As noted in the table below, safety performance has improved over the past three years across the organization. Over the past three years, there have been no fatalities.

Lost Time and Restricted Time Injuries (LT/RT)*

		2020	2019	2018	Industry Group Average 2019
Rate	Essential	1.2	1.9	1.9	NA
	Aqua	1.5	2.4	2.2	3.1**
	Peoples	0.9	1.5	1.6	1.6***
Count	Essential	36	58	61	NA
	Aqua	23	36	37	NA
	Peoples	13	22	24	NA

*Employee injuries resulting in days away from work, job restriction, or transfer

**According to the [Bureau of Labor Statistics](#)

***According to the American Gas Association

Rate = Number of Lost Time and Restricted Duty Injuries * 200,000 / Hours Worked. Same as DART rate.

This data only pertains to full-time Essential employees

Employee-Responsible Motor Vehicle Accidents (RVA)

		2020	2019	2018
Rate	Essential	2.5	2.9	3.2
	Aqua	2.9	3.0	3.7
	Peoples	2.1	2.7	2.6
Count	Essential	79	93	104
	Aqua	49	54	66
	Peoples	30	39	38

Rate = # RVAs/miles driven*1,000,000

This data only pertains to full-time Essential employees



COVID-19 Employee Health and Safety

During the COVID-19 pandemic, Essential took swift action to safeguard the well-being and health of our employees. One-third of our workforce transitioned to work from home very rapidly. For field operations employees required to be physically present to manage and operate our plants and infrastructure, we evaluated and developed new processes and procedures to limit employee interaction where possible. Among other actions, we expanded our cleaning processes and supplied personal protective equipment.

Further, employees were invited to attend education sessions with a medical doctor who presented an in-depth overview on COVID-19. We also enhanced medical and childcare leave benefits in the event an employee needed time off for COVID-19 illness or to take care of children during school closures. We also offered telemedicine and telecounseling resources for our employees and their dependents. Always at the forefront of every decision and action taken was the safety of our employees and our customers.

In early 2021, as the government's telecommuting mandate was lifted, we started a rotational return to the office in which approximately one-third of employees who were previously telecommuting returned to the work location each week on a rotating three week schedule. In an effort to support employees interested in obtaining the vaccine, vaccination clinics were held at our North Shore office in Pittsburgh as well as in our headquarters in Bryn Mawr, PA. All employees returned to their normal work locations as of June 14, 2021 and the company has issued a pilot work location flexibility program for selected work groups and individuals.

Engaging Our Employees

We believe that our success depends on employees understanding how their work contributes to Essential's overall strategy. We use a variety of communication channels to facilitate open and direct dialogue, including open forums with our executives, weekly town halls, regular engagement surveys, and employee resource groups.

Engagement Surveys

In the first half of 2020, Essential conducted two employee surveys about job satisfaction. Participation in the surveys was high, with nearly 70% of the workforce completing the surveys and 80% of respondents rated overall satisfaction with the company favorably, particularly with support provided during the pandemic. Employees indicated they felt that despite the pandemic, they were able to promote continuity in our services, felt supported from their manager and were clear on the direction of the company and their priorities. These responses were also reflected in the financial, safety and environmental sections of the survey and the results were available real-time to managers to allow them to address local challenges quickly. Essential conducts periodic employee surveys at least annually across the organization and will continue to do so. We are pleased that the results of similar surveys have been relatively consistent across multiple years.

In November 2020, we conducted a special and distinct culture survey to assess the level of engagement and satisfaction of our employees in light of our integration efforts following the acquisition of Peoples. Below are key findings from this survey broken out by focus area. Our benchmark included 300 combined utilities throughout the US and the employee participation rate was about 62%. Essential is ahead of the benchmark in the areas of employee satisfaction and purpose (meaningful work). Both our water and gas employees have and continue to have a strong sense of commitment and loyalty to their work and our customers.

November 2020 Culture Survey

	Essential	Industry Benchmark
Employee Satisfaction (happiness)	75	74
Purpose (meaningful work)	84	79
Respectful Treatment (treated with respect)	76	79
Communication- Team (open communication between team members)	74	74
Feedback (managers provide feedback for improvement)	73	77
Great Things (tell others great things about Essential)	73	71
Work Life Balance (balance work and personal life)	71	73
Inclusion (diverse perspectives are valued)	70	N/A
Empowerment (decisions regarding work)	69	75
Belonging (belong at Essential)	69	71
Growth (learn and grow at Essential)	67	71
Decision-Making (satisfied with decisions made)	63	63
Change Communication (changes made)	57	58



Key insights and action items from this survey include the following:

- Employees are happy working at Essential and have a high sense of purpose in their work, believing their work is important and meaningful for the communities Essential serves
- Teams work well in communicating with one another
- Employees would like to see more empowerment to make decisions locally
- Teams are working on recognizing the unique perspectives and backgrounds of team members and how they contribute to stronger team performance
- Leaders will ensure there are clear roadmaps for growth at each role and department
- Leaders will delegate tasks that provide learning opportunities

Turnover Rates

	Voluntary Turnover	Involuntary Turnover
Executive/ Sr. Manager Turnover	0%	5%
Mid-level Manager	2%	2%
Professional	4%	2%
All Others	5%	2%
Total	4%	2%

Benefits and Compensation

Compensation Practices

We work best together under a single compensation program designed to reward employees similarly who have an equivalent impact on company results. We also believe in treating employees who joined the Essential team through acquisitions in a fair and equitable manner, therefore we have focused on harmonizing all employee compensation packages to one Essential program. This ensure that total employee compensation will remain at comparable levels aligned with market medians.

Essential believes the following:

- It is critical to pay market-competitive wages targeting pay around the industry market median in the locations in which we operate.
- Individual performance matters. Our goal is to attract, motivate and retain high performing employees at all levels with the highest rewards provided to the top performing employees.
- Organizational performance is a key component of the variable pay programs such as the Achievement Awards, short-term incentives and long-term incentives.
- Detailed market research, peer group benchmarking, and market surveys are to be used to promote a high degree of accuracy in our compensation program

Collective Bargaining and Labor Relations

With 47% of our employees represented by a labor union, it is imperative that Essential leverages an interest-based approach in which the company and union partner together to achieve goals that are important to our employees and stakeholders.

Represented and non-represented employees, alongside union and Essential leaders, will continue to participate in a wide variety of programs that are responsive to stakeholders and operational needs while supporting employee and community safety, environmental compliance and Essential's DE&I goals.

Benefits

Essential recognizes how important benefits are to our employees. That's why we're committed to helping our employees enjoy the best possible physical, financial, and emotional well-being. It's also why we provide a comprehensive, highly competitive benefits package, with the flexibility to make the choices that best meets our employees' needs.

Employees who average 30 hours or more per week receive full-time benefits. Thus, 99.4% of our total employees are offered the following benefits:

- | | | |
|---|---|--|
| • Medical Plans (PPO, POS & HDHP) with Prescription Drug Coverage | • Hospital Indemnity | • Employee Assistance Program |
| • Dental | • Accident Insurance | • Wellness Program |
| • Vision | • Legal Services | • Commuter Benefits |
| • Health Savings Account (HSA) | • Disability (Short-Term and Long-Term) | • Life Insurance |
| • Health Care Flexible Spending Account (FSA) | • Complementary Employer Paid Programs | • 401(k) Savings Plans with Roth and After-tax Options |
| • Dependent Care Flexible Spending Account (FSA) | • Telemedicine | • Tuition Reimbursement Program |
| • Voluntary Benefits | • Diabetes Management | • Employer Non-Elective Contribution |
| • Critical Illness | • Hypertension Management | • Employee Stock Purchase Plan |

Wellness Program

Employee wellness is critical to the success of our business. Studies have shown wellness programs help reduce absenteeism, health care costs and employee turnover, while improving employee morale, strengthening recruitment efforts and enhancing the quality of life for employees. At Essential we don't only focus on physical health, but also financial and mental well-being with our education and benefits offerings.

We work with our employees to fully understand all proactive wellness benefits available to them through our insurance, including smoking cessation, nutrition services and gym memberships. In addition, several of our facilities have onsite gyms and cafeterias with a focus on healthy meal choices.

Through our wellness administration and services vendor, employees have access to an interactive website that helps them to reach their wellness goals including eating better, getting fit, reducing stress and managing certain health conditions. Through this website, employees can develop confidential personal health profiles, use online progress trackers and to-do lists to meet their health goals, access self-guided online workshops, participate in interactive competitions and campaigns and access educational tip sheets and recipes.

All employees are also provided regular meetings with a nutritionist as part of their health insurance plan. We have a recommended list of local nutrition resources at various locations across our operations footprint.

Employee Development and Training

Training and Development

Investment in our employees is foundational to our success. In late 2020, we integrated our virtual professional development courses to a digital platform to enable our employees to strengthen and enhance their leadership, behavioral, and technical skills.

Performance management programs and a required performance distribution standard are vital to creating and sustaining a high-performing workforce. We have developed a formal succession management program that promotes retention of employees and demonstrates investment in their growth. In 2020, the program continued to assess the company's internal talent pipeline against job roles, leadership competencies, and overall knowledge and experience for executive, senior and director levels. This also included evaluation of recent performance appraisals. The development of initial transition plans with a projected timeline for potential retirements were completed and submitted to our board.

We continuously invest in training and development programs for our employees so that they may constantly evolve and grow skills in their areas of expertise. For example, we offer management training to improve supervising skills for union and non-union teams, provide rotational or temporary assignments as development opportunities to challenge our employees in their growth, and managers conduct biannual performance reviews to focus on employee performance and skill development.

Essential also offers tuition reimbursement to all regular, full-time employees. We provide up to \$5,250 per calendar year for job-related education and/or training courses.

We continue to address gap areas in leadership competencies and technical knowledge and assigned leaders to critical assignments and projects for select senior level successors. Essential identifies key leaders in all areas of the business for consideration for future leadership roles. Our performance management program

continues to inform our organization regarding high potential employees and their development needs. Another element of our strategy is to develop outside networks to develop talent sources for those roles not able to be filled with internal talent with a strong emphasis on recruiting and selecting future employees to build a diverse and inclusive workforce.

At Essential, we believe in an integrated talent development approach and understand that a balanced and holistic approach to learning will allow for greater sustainability of changed workplace behaviors. 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 involvement, 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.

Training and Development Program



Training Topics by Job Level

Competency	Individual Contributor (foundational)	Manager (intermediate)	Executive (advanced)
	Individual contributors (not managers or supervisors) at the first stage of skills. Consists of foundational expectations for performance.	Managers, supervisors, team leaders & individual contributors. High performing experienced personnel.	Executive leadership team. Intermediate level personnel considered high potentials
Agility	<ul style="list-style-type: none"> Being Flexible During Change 	<ul style="list-style-type: none"> Change Management Confronting Assumptions 	<ul style="list-style-type: none"> Sustainable Change Management Choosing the Best Solution
Customer Focus	<ul style="list-style-type: none"> Delivering Exceptional Customer Service 	<ul style="list-style-type: none"> Brand Ambassador Creating the Atmosphere for Delivering Customer Centric Services 	<ul style="list-style-type: none"> Forecasting Customer Needs and Aligning Business Practices
Collaboration	<ul style="list-style-type: none"> Emotional Intelligence Handling Challenging Situations 	<ul style="list-style-type: none"> Leading with Emotional Intelligence/Situational Leadership 	<ul style="list-style-type: none"> Building a High Performing Team Developing Peer Relationships
Focus on Results	<ul style="list-style-type: none"> Taking Ownership Using Resources Properly 	<ul style="list-style-type: none"> Critical Thinking and Judgement Thinking Strategically Business Process Improvement/Project Management 	<ul style="list-style-type: none"> Managing Risk Driving Performance/Results
Mission and Culture	<ul style="list-style-type: none"> Company Orientation and annual values/culture refresher Code of Conduct/Ethics 	<ul style="list-style-type: none"> Role Modeling the Culture and Values 	<ul style="list-style-type: none"> Strategic Planning, Execution and Innovation
Empowerment	<ul style="list-style-type: none"> Developing Your Career Speaking Up in Challenging Situations 	<ul style="list-style-type: none"> Delegation Employee Performance Management and Development 	<ul style="list-style-type: none"> Empowering Team for Operational Excellence Effective Decision Making

Diversity, Equity and Inclusion (DE&I)

Our teams work diligently, day in and day out, to provide the natural resources our customers need to run their homes and businesses. It is Essential's responsibility to support them by creating an environment where people of all backgrounds, ages, races, abilities and sexual orientations can collaborate, learn from each other and thrive. We believe we can build an even stronger company the more we focus on growing an equitable and inclusive workforce – one where all employees know they are valued and respected for who they are and for the contributions they make.

We have multi-objective approach to transition toward a more diverse and inclusive company. Our strategies include:

- Driving leadership commitment and accountability to an inclusive and diverse workforce
- Fostering an inclusive culture
- Building and retaining diverse workforce.

We believe in executing these strategies, we will see a workforce that more accurately reflects the diversity in the communities we serve, our employees will embrace the diverse perspectives and experience of their colleagues and our leadership team will embrace diversity and ensure inclusion in our workforce.

We recognize an opportunity to strengthen the diversity in our company. Based on local customer demographic data, we are focused on increasing the diversity of our employee demographics to reflect the diversity in the communities that we serve. We have confidence in our multiyear plan to reach 17% employees of color, up from about 14% today.

Our goal is to reach 17% employees of color, up from about 14% as of year-end 2020.



As a company, we have set goals to make a difference, and we are sharing our data openly to hold ourselves accountable. In 2021, we also added our new diversity goal (5% weighting) to our short-term incentive plan. By tying our diversity targets directly to executive compensation, we are encouraging our management team to prioritize and further building diversity in our operations.

We have already seen success in our efforts. In 2020, our diversity hiring for the organization grew by more than 7% from 2019, and there were also gains at the management level of the organization, with 23% of the management team now comprised of women. At the board of directors level, more than 55% of the board is diverse, including 33% female directors.

We are proud of the progress we have made in diversity, but we believe we can improve, particularly when engaging our customers, partners and peers in our DE&I efforts. We have a range of diverse recruitment tactics, many of which are supported through diversity associations and job boards for minorities, veterans and women engineers, and recruiting new talent from local community colleges and city-based universities.

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. Essential regularly conducts education and unconscious bias workshops to foster better understanding of points of view and how pre-conceived notions impact relationships at work. We also want to ensure employees of color experience equity and inclusion at Essential. Essential hosts Diversity, Black and Women's Employee Resource groups to help ensure our employees feel supported in their professional growth at all levels.

Age Diversity

	>50	30-50	<30
Board	78%	22%	0%
Management	58%	40%	2%
All employees	38%	46%	16%

Gender and Racial Diversity:

Male									
Job Category	Total Male	Black	White	Hispanic	NHOPI	Asian/P.I.	Two or More Races	Native American	Un-Disclosed
Executive/Senior Level Officials and Managers	33	2	31	–	–	–	–	–	–
First/Mid Officials & Manager	319	11	298	4	1	2	1	–	2
Professionals	211	10	185	1	–	13	–	–	2
All Other	1,924	146	1,683	39	12	7	21	3	13
Total Workforce	2,487	169	2,197	44	13	22	22	3	17

Female									
Job Category	Total Female	Black	White	Hispanic	NHOPI	Asian/P.I.	Two or More Races	Native American	Un-disclosed
Executive/Senior Level Officials and Managers	10	–	10	–	–	–	–	–	–
First/Mid Officials & Manager	93	10	79	1	–	1	1	–	1
Professionals	171	15	138	3	–	7	7	–	1
All Other	419	100	291	17	–	2	2	1	6
Total Workforce	693	125	518	21	–	10	10	1	8

Our Equal Employment Opportunity and Anti-Harassment Policy is located [here](#).

Customers

Our customers are our neighbors, our friends our families, and a deep commitment to our customers and communities is embedded in every fiber of our company. We strongly feel that each and every customer deserves safe and affordable access to water, their local streams and habitats should sustainably receive safely treated effluent, and their gas service should be reliable and low-cost. Our responsibility to do right by our customers is foundational to delivering essential resources for life.





Affordability and Access

Water and Wastewater Operations

Essential recognizes that providing safe and reliable water and wastewater service at reasonable rates is a fundamental tenant of our mission and expressed clearly in the [Human Right to Water Policy](#). In order to do this, we strive every day to operate efficiently, encourage water conservation and prudently invest in aging infrastructure. However, even with planning and conservation practices, there are low-income customers in our communities who have difficulty paying their bills. These issues occur in any area, regardless of the location, demographic or income distribution. In addition, a variety of issues can impact customer bills, including the condition of the infrastructure and work that has been done in the system, ability to utilize single tariff pricing, weather, irrigation, household usage or the potential of a leak. Generally, the cost of providing water service is a main driving factor behind water rates which impacts the cost of service customer bills.

Essential works proactively with customers that have difficulty paying their bills, including offering payment plans and recommending conservation tips. In several states, we locally operate low-income assistance programs. For example, Helping Hand in Pennsylvania is a low-income assistance program designed to enable manageable monthly payments. Customers who make timely payments through Helping Hand receive a monthly credit to their accounts. The program also provides customers with water conservation kits that offers customers information and tools for how to use less water.

Aqua Aid is a similar program operated in Illinois and New Jersey through partnership with Salvation Army and NJ SHARES. Essential looks forward to the implementation of the federally-administered Low Income Household Water Assistance Program that was initiated in December 2020 and received additional funding through the American Rescue Plan of 2021. This federal funding will provide an important resource to low income customers seeking assistance with their water bills across Essential's footprint.

Across our entire footprint of eight states, the average water rate for residential customers per 10Ccf (7,480 gal) is \$89.91*. However, there are many factors that influence water rates across our over 1,500 systems, each of which has different infrastructure needs that may contribute to different costs of operation. Customers are encouraged to visit our Aqua website for a lookup tool to download a report detailing their specific rate information. Our Customer Service Center also includes helpful information on how to read your bill and how to contact us if you have any questions.

*The average residential customer consumption varies across our footprint and may be more or less than 10Ccf of water per month in many households or regions, but this volume is provided as per guidance from SASB. We do not currently believe SASB's water utility standards reflect the differences in water rates (as opposed to electric and gas) that exist. Given Essential's wide geographic footprint across 8 states and operation of over 1,500 systems of varying size, the complexity of our operations and the necessary variance in tariffs and rate structures make calculation of materially accurate average and typical rates not representative. We will continue to support efforts to further develop and refine SASB's industry guidance so that it better allows transparency into this issue. We also continue to interface with state public utility commissions to approve rate structures that are both affordable for customers and necessary to adequately maintain infrastructure and promote the safety of this critical resource.

Residential Water Disconnections

	2020	2019	2018
Number of residential customer water disconnections for non-payment, percentage reconnected within 30 days	16,437	31,078	35,600
	43.0%	60.0%	62.6%

Note: Given the unique circumstances surrounding the COVID-19 pandemic, 2020 residential customer water disconnection data is not comparable to prior years. Essential observed moratoriums on disconnections consistent with public utility commission guidance.

Gas Operations

Providing gas service at reasonable rates is critical for Essential and our customers. Pennsylvania customers may be eligible for the Customer Assistance Program, which provides monthly payments based on household income while also offering additional credits towards arrearages as each monthly payment is made. Lower income customers in Kentucky can also receive assistance with their winter heating bills through the Delta Energy Assistance Program.

Essential offers the Pennsylvania Low-Income Usage Reduction Program (LIURP) to qualified residential customers. This program implements energy efficiency measures in low-income households in order to help them reduce their energy consumption. Measures include heating system improvements and replacements, insulation, caulking, weatherstripping, and tank improvements and replacements. LIURP targets customers with high energy usage and accepts enrollment in a bill assistance program as a form of income qualification. The program is implemented in collaboration with Together Pittsburgh, Re-Energize Pittsburgh, the Weatherization Assistance Program, and the local electric utilities. Essential partners with local non-profits in community assistance agencies to educate them on LIURP and encourage referral of eligible customers. While the LIURP program is targeted to those living at 150% of Federal Poverty Level, we are authorized to provide services to customers up to 200% of Federal Poverty Level if there are special needs. Essential also offers emergency furnace and gas line repair and/or replacement to income-eligible customers that own their home in Pennsylvania. This program also extends to some eligible renters as well.

We also encourage customers in need to apply for the Low-Income Home Energy Assistance Program, a federally funded assistance program designed to help customers with their home heating needs. States administer the program, typically through the Department of Human Services, and eligibility varies across Essential's footprint in Pennsylvania, Kentucky, and West Virginia.

Our online [Program Finder](#) guides gas customers through the process of identifying and applying for assistance. Promotion of available resources and programs is a key component of our customer communication strategy which includes using multiple channels from traditional bill inserts to email and social media.

	2020	2019	2018
Average retail gas rate per MMBtu for (1) residential, (2) commercial, (3) industrial customers, and (4) transportation services only	\$8.03	\$8.50	\$7.95
	\$6.55	\$6.89	\$6.77
	\$6.23	\$6.67	\$6.21
	\$1.62	\$1.47	\$1.40
Typical monthly gas bill for residential customers for (1) 50 MMBtu and (2) 100 MMBtu of gas delivered per year	\$48.34	\$50.28	\$46.97
	\$82.19	\$86.06	\$80.46
Number of residential customer gas disconnections for non-payment, percentage reconnected within 30 days	1,131*	23,528	18,605
	60.9%	49.6%	49.5%

*Given the unique circumstances surrounding the COVID-19 pandemic, 2020 residential customer gas disconnection data is not comparable to prior years. Essential observed moratoriums on disconnections consistent with public utility commission guidance.

Customer Experience

Essential is consistently focused on improving the customer experience through our capital investments that impact the reliability of the services we provide, the interactions customers have with our company. We have the resources and channels in place to respond to reports of emergencies 24/7, and we utilize social media to engage customers based on geography. Our customer-facing websites allow for self-service options to assist customers quickly. Both our gas and water utilities are equipped to handle calls from Spanish speakers, and the former can also assist customers who speak other languages as well. Metrics related to customer experience comprise 10% of Essential's short-term incentive plan, in order to further ensure this remains as a top priority for our company's management.

Water and Wastewater Operations

In 2019, we embarked on a customer engagement project to better understand how our customers would like to be served. Our project is an investment in measuring customer experience at every touchpoint along the customer journey to establish baselines for measuring future performance. Our research will help better predict and prioritize customer needs and trends, identify key engagement and experience drivers and enable us to build a customer service program that promotes a consistent, high-quality experience with Essential. We made numerous enhancements to our website and billing platforms in order to provide timely information on usage and billing for our customers. We expanded our payment methods and e-billing efforts for customer convenience, as well, as to promote environmentally focused paper reduction.

Through our comprehensive customer experience program, we survey customers regarding their overall experience with us and individual interactions with our contact center and field services. The information and feedback are used to identify areas of opportunity and how to optimize resources and investments. We continue to learn and optimize by monitoring industry best practices and gathering customer feedback following service interactions, and through external surveys to address pain points to help streamline the customer experience and anticipate future customer needs. There are operations and executive steering committees that assess this feedback and provide overall governance to the function. Further, each state utility and contact center has customer experience targets to drive improvement in overall satisfaction, customer effort, field service experience, and first contact resolution.

In conjunction with our customer engagement project, we participated in several J.D. Power customer satisfaction reports which provide industry standards in customer satisfaction. **Essential scored very well in J.D. Power's 2021 Water Utility Residential Customer Satisfaction Study, earning a top 5 spot in the Northeast Large Segment, Midwest Midsize Segment, and South Midsize Segment.**

Gas Operations

Our Voice of the Customer survey is sent to customers who had a recent interaction with the company (field, contact center, online or any of our self-serve options). Through this, we gather feedback from customers regarding their overall experience with us and individual interactions with our contact center and field services. Similar to efforts of our water and wastewater operations, the information and feedback are used to identify areas of opportunity and how to optimize resources and investments.

Community

Essential operates in ten states across America, but our presence is felt locally. We primarily source water and gas nearby our customers, we do business with many local suppliers and our employees often live in the communities they serve. We have team members in our treatment plants, offices and facilities all across our footprint by necessity. By providing water, wastewater, and gas utility services to enable households to grow, commerce to bustle with life and the health of our towns and cities to flourish, we thrive when our communities thrive. For these reasons, our organization and team members enthusiastically contribute time and resources to strengthen these community bonds. As a utility, we make a long-term investment in the well-being of the areas we serve and we seek to do all we can to work with wonderful partners and nonprofit organizations who do the same.



Charitable Giving and Essential Foundation

2020 was an extraordinarily difficult year for the communities we serve as the pandemic, and the economic difficulties that resulted from it, strained the resources of charitable organizations throughout the country. With concern and recognition of this, Essential increased its level of giving to further support the organizations that inspire us and do such wonderful work in our community.

In 2020, Essential's charitable giving to 501(c)(3) organizations totaled \$4.2 million, of which nearly 60% was given through our charitable trust, the Essential Foundation, and the remainder was donated by the company directly. We anticipate this proportion will increase in 2021, as a greater amount of charitable giving through the legacy Peoples Gas business is transitioned to the Essential Foundation as part of continuing alignment post-acquisition. The Essential Foundation seeks to improve the quality of life of our customers and communities with a focus on nonprofit organizations within our company footprint.

The Essential Foundation's primary giving pillars are:

- Environment
- Direct Human Services and Food Insecurity
- Diversity and Inclusion
- Economic Growth and Development
- Education
- Emergency Services
- Employee Support and Match Programs

The Essential Foundation's board members, which provide strong and formal governance on the activities of the charitable trust, include:

- Chairman and CEO of Essential Utilities
- President, Essential Water and Wastewater Operations
- President, Aqua Pennsylvania
- President, Essential Gas Operations
- Senior Vice President, Business Transformation, Essential Gas Operations

An employee gift-matching program was offered for legacy Peoples Gas employees in 2020 and, beginning in 2021, all Essential employees were able to take advantage of a gift-matching program. Essential matches 100%, up to a maximum of \$500 per calendar year per employee, for personal contributions made by an employee or their spouse or domestic partner to qualifying nonprofit organizations.

Employee Volunteerism

We recognize that volunteer service can be as meaningful to our employees as it is to the community organizations we serve. As a mission-based organization, volunteerism allows us to expand corporate social responsibility activities by enabling employees to attend company-sponsored volunteer events at local community organizations. It is an opportunity for employees from different sectors of the company to engage with one another and encourage conversation and dialogue. The ripple effect of volunteerism within our culture cultivates and encourages collaboration and teamwork and fosters an environment where employees feel inspired to play an integral role in making a positive impact in their region. Essential-paid volunteer time supports volunteer activities including Habitat for Humanity, food banks, stream clean up, veterans activities, installing fire alarms, organizing essential items for children, United Way programs and reading to children. Employees report volunteer hours for tracking purposes throughout the organization.

In 2019, Essential employees across corporate, water, wastewater, and gas operations tracked more than 1,700 hours of paid volunteer time.

Unfortunately, the COVID-19 pandemic severely inhibited our volunteer program in 2020 due to in-person restrictions and related changes in operations for many of our community partners. Our employees look forward to resuming and increasing our participation in volunteerism activities as restrictions are lifted and the pandemic winds down.

Partnership with Villanova University

Since 2016, Essential Utilities has proudly partnered with Villanova University's Center for Humanitarian Engineering and International Development. Essential employees have joined Villanova students to provide expertise, resources, and hands-on support in international projects to address water supply issues in developing nations across South America and Africa. In 2019, the partnership-driven team traveled to Wacuco, Panama in 2019 to work on several projects, including water quality testing, rehabbing water tanks, and upgrading a steel bridge in the community. Although COVID-19 disrupted plans in 2020 to perform service work in Ghana, coordination between Essential and Villanova on other elements of the project has continued on a weekly basis. Water security and safe access are very personal issues for our team and critical for every human being. We are proud to support communities both inside and outside our operational footprint while supporting the next generation of engineers and scientists.



GOVERNANCE

Governance and Ethics

An organization is only able to fulfill its responsibilities to its many stakeholders through strong governance and a culture of ethics, consistently embodied at all levels of the company. There are issues that are generally related to governance of the company, such as the role of the board of directors and how the code of ethics drives the way we operate. There is also the more specific matter of how Essential provides adequate oversight of its ESG activities and strategy, such as how the board of directors and leadership are kept abreast of trends and discuss such matters as a group. Essential's structure has been carefully considered to maximize its ability to carry out its significant responsibilities as a utility with the utmost integrity and ethical foundation.

Essential's corporate governance [website](#) includes the following governance policies for download:

- Sustainability and Environmental Policy
- Human Rights Policy
- Human Rights to Water Policy
- Political Spending Policy
- Code of Ethical Business Conduct
- Conflict of Interest Policy
- Equal Employment Opportunity and Anti-Harassment Policy
- Position on Unions
- Corporate Governance Guidelines

Corporate Governance

Our Chief Executive Officer is also chairman of the board. The board of directors deliberately determined that this structure of the combined chairman and CEO, along with the position of a strong lead independent director and independent committee chairs, is the most appropriate and efficient approach to managing the company. This provides clear accountability to the execution of Essential's strategy and results. The lead independent director is elected annually and maintains special responsibilities and authorities to share leadership of the board with the chairman. These are listed in our [Proxy Statement](#).

Under our bylaws, the board of directors may designate an executive committee and one or more other committees, with each committee consisting of two or more directors, except for the audit committee and executive compensation committee, which each must have at least three members. The board of directors annually elects from its members the executive, audit, executive compensation, risk mitigation and investment policy, and corporate governance committees. The board may also appoint ad hoc committees. The retirement and employee benefits committee, which is comprised of senior management from Essential, reports periodically to the board of directors.

Change to Board Diversity is a tenant of Essential's corporate governance practice. When assessing a candidate, consideration will be given to the effect such candidate will have on the diversity of the board. Diversity of the board is evaluated by considering a broad range of attributes, including, without limitation, race, gender and national origin, background, demographics, expertise and experience.

Each year, the directors complete a targeted questionnaire that is administered by a neutral, non-affiliated entity to assess the performance of the board and each of the standing committees. Every second year, directors complete a targeted questionnaire to assess the performance of the directors individually.

Both questionnaires elicit quantitative and qualitative ratings in key areas of board operation and function. Each committee member completes questions to evaluate how well the committees on which he or she serves are functioning and to provide suggestions for improvement. In 2020, the lead independent director and the chairman met with each director, provided results to the evaluation to each individual and discussed and discussed the director's participation, preparation, and performance.

In 2015, the board of directors undertook a multi-year program aimed at refreshing the board to encourage new ideas, expertise and oversight, while maintaining the institutional experience of the then-current directors. As a result, the board of directors now consists of nine directors, with eight of those directors having joined since 2015. Each of these directors brings his or her own level of expertise and experience. The board of directors is responsible for determining whether each of the directors is independent. The board has adopted corporate governance guidelines that contain categorical standards of director independence that are consistent with the listing standards of the NYSE. Seven of our eight directors are independent.

BOARD COMPOSITION

57.9

Average age of directors

33.3%

Female directors

22.2%

Directors of color

55.5%

Total diversity

3.9 yrs

Average tenure

88.9%

Independence

More information about our board of directors can be found in our [proxy statement](#). On July 7th, 2021, Essential [announced](#) the appointment of a new member of the board. The above data is as of this date.

Enterprise Risk Management Program

Essential's corporate governance surrounding enterprise risks is very strong and recently reinforced by the hire of a Director of Risk Management. The primary objective for Essential's formalized Enterprise Risk Management (ERM) Program is to develop a center of excellence for effective awareness, understanding, and management of emerging and existing enterprise-wide uncertainties of every type, and every function that can affect the organization, and the achievement of its strategic business objectives and goals.

Another objective for the program is sustainability, in a manner that optimizes costs and resources, drives risk mitigation and decision-making, increases organizational preparedness, and affords an ongoing, holistic review of risk across the organization and its individual business functions.

The program's framework eliminates silos, fosters cross-functional investments into risk understanding, and emphasizes the interconnectedness of effective risk management and the organization's achievement of its strategic business objectives and goals.

ERM governance is centrally coordinated and monitored by the Risk Management Department via automated ERM process model facilitation and an electronic risk repository, which yields taxonomies, sophistication, and informed decision-making. There is active participation in this process at the highest levels of the organization and across all areas of the business as well.



In 2020, the company's leadership team rang the opening bell of the New York Stock Exchange to celebrate the formation of the newly combined Essential Utilities.

Commitment to Human Rights

Essential Utilities is deeply committed to human rights; this care spans across our operations and through all our activities. We recognize the influence and importance our business has on many stakeholders, and we strive to consider and address the impacts our operations have on each of these groups and promote universal human rights in all our practices. Our board of directors is responsible for overseeing human rights risk management and our management team is accountable to the board for ensuring our [Human Rights Policy](#) is effectively implemented. All employees are urged to consider promotion of human rights in their roles and are expected to be strong and ethical community partners. Further, our commitment applies to all suppliers and vendors without exception, and is independent of what governments may or may not require.

As our policy states, we make the following commitments to minimize risk and adverse effects of our operations:

- Make efforts to avoid causing or contributing to human rights violations
- Mitigate and/or remediate adverse human rights impacts of our operations where possible
- Treat all with equal respect, regardless of their background
- Pursue protections of the rights of all people, including women and minorities
- Prohibit the use of child labor, forced labor, and human trafficking
- Be transparent in our efforts, successes, and challenges

While minimizing and mitigating risk is vitally important, we also believe our operations play a constructive role in both safeguarding and expanding opportunity for human rights development. This is an inherent responsibility of Essential as a supplier of water for our communities, and directly connected to UN Sustainable Development Goal 6, which calls for the “availability and sustainable management of water and sanitation for all.” Our [Human Right to Water Policy](#) makes clear our commitment to providing a reliable supply of safe, clean, affordable and accessible water in accordance with regulations at rates established by governing public utility commissions.

We acknowledge our responsibility to customers while also fulfilling our responsibility to sustainable and resilient communities by investing in our nation’s water infrastructure and protecting water sources and local environments. Coordination of all these activities helps safeguard every human’s right to water. We agree with the November 2002 resolution of the United Nations Committee on Economic, Social and Cultural Rights which both calls for a human right to water and acknowledges this as a “prerequisite for the realization of other rights.” We can never take this right for granted and must continually invest in our water infrastructure for future generations.

Governance of ESG

Board Oversight of ESG

The board of directors is briefed on ESG matters in its regularly scheduled meetings, through various channels and reporting paths. The corporate governance committee takes primary responsibility for providing board oversight for the company's ESG profile, strategy, and activities. At least five times per year, both the chief of staff, who reports to the CEO and oversees the ESG program, and the ESG manager present an update to the corporate governance committee of the board on ESG matters. Often joining them are various leaders from across the organization to speak to various subjects. Related risks are covered under the enterprise risk management (ERM) review conducted by the risk mitigation and investment policy committee of the board and reported to the full board at each of its regularly scheduled meetings. At least five times a year, our general counsel provides the board a report on the progress of the ERM program. Also, there is additional oversight provides the board a report by the audit committee, which is informed about ESG-related risks through the compliance and disclosure committees, comprised of the Essential's management. Written reports are provided to the full board at each meeting and, for certain ESG matters, presentations are made to the full board.

The CEO is also a member of the risk mitigation and investment policy committee as well as the executive committee. As such, the CEO provides a valuable voice and perspective to board discussions on ESG matters, as he is separately tasked with the responsibility for the overall direction and strategy related to ESG for operations and aligning corporate growth with consideration of these issues. This arrangement serves as a crucial bridge between the board and our company's management with respect to ESG.

Executive Team Role in Managing ESG

Flowing from governance of ESG by the board of directors, the management of Essential Utilities is responsible for designing, implementing, reporting, and executing a strong and comprehensive program. It is the expectation that every member of the executive management team understands the principles and importance of ESG, is aware of latest developments and trends in their area, identifies relevant risks and

opportunities, and continually seeks creative means by which to foster innovation and contribution to the overall development of the Essential ESG profile. Further, this orientation and focus is disseminated through the organization and we seek to build company culture around an inherent regard for our communities and environment, in line with our corporate mission and purpose.

Our CEO is responsible for the overall direction and strategy related to ESG issues for operations and aligning corporate growth with consideration of such issues. Further, the CEO is the most direct interface with current and future investors in addressing our company's alignment with ESG goals. As such, the CEO provides a valuable voice and perspective and serves as a crucial bridge between the board and our management to facilitate alignment.

In May 2020, Essential Utilities hired an ESG manager, a new full-time role that reports to the chief of staff and is completely dedicated to further developing and maturing the ESG profile of our company. This reflects a larger effort to re-commit our focus to ESG and accelerate efforts to expand and strengthen our program. The ESG manager oversees the reporting process, works towards increasing our level of disclosure, monitors latest trends and emerging best practices, supports existing projects and helps develop new initiatives so that we can continue to grow as a recognized ESG leader within the utilities industry.

Additional management oversight of ESG is provided by the ESG oversight committee, which was formalized in 2020. Members of this group include over a dozen senior leaders from across the organization, each lending a unique and valued perspective. This group meets at least once per quarter to discuss recent progress with ESG initiatives, industry news and trends, strategic short and long-term planning, approval of various initiatives and policies and to recommend matters to be presented to the CEO and the board.

There are many leaders and team members across the organization that contribute to Essential's ESG profile and program. Our entire leadership team is encouraged to remain aware of the sustainability trends and issues within their areas and the industries in which Essential operates. They also are expected to engage employees on these matters and infuse the principles and mission of our company within the daily work and priorities of the team.

ESG Metrics in Executive Compensation

Essential incentivizes its leadership team, as well as eligible employees across the organization, through a short-term incentive plan. This is based on a balanced scorecard approach that promotes our team working in the best interests of all of our stakeholders, from investors to customers to employees and other critical groups. This updated incentive program builds on and supports an already strong foundation of management oversight of ESG.

While further details and illustrations, as well as performance, are provided in our [proxy statement](#), the 2020 short-term incentive plan elements are listed below at a high level:

2020 Short-Term Incentive Plan Components

Area	Weighting
Financial	50%
Safety	20%
Environmental Stewardship	10%
Customer Satisfaction	10%
Individual Performance	10%

As noted in the [Supplier Diversity](#) and [Diversity, Equity, and Inclusion](#) sections of this report, for 2021, we have added new diversity metrics (10% weighting) to our short-term incentive plan in place of individual performance metrics. The goal is to further encourage our leadership to focus on building diversity in our operations and fostering an environment where all feel belonging and support.

Code of Conduct

Essential's [Code of Ethical Business Conduct](#) reinforces the company's longstanding tenet for doing business with integrity and in accordance with its core values and ethical standards. The Code emphasizes that maintaining this level of integrity depends upon the conduct of all employees, adherence to our core values and commitment to acting in a safe, legal and ethical manner at all times.

The Code provides specific rules and concrete examples concerning ethical business conduct, but also emphasizes these should be viewed expansively and be broadly applied to business conduct. It encourages employees to discuss potential ethical issues with their supervisors and prohibits any retaliation for raising good faith questions about ethical conduct. Employees may raise ethical issues with the company's chief compliance officer, any manager or members of the board of directors or the board's audit committee. A process for making an anonymous report is also provided, with options to file by phone or online through a third-party site. Confidential and anonymous reporting is available 24 hours a day, seven days a week.

While the board of directors has overall responsibility for ensuring ethical business conduct, the chief compliance officer is charged with implementing and enforcing the Code. However, all officers and managers accept responsibility for enforcing and communicating about the Code and are subject to disciplinary action for violations either personally or by employees under their management. Reports are investigated by the chief compliance officer, the audit committee or the full board of directors depending upon the nature of the matter.

Employees are required to complete annual training about the Code via interactive web programming. Upon completion of the training, each employee must demonstrate a proficiency level by answering a series of questions about the Code's requirements and their applications to business situations.

The Code specifically addresses the following topics regarding conduct within the company:

- Recognizing conflicts of interest and their prohibition within the company
- Limiting gifts and gratuities from contractors, vendors and suppliers to nominal value
- Standards for maintaining accurate records
- Limiting the use of company resources to business purposes
- Restricting personal benefit from business opportunities arising from company business
- Safeguarding confidential information and restricting its use within the company
- Appropriate, safe and secure use of computers and technology
- Guidelines on public communications about business activity and the company
- Activity by the company's political action committee and political activity by employees
- Respect in the workplace, including issues involving discrimination and harassment
- Maintaining a healthy and safe environment for employees, customers and the public
- Complying with applicable laws and regulations and reporting criminal conduct
- Purchasing and selling company stock and prohibitions on insider trading.

Public Policy Participation

We take seriously our role in the public policy process. At our disposal are various outlets through which we can participate. Essential engages with government and trade associations in order to educate and address issues impacting our service. Engaging in this activity is important to support future and current candidates who want to maintain our mission by providing a strong water, wastewater and natural gas distribution infrastructure for the next generation, protect the environment, and allow our company to be financially viable. In addition, our management team can participate in Essential's H2O Political Action Committee (PAC). Transparency is critical to building trust in political activities and the activities of the PAC are overseen by a board that meets on a quarterly basis. All PAC and lobbying expenditures are reported in accordance with federal, state and local laws. For further information, please refer to our [Political Spending Policy](#).

Data Security and Privacy

Essential is committed to the safe, secure and reliable operation of its information technology and operations technology systems. Essential has a robust and long-standing cybersecurity program, which is aligned to the National Institute of Standards and Technology (NIST) Cybersecurity Framework.

As cybersecurity threats continue to evolve and increase in both sophistication as well as complexity, the Essential strategy has been to operate utilizing a risk-based approach and continuous improvement through the following methods:

Governance: The information security and cybersecurity program is overseen by a diverse and cross-functional committee of senior business leaders. This committee meets bimonthly and is charged with ensuring that cyber risk is managed and that the program is aligned to business goals and objectives. Updates are also provided to the board's risk committee quarterly and the full board once a year.

Risk Management: The information security organization is responsible for ongoing vulnerability assessments and threat analysis to essential assets such as customer and employee data, critical business systems, and industrial control environments. Risk assessments are executed on a quarterly basis in conjunction with a third party to promote objectivity. Information security and cybersecurity risk management functions are also integrated into the enterprise risk management program. There have been no security breaches in the past year across our enterprise and Essential maintains a cybersecurity insurance policy to promote resiliency and reduce risk.

Controls, Policy & Compliance: Essential has implemented enterprise-wide security policies, standards and controls that incorporate best practices in security engineering, technology architecture and data protection, which support regulatory compliance. The information security controls framework has been developed around the NIST Cybersecurity Framework but also incorporates best practices from ISO 27001 Information Security Management Systems, CIS Critical Security Controls and ISA 99 Industrial Automation and Control Systems Security. An annual review of Essential's security framework controls is conducted in conjunction with a third party to promote objectivity.

Awareness, Training & Assessment: Essential has created a corporate culture that is conscious of cybersecurity, with a focus on continual assessment, development and improvement. Specialized programs have been implemented, such as enterprise-wide communications, presentations, phishing simulations and focused training for specific roles. We have developed and implemented a general cybersecurity training program required for all employees.

Supply Chain

In 2020, we made \$889 million purchases in controllable spend related to our gas, water, and wastewater businesses, more than half of which was with suppliers from within the states we operate. Being good stewards of community natural resources aligns with being good community partners, because we provide gas, water and wastewater treatment locally. We recognize that, in many cases, our customers are also our suppliers and vendors. We recognize the importance to use suppliers who work and live in a community within the footprint of our infrastructure. These deep, multifaceted connections between Essential and our fellow community members enrich and strengthen neighborhoods, as well as develop a more resilient local economy.

Supplier Diversity

In addition to our efforts to maximize business with vendors local to the communities we serve, Essential is committed to increasing our work with qualified and certified diverse suppliers, which are measured by majority of ownership and control, and include one or more of the following classifications:

- Minority-owned Business Enterprise (MBE)
- Women-owned Business Enterprise (WBE)
- Veteran-owned Business Enterprise (VBE)
- Person with Disabilities-owned Business Enterprise (PDBE or DISABLED)
- Lesbian, Gay, Bisexual, Transgender-owned Business Enterprise (LGBT)

To be certified as diverse, the supplier must have a valid and current certification from one of the following:

- State or local government certifying agencies
- [National Minority Supplier Development Council \(NMSDC\)](#)
- [Women's Business Enterprise National Council \(WBENC\)](#)
- [National Veteran Business Development Certification \(NVBDC\)](#)
- [National Veteran Owned Business Association \(NaVOBA\)](#)
- [The National Lesbian, Gay, Bisexual, Transgender Chamber of Commerce \(NGLCC\)](#)

Essential believes that supplier diversity is critical for our communities as well as for our business. We want to source from and partner with businesses owned by individuals representative of the diverse communities and neighborhoods where we live, work, and operate each day. This also enriches local economies, increases sourcing options, and fosters collaboration and innovation. 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). In 2021, we also added a supplier diversity component (5% weighting) to our short-term incentive plan.

We have taken various steps internally to increase our work with diverse suppliers in the procurement process, including regular review of purchase requisitions to expand the use of diverse vendors, updating our internal purchasing website to encourage greater use of qualified diverse suppliers, working with a leading provider of supplier diversity data and enhancing reporting to better recognize our work with such suppliers.

Externally, we encourage diverse vendors to register and become certified in their state to apply for every applicable opportunity, and we reference a commitment to diversity in our supplier code of conduct. The Essential purchasing department is

a member of the National Minority Supplier Development Council, Eastern Minority Supplier Development Council, Women's Business Enterprise National Council, Women's Business Enterprise Center East, and Women's Business Development Center. We regularly participate in networking events and follow-up meetings to learn from companies with mature supplier diversity programs.

Essential has a Tier 2 diverse spend reporting program for its major suppliers. Our Tier 2 supplier diversity program aims to grow and sustain diverse suppliers beyond Tier 1 direct supplier relationships. Our program tracks the certified diverse spend of minority, women, disabled, veteran, or LGBT-owned businesses that are the subcontractors to our prime Tier 1 suppliers. We collaborated with key Tier 1 suppliers to identify and account for certified diverse subcontractor spend on an annual basis. These major Tier 1 suppliers are also contacted by the Supply Chain Department at the end of the year requesting subcontractor spend submission by January 31st of the following year.

In 2020, Essential implemented an automated Tier 2 validation process using Supplier IO's UniTier platform. An Essential-specific website was created for our prime suppliers to enter their Tier 2 supplier spend in support of Essential. These submissions of subcontractor spend are validated by the UniTier platform as certified diverse subcontractors by using the Supplier IO database. Upon completion, Supplier IO generates a report that details verified certified diverse Tier 2 suppliers and unverified diverse suppliers. Only those verified as certified diverse Tier 2 suppliers are used for reporting purposes.

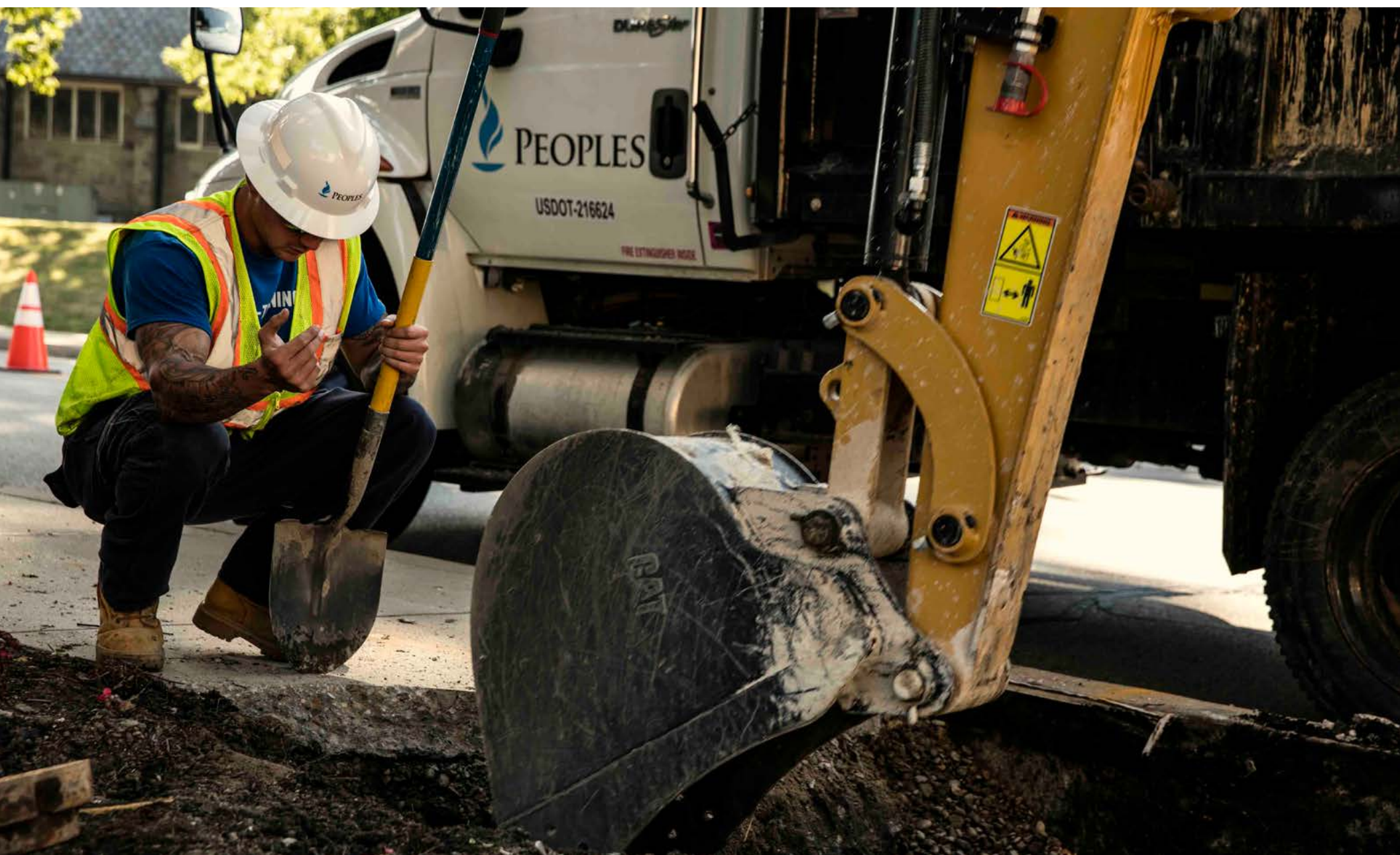
In 2020, Essential spent \$73 million with diverse suppliers, representing 8.3% of our controllable spend. When calculating the percentage of our spend with diverse suppliers, we measure in controllable spend.

Supplier Code of Conduct

Essential has established a [Supplier Code of Conduct](#) to define the basic requirements for suppliers of goods and services and their responsibilities to the environment and their stakeholders.

We are committed to purchasing from suppliers that strive to improve the environmental quality of our water, wastewater, and gas operations, and that use reasonable efforts to minimize pollution and improve environmental protection and sustainability.

Our suppliers are also responsible for the health and safety of their employees, which includes controlling exposure to hazards, taking reasonable efforts and precautionary measures against accidents and occupational hazards, providing education and training in health and safety issues and having reasonable health and safety management systems. We also expect suppliers to subscribe to the principles of nondiscrimination, follow high standards of business ethics and professional conduct and adhere to our [Human Rights Policy](#).





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