



2019

Task Force on Climate-related Financial Disclosures Report

Ticker Symbol: WTRG

Introduction

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. We believe that addressing climate change requires a holistic management approach and the tracking and monitoring of our greenhouse gas (GHG) emissions and our executive and management teams understand that there are two distinct elements of climate change that impact our company: adaptation and mitigation. At Essential, we are addressing both adaptation and mitigation with oversight and guidance from our board of directors, and have implemented a robust management system to identify associated risks and opportunities. This Task Force on Climate-related Financial Disclosures (TCFD) report aims to provide our stakeholders with information about our climate change governance framework, strategy, risks and opportunities, relevant metrics and targets.

About Us

Essential is one of the largest publicly traded water, wastewater and natural gas providers in the U.S. 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 serves approximately 5 million people across 10 states under the Aqua and Peoples brands. Essential is committed to excellence in proactive infrastructure investment, regulatory expertise, operational efficiency and environmental stewardship. The company recognizes the importance water and natural gas play in everyday life and is proud to deliver safe, reliable services that contribute to the quality of life in the communities we serve.

Our largest operating subsidiary is Aqua Pennsylvania, Inc., which accounted for approximately 54% of our operating revenues and approximately 72% of our regulated water segment's income for 2019. As of December 31, 2019, Aqua Pennsylvania provided water or wastewater services to approximately 50% of the total number of water and wastewater customers we serve. Aqua Pennsylvania's service territory is located in the suburban areas in counties north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. Our other regulated water utility subsidiaries provide similar services in seven additional states. In addition, Essential's market-based activities are conducted through Aqua Infrastructure, LLC and Aqua Resources Inc. Aqua Infrastructure provides non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources manages a water system operating and maintenance contract, and offers, through a third-party, water and sewer line protection solutions and repair services to households.

Corporate Profile

- Revenue: \$889.7 million
- Employees (full-time): More than 1,600
- People served: 2.5 million people from 1,026,704 connections
- States: Eight— Illinois, Indiana, North Carolina, New Jersey, Ohio, Pennsylvania, Texas and Virginia
- Water systems: 1,497
- Water Connections: 885,032
- Gallons of drinking water produced: 83.8 billion
- Wastewater systems: 198
- Wastewater connections: 141,672
- Gallons of wastewater treated: 12.3 billion

**Please note that this is Aqua only, as of December 31, 2019*

About this Report

This report outlines and specifies Essential's approach to evaluating and mitigating climate change risks and opportunities and is guided by the recommendations of the TCFD, presenting information for calendar year 2019. As this was prior to the Peoples Gas Acquisition¹, which closed on March 16, 2020, the descriptions of our business and operations, results, and operational data included in this report do not include our natural gas utility operations. The information included solely discusses the 2019 operations of our water and wastewater utility business.

For additional information about our environmental, social, and governance efforts, in addition to more detailed disclosure around our efforts to reduce our energy consumption and GHG emissions, see our 2019 ESG Report, 2019 ESG Tear Sheet and 2019 CDP submission.

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.

¹On October 22, 2018, we entered into a purchase agreement to acquire, from LDC Funding LLC, the parent company of PNG Companies, a natural gas distribution company consisting of Peoples Natural Gas Company LLC, Peoples Gas Company LLC, Peoples Gas West Virginia, Inc., Peoples Gas Kentucky, Inc., and Delta Natural Gas Company Inc. expanding the company's regulated utility business to include natural gas distribution. This acquisition is referred to as the “Peoples Gas Acquisition”, and collectively these businesses are referred to as “Peoples”. This acquisition closed on March 16, 2020.

Governance



Board Oversight

Essential's board of directors is briefed on environmental, social and governance (ESG) matters in its regularly scheduled meetings, through various channels and reporting paths. At least quarterly, our compliance and disclosure committees, comprised of the company's executive management and representatives of all major functional areas within the company, review the risks facing the organization and evaluate our operations with respect to many issues, including the risk factors associated with climate change that are disclosed in our Form 10-K. The results of these committee meetings are then reported to the board's audit committee, which then reports to the full board of directors. Separately, the board's risk mitigation and investment policy committee oversees Essential's enterprise risk management (ERM) program. The ERM program focuses on the risks facing the company, including climate change, and seeks to mitigate those risks. At least five times a year, the general counsel provides a report to the full board on the ERM program's progress. Annually, the chief environmental officer presents to the board on environmental sustainability matters. During this detailed review, there is an analysis and discussion of climate change initiatives, strategies and progress towards related goals. These matters are discussed both in terms of impact to current operations and future acquisition and expansion opportunities. Further, the chief financial officer (CFO) is responsible for receiving approval from the board for all capital budget requests including those related to climate change mitigation. The chief executive officer (CEO) is 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 climate change matters, as he is separately tasked with the responsibility for the overall direction and strategy related to climate issues for operations and aligning corporate growth with consideration of climate-related issues.

Senior Management

As discussed above, our CEO is responsible for the overall direction and strategy related to climate change. In addition, climate related issues are monitored and analyzed through the ERM framework and are reviewed by the general counsel to determine risks related to both short term acute events and risk due to longer term climate change issues for both physical assets and production operations. Our CFO is responsible for monitoring the financial impact of climate-related events and projecting the financial risk of future events for current operations. The CFO assesses the financial impact of climate-related issues in both growth and expansion opportunities. Our chief operating officer (COO) is responsible for ensuring physical assets are protected from climate related issues and implementing operational procedures and efficiencies to reduce energy consumption. The COO is also responsible for performing a climate due diligence assessment on future acquisitions and expansion opportunities.

The chief environmental officer reports to the COO and downward to each state president and corporate engineering functions to provide the overarching guidance and oversight in managing risk and evaluating risk through our key performance indicators (KPIs) which includes energy intensity. The corporate energy manager, who reports through the vice president of corporate engineering to the COO, leads the assessment and tracking of energy intensity for production assets. This individual assists each state's president and chief engineer with identifying and implementing energy reduction measures at well stations, water treatment plants and wastewater treatment plants. The corporate energy manager is also responsible for energy purchases, including procurement of green energy within those states with deregulated markets and the assessment and implementation of on-site renewable energy projects where feasible. The vice president of fleet operations, reporting up through the chief administrative officer to the CEO, is responsible for managing the large fleet of vehicles across the enterprise and implementing efficiency initiatives that reduce emissions and climate impact.

The chief of staff oversees the company's ESG program. In this capacity, the chief of staff coordinates with the aforementioned individuals and others within the organization on various initiatives and also manages both internal and external communications on these matters. This individual is also responsible for further developing and maturing Essential's ESG profile, which includes climate change matters and impacts.

Strategy and Risk Management

Climate Change Impact on Business Strategy and Financial Planning

Climate change presents risks and opportunities to utilities involved in water and wastewater treatment and services. Designing and implementing efficient and resilient infrastructure and operational processes has a dual purpose of addressing climate change and reducing financial costs, and as we make improvements to our systems, we drive energy efficiency, conservation and waste minimization. For example, we utilize automation and efficient pumping helps reduce energy needed to operate our systems. Operational efficiency is monitored and managed through production metrics such as kWh/1,000 gallons to monitor trends and identify opportunities. Managers with direct responsibility for these goals have compensations dependent on specific energy consumption targets.

Essential is also innovating our climate strategy by exploring and evaluating the use of treated wastewater effluent for irrigation, which conserves freshwater, a resource becoming scarce. We are also exploring and evaluating the acquisition of combined sewer and stormwater systems and upgrading the infrastructure to be more resilient and environmentally sound. Changing weather patterns are exposing the need to upgrade such systems to ensure associated runoff issues do not occur. At Essential, we are continually thinking about how to engineer resilient infrastructure for sustainable communities.

Our financial planning process is influenced by climate change in several ways. We are creatively and proactively assessing our energy supply options, which involve forward purchasing of renewable energy and investments in various renewable energy projects. These alter the cadence of our cash outflows and often have a larger outlay at the beginning of a project before earning savings in subsequent periods. As a water utility operating in an energy-intensive industry, these decisions involve planning, coordination, and financial considerations to ensure we are increasing resiliency and maintaining affordability for customer.

As a water utility, treating our water and protecting our systems requires us to maintain constant focus on emerging contaminants and we work hard to ascertain the impact of climate change on our water systems in accordance with the latest science. For example, we have identified cyanotoxins as an emerging contaminant impacted by climate change. Our researchers and engineers are devising treatment methods to address risks by emerging contaminants, such as cyanotoxins, which often requires additional investment in new technologies or processes to increase the resiliency of our various water systems. Additionally, we seek to reduce water loss and leakage wherever possible. The more water we need to treat at our plants, the more energy we need to use as an organization. Upfront investment in infrastructure and systems creates efficiency in the future. We replace water mains and many miles of pipe regularly to ensure that our systems are efficient and result in less water loss. This requires significant capital investment to maintain our systems and ensure they are resilient.

Determining Climate-related Risks and Opportunities

Essential evaluates risks and opportunities within the model using a STEEP (sociological, technological, economical, environmental, and political) analysis method, assessing both internal and external forces on their likelihood of occurrence and then on the magnitude of their impact, time horizon and likelihood. As part of this assessment, topic areas were selected and, for implications within those areas, specific risks or opportunities were addressed. The implications were given a score based on likelihood, cost and magnitude of impact on operations as they relate to climate impacts under the Businesses as Usual and Temperature Rise Below 2 Degrees Celsius climate-related

scenarios. (See Scenario Analysis discussion below.) This analysis allows for a semi-quantitative method of ranking risks and opportunities and serves to triage a larger number of implications. 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.

The analysis has six topic areas: Capital Investments vs. Extreme Temperatures, Higher Energy Costs vs. Temperature, Market Growth vs. Groundwater Availability, Infrastructure Resilience vs. Frequency and Intensity of Storm Events, System Compliance vs. Regulations on Contaminants of Emerging Concern (CECs), and Population Dynamics vs. Source Water Availability. The topic areas yielded 37 implications of a risk or opportunity across three geographic areas encompassing our operations. The STEEP analysis method helped provide the scoring rationale and justification in selecting specific risks and opportunities over others. Based on previous qualitative methods, implications such as flooding figured more prominently. However, when analyzed within the STEEP process, other implications scored higher. The implications with the highest scores are presented in the subsections below.

Scenario Analysis

In an effort to better incorporate the potential effects of climate change on our business, Essential has assessed climate-related risks and opportunities through the use of scenario analysis, as guided by the TCFD recommendations. Through the scenario analysis, we sought to identify our most pertinent climate-related business risks (transition and physical) and opportunities under the 2°C warming scenario (RCP2.6) and the greater than 2°C Business-As-Usual (RCP8.5) warming scenario. To perform qualitative scenario analyses, we implemented an eight-step scenario development process in which we identified issues, key factors influencing those issues and driving forces, before ranking them by importance and uncertainty, and created scenario matrices with axes of uncertainty. Each matrix was given a meaningful name and described qualitatively in the form of a narrative. From these narratives we derived implications, allowing for future selection of leading indicators. Relevant stakeholders within Essential, including, but not limited to, management, operations personnel, and employees were asked to provide potential risk areas and the implications these risk areas could affect within Essential's operations profile within three geographic regions; Northern Region (NJ, PA, OH, IL and IN), Mid South (VA and NC) and the Texas Region (TX) To perform quantitative scenario analyses, we downloaded temperature and precipitation data from the downscaled CMPI5 climate data set for the period 1950-2099 under the RCP2.6 and RCP8.5 scenarios within the BCCAV2 ccsm4 model run.

This quantitative model data was then used in tandem with stakeholder feedback to produce several key rating indicators for each region. These included a potential magnitude of impact (MOI) for the indicator on operations (with MOI the definition being consistent with CDP terminology), the likelihood of impact (consistent with institutional knowledge and historic climate data), and cost (annualized cost impact on labor, control infrastructure, operations and maintenance, etc.). These key rating indicators were given individual weights and scores by interviewed stakeholders, on a scale from 0-3. These ratings were then compiled to generate a total implication score (TIS), representing the impact that any implication could have on Essential's operations and as to whether it was an opportunity or a risk. The TIS was then cross-calculated with the relative urgency, a metric developed from the results of the RCP 2.6 and RCP 8.5 climate analysis. By analyzing the climate variability within the applicable time horizon, a branching logical flow diagram was generated, allowing for variable and dynamic decision making on the relative importance and timeliness of actions, based on an indicator's susceptibility to either climate scenario. The resulting modified impact score (MIS) included all relevant information pertinent to individual risk or opportunities, adjusted for climate impact, in a format designed for managerial and operational expedience.

Climate-Related Risks And Opportunities

Essential considers climate change risks across three time horizons. We consider the next zero to five years to be our short-term horizon and view this period as an actionable and pertinent range, as both physical and transitional risks are likely to adjust and shift in this time. As a state-regulated utility this range aligns with our other business activities. We see six to 15 years as a medium-term horizon for strategic capital and infrastructure planning, and 16 to 30 years as our long-term time horizon. We believe that engaging in long-term planning cycles during which enterprise-wide issues are evaluated is important in addressing actions today, when outcomes pay dividends far into the future. As an organization focused on infrastructure renewal and advancement, we constantly strive to implement technologies that make our business practices more efficient for the customers we serve. Evaluating exposure to climate-related risks and opportunities over a range of time allows for a strategy for the transition to a low-carbon economy recognized in the Paris Agreement and UN Sustainable Development Goals.

	Years	Risks	Opportunities
Short-term	0-5	<ul style="list-style-type: none"> • Changes in precipitation patterns and extreme variability in weather patterns resulting in increased sewer overflow events (physical) • Mandates on and regulations of existing services, in particular regulation of cyanotoxins and contaminants of emerging concerns (physical) 	<ul style="list-style-type: none"> • Renewable energy (transition) • Acquisitions of smaller water and wastewater systems that cannot manage increased complexity and costs of operations (physical)
Medium-term	6-15	<ul style="list-style-type: none"> • Mandates on and regulations of existing services, in particular drinking water disinfection by-products (physical) 	—
Long-term	16-30	<ul style="list-style-type: none"> • <i>Essential's scenario analysis has not identified significant long-term risks to our water and wastewater operations at this time. However, we will continuously reevaluate climate-related risks in a comprehensive and thorough manner as described above.</i> 	<ul style="list-style-type: none"> • Acquisitions of smaller water and wastewater systems that cannot manage increased complexity and costs of operations (physical) • Access to new markets, including wastewater discharge reuse (physical)

Climate Risks

In assessing climate change risks, we consider current and emerging regulations, legal proceedings and likelihood of litigation, technological advances, market influences and the physical impacts of a changing climate, both acute and physical. We assess and manage these through our enterprise risk management process, which identifies opportunities to build resilience in both our operations and our business model. Essential regularly updates risk management policies, standards and programs to align with global best practices and regulatory requirements, and we aim to anticipate emerging risks and upcoming regulatory changes. As a result of our assessment, we have identified the following risks with a potential to have a substantive financial or strategic impact on our business:

Changes in precipitation patterns and extreme variability in weather patterns resulting in increased sewer overflow events (short-term; physical)

Protecting the environment from untreated sewage is a top priority as the owner and operator of wastewater systems. However, our company acquires many systems that, due to historical lack of repair and investment, require time to make major infrastructure investments to prevent sewers from overflowing to the environment. Overflows can be caused during non-rain events by sewer collapses, electrical failures, and blockages. Also, extreme weather events such as hurricanes and tropical storms, increased frequency of extreme rainfall events, or climate-related trends can force a well-operated and maintained system to experience the occasional sanitary sewer overflow. Essential works to eliminate overflows through capital investments and operations, minimize and report overflows when they happen, and track the location, frequency, and duration of any overflows for future improvements.

Mandates on and regulations of existing services, including regulation of cyanotoxins and contaminants of emerging concerns (short-term; physical)

Blooms of toxin-producing cyanobacteria are expected to proliferate in surface water as global temperatures rise. These organisms produce cyanotoxins, a contaminant of emerging concern (CEC) that we have identified as a potential climate-related risk to our ability to provide safe and healthy drinking water to our customers. However, there is currently research being performed internally and externally to further assess this risk. Our company's response to regulations for CECs, and specifically cyanotoxins, depends on the speed and structure by which these regulations are implemented. The U.S. Environmental Protection Agency (EPA) has begun conducting studies to determine chronic and acute maximum contaminant level in humans and aquatic life for the pollutants. Once these studies are complete and potentially translated into regulatory policy, this could influence the regulations of water quality for surface water plants. How quickly these regulatory policies are adapted and implemented, and their results, will determine how soon and strict future CEC regulations in drinking water quality are. Our company's response to these future regulations depends on these results and we are actively monitoring the latest scientific and regulatory developments in this area. In addition, we have begun installing treatment upgrades to address cyanotoxins in our Ohio subsidiary.

Mandates on and regulations of existing services, including drinking water disinfection by-products (medium-term; physical)

An unintended consequence of drinking water disinfection is the generation of disinfection by-products (DBPs). These chemical DBPs, either organic or inorganic depending on the context, form as part of normal chemical disinfection treatment through the interaction between naturally occurring organic materials present in the source water and the treatment technology being used. In the case of our operations, the disinfectant most prone to cause DBP is chlorine. Chlorine dosage, and by extension the prevalence of DBP, is highly dependent on temperature. Using scenario analysis, we determined the potential implications to our business operations under an optimistic scenario (RCP 2.6) and a Business-as-Usual pathway (BAU, RCP 8.5). We have determined that there is a high likelihood that regulatory authority and requirements will also be highly dependent on similar climate-related trends. Our company may address increased DBPs as a result of treatment by implementing new filtration and treatment processes (e.g. organics removal, carbon treatment and membranes) for their effective removal prior to delivery, with the ability to scale these efforts based on the regulatory requirements, justified through the results of the scenario analysis.

Climate Opportunities

Renewable energy (short-term; transition)

We see renewable energy use as an opportunity to reduce our operating costs. Essential has installed solar panels at two treatment plant locations in Illinois. Through favorable grants for solar installations, Aqua Illinois is able to realize 25% to 50% savings for its retail power supply costs at both a water and wastewater treatment plant, while supplying 75% of the plants' annual electricity requirement. This is an example of how solar can reduce operating costs with the right mix of incentives and comparative grid supplier power costs either under an own-and-operate or power purchase agreement (PPA). This also includes off-site PPAs with retail providers. In 2019, we entered into an agreement which provides Aqua Texas, beginning in July 2020, with 25% solar power through an off-site PPA. This agreement provides a cost advantageous scenario as compared to 100% grid power. We continually evaluate the cost of retail power, available grants, land availability and PPA opportunities so we are ready to act with agility on advantageous opportunities.

Acquisitions of smaller water and wastewater systems that cannot manage increased complexity and costs of operations (short-term; physical)

At Essential, we view access to new markets as an opportunity to grow our business without unnecessarily expanding our footprint through expanded infrastructure growth. Mergers and acquisitions as a growth strategy allows for Essential to expand into new markets through opportunities that in part result from the impacts of climate change. There are many factors that could lead municipalities to sell their systems, but as the climate changes water and wastewater systems become more complex to operate, require increased capital investment to meet change and regulatory compliance becomes more complex. While these are the same risks identified as risks to our business, they are also present opportunities for acquisition. Fair Market Value policies provide a mechanism for municipal systems to sell their water and wastewater systems. These municipalities seek a company such as Essential with broad expertise and experience, access to capital, and a strong understanding of current and future regulations and legislation. Through the use of scenario analysis, we have identified specific areas of operations and climate scenarios that would provide a strategic advantage on this front, leading to acquisitions that would improve service reliability and quality to local stakeholders.

Access to new markets including, in particular, wastewater discharge reuse (long-term; physical)

As climate change may alter precipitation patterns, a consequence may be the impact to groundwater and surface water quantity and quality in various regions. Reducing the demand for freshwater and reducing demand on less resilient sources of supply will require communities to consider alternative sources and technologies. Irrigation is a significant demand on household water use and cooling for power generation and server farms requires significant water. If these uses for homes, businesses, technology, agriculture, and golf courses are to be maintained for growing populations, the treatment and reuse of wastewater for potable and other uses will need to be expanded. This may provide opportunities to add customers within a given service area or provide access to new communities and businesses that cannot meet their supply demands. The company is currently involved in several agreements in which it treats wastewater and returns the water to various fields, including golf courses, where the water is used for irrigation. This opportunity includes expanded services for wastewater effluent used in irrigation, as well as services to convert wastewater back to a fully potable source.

GHG Emissions Reduction Efforts, Targets and Metrics

GHG Emissions Reduction Efforts

Reducing emissions requires a multi-pronged approach and focus on the areas where Essential can have the greatest impact as part of an overall long-term mitigation strategy. One such endeavor is to reduce the consumption of energy through efficiency projects. Measuring and managing energy intensity in our operations is a critical component of this. Another pathway is through the expanded use of onsite renewable energy on land adjacent to our facilities. Essential's approach to addressing our carbon footprint and use of various carbon mitigation options will evolve over time but it will include additional onsite solar at locations already identified when price parity with grid power can be achieved at the local level. Where this is not feasible, Essential utilizes PPAs for dedicated purchase of energy from specific renewable energy assets. A third avenue for mitigation is purchasing renewable energy offsets via certified credits, with wind power being the most commonly utilized. These are substantive, immediate and meaningful steps in line with the Paris Agreement on climate change and will significantly reduce our carbon footprint.

Essential measures and reports Scope 1 and 2 GHG emissions, which are resultant from energy which is directly consumed, but the impact of secondary emissions, Scope 3, is also notable. Tracking and reducing those emissions comprise an important component of our overall carbon reduction strategy. Our Scope 3 emissions include: pipe replacement activities, purchased chemicals, upstream fuel (electric) emissions not included in Scope 1 and 2, business travel, employee commuting and investments (LLCs without majority ownership).

Pipe replacement activities are the largest Scope 3 item and this is necessary to address aging infrastructure. The methods and materials used today extend the serviceable usefulness up to 100 years as compared to piping installed just 30 years ago, which translates to reduced frequency of pipe replacement over time. There is also an ancillary benefit to our Scope 2 emissions, because better and newer piping means less lost water through leaks and main breaks, resulting in a reduction of water that needs to be produced. Essential's purchase of chemicals is the second largest source of Scope 3 emissions, but this is a required element for water safety and quality. Warmer water temperatures brought on by climate change will require Essential to use more chemicals to produce safe drinking water. While there is opportunity to reduce chemical usage through onsite chlorine generation and UV disinfection, this results in an increase in our Scope 2 emissions, though it also represents a net reduction in overall emissions. By tracking GHG impacts from chemical purchases, we can better understand the impact of climate change on treatment operations. The third largest Scope 3 source is the upstream impacts of fuel and energy-related activities of the fuel needed to generate electricity. 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.

Climate Targets

In March of 2020, Aqua America acquired Peoples Gas and was renamed Essential Utilities. In light of the acquisition and integration of a new business line, Essential is currently in the process of measuring company-wide GHG emissions and evaluating how we could reach the goals of the Paris Agreement, including through intermediate targets and business unit timelines.

Essential's water and wastewater business, through power contacts executed in 2019, will reduce its market-based CO₂e emission by approximately 60% from its 2018 baseline by 2022. We believe that this reduction is well within intermediate carbon reduction goal timetables for achieving the science-based goal of limiting global temperature increase to well below 2 degree Celsius. The natural gas distribution business, Peoples Gas, is undergoing its first complete assessment of Scope 1 & 2 emissions inventory. Once the inventory is completed, in late 2020, Essential will begin to develop formal targets and goals as a combined organization, as well as for each of its two businesses.

Climate Metrics

GHG Emissions	Unit	2019	2018	2017
Scope 1 (absolute)	Metric tons CO ₂ e	16,057	16,304	14,383
Scope 2 (absolute)²	Metric tons CO ₂ e	115,124	128,612	132,858
Scope 1 + 2 (absolute)	Metric tons CO ₂ e	131,181	144,916	147,241
Scope 1 + 2 (intensity- water production)	Metric tons CO ₂ e per million gallons of water produced	1.253	1.410	1.460
Scope 1 + 2 (intensity- wastewater treatment)	Metric tons CO ₂ e per million gallons of wastewater treated	2.221	2.305	2.840
Scope 1 + 2 (intensity- total company revenue)	Metric tons CO ₂ e per million USD revenue	147.44	172.90	181.89
Scope 3³	Metric tons CO ₂ e	110,675	150,780	Not calculated
GHG Energy	Unit	2019	2018	2017
Total energy consumed	MWh	383,886	389,750	367,583
Non-renewable energy	Percent	95%	95%	95%
Renewable energy⁴	Percent	5%	5%	5%

² 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 (measured in metric tons CO₂e) as follows: 123,639 (2019), 130,997 (2018) and 152,980 (2017).

³ Essential began calculating Scope 3 emissions in 2018. The reduction in Scope 3 emissions in 2019 was largely the result of updated emissions factors for capital goods.

⁴ This represents our sourcing of 100% wind power through Green-e Renewable Energy Certificates. 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.



762 Lancaster Ave
Bryn Mawr, PA 19010
610.525.1400
ESG@essential.co
essential.co

Ticker Symbol: WTRG