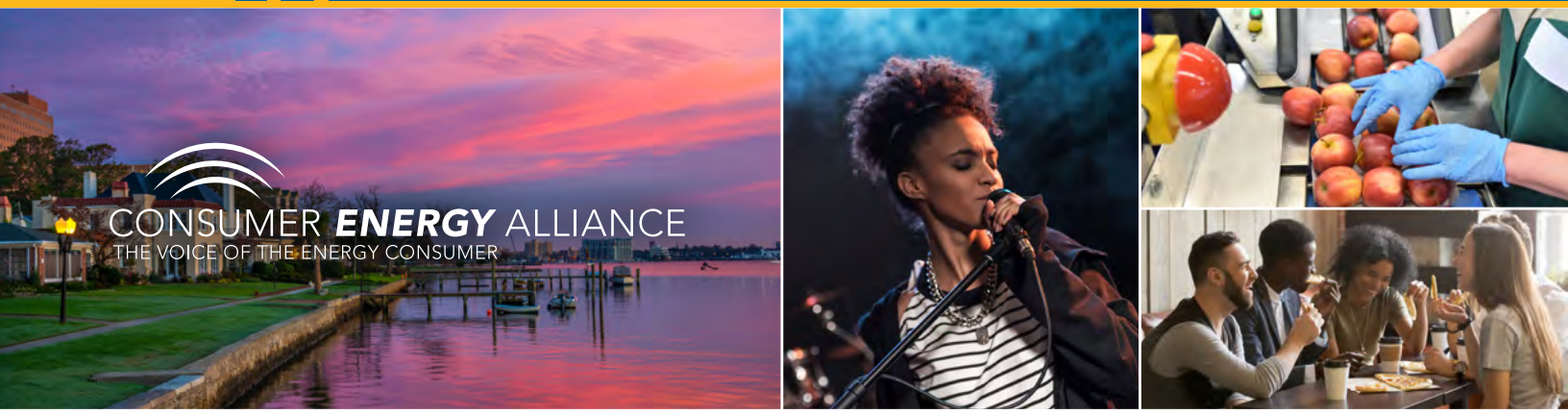


Natural Gas, Fueling Life in Virginia

Virginians enjoy an exceptional quality of life. It's a state that has something for everyone. Beautiful beaches, mountains, skiing – both on the slopes and on the water - and charming, historic small towns and thriving cities are found across the Commonwealth. Underpinning this vibrancy is affordable and available energy – especially natural gas. It fuels life in Virginia, particularly in these uncertain times with COVID-19. It is the always on energy resource that can meet the changing needs and circumstances for your home, business, and community. It powers the cloud with more families learning and people working remotely as the nation recovers from the pandemic. Natural gas helps heat and cool your home, cook that great recipe for a special meal, clean your clothes and helps you unwind after a long day with hot water for showers. It's hard to imagine a day without the comforts that natural gas provides.

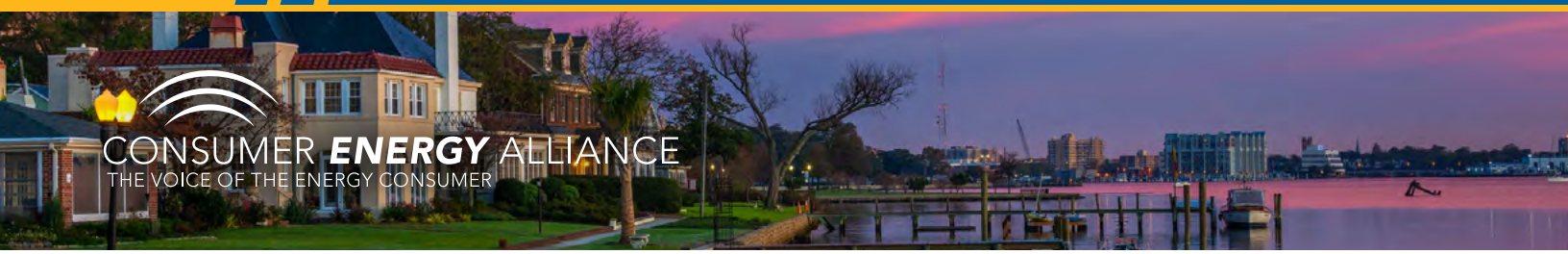
$14.2 BILLION

The amount Virginia consumers saved between 2008 and 2018 because of natural gas.

Not only does natural gas bring you the everyday comforts often taken for granted, investments in modernizing Virginia's natural gas infrastructure and expanded availability also save families and businesses billions. In fact, Virginia energy consumers have saved more than $14.2 billion between 2008 and 2018 thanks to expanded, updated, and modernized natural gas investments. Residential users alone saved more than $4.7 billion. Commercial and industrial users saved more than $9.4 billion combined. These energy savings bring relief to Virginia families and help keep the Commonwealth's industries competitive.[1]

The Need for Affordable, Reliable Energy

As the unprecedented COVID-19 pandemic continues globally, the need for affordable energy has never been more important. Many American families face significant challenges to cope with energy costs. According to a survey by the U.S. Energy Information Administration, nearly one-third of American households struggled to pay their energy bills to light, heat, and cool their homes. The survey found that roughly "one in three households reported reducing or forgoing basic necessities like food and medicine to pay an energy bill, and 14% reported receiving a disconnection notice for their energy service.



874,000

The number of Virginians living in poverty. Fortunately, investments in affordable natural gas and system reliability are keeping energy costs down for those struggling to get by.

Households also used less energy than they would prefer to – 11% of households surveyed reported keeping their home at an unhealthy or unsafe temperature."[2]

On average, Virginia households spent $3,601 to meet their energy needs in 2018.[3] For those living at or below the poverty line, this translates to more than 28% of their income going toward energy expenses.[4] Unfortunately, in 2018 more than 874,000 Virginians lived in poverty[5] - enough people to fill Richmond Raceway more than 14 times.[6] In the wake of the pandemic, Virginia's unemployment numbers have risen sharply. In July 2020, more than 344,000 Virginia residents were out of work – an almost 200% increase from January.[7] Fortunately, investments were made in system reliability and safety to ensure affordable natural gas would be available for Virginia families and businesses to help keep costs down and vital service continued.

As more Virginians are working and attending classes from their homes, reliable energy is crucial. Thanks to ongoing efforts by local natural gas utilities to modernize and optimize Virginia's natural gas delivery system, families at home have been able to rely on hot water for bathing and cleaning, home cooked meals, and comfortable indoor temperatures. Natural gas is also an affordable solution for families at home. Households with natural gas appliances such as water heaters, stoves, and clothes dryers, spend an average of almost $900 less per year than homes with electric appliances.[8] In Virginia, the average monthly gas utility bill is about $50 less than electricity.[9] Compare the value of the everyday comforts provided by natural gas versus other services like cable, internet service or a cell phone bill, which federal data shows that average bills are $114 per month[10], and it is easy to see why natural gas is such an attractive option for consumers.

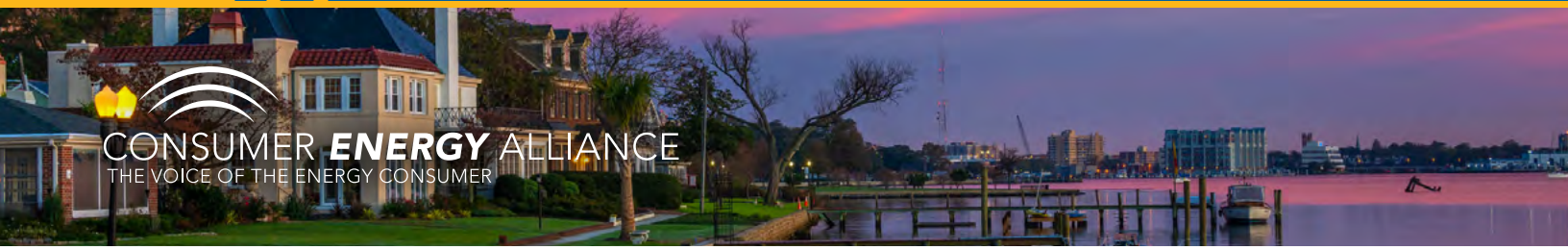
Virginia's Energy Overview

Virginia produces a small amount of natural gas, primarily in its southwestern counties. The Commonwealth consumes far more natural gas than it produces. In fact, Virginia's energy demand has increased ten-fold from 2003 to 2018. Electric power generation is the largest consumer of natural gas in Virginia. Almost 60% of Virginia's power generation relies on natural gas. Additionally, one-third of Virginia's households use natural gas for home heating.[11]

Because Virginia does not produce enough natural gas to meet its growing energy demands, natural gas must be transported to the Commonwealth via interstate pipelines from the Appalachian and Gulf Coast regions. The rapid rise in production from the Marcellus shale fields has resulted in increased supplies arriving from

$900

The average amount Virginians save with natural gas appliances versus electric appliances.



Pennsylvania. Much of this new supply is needed to meet underserved areas of the state, especially in the Hampton Roads region that needs more natural gas service. Underserved areas that lack natural gas have a difficult time attracting new businesses or industry, economic development, and housing, that not only inhibits growth but can diminish quality of life for communities.

Enhanced Upgrades and Monitoring Lead to Greater Pipeline Safety

Pipelines are essential for delivering energy to Virginians and across the country. The U.S. delivery network has nearly 3 million miles that move energy to homes, communities, power plants, industries and businesses to keep our economy moving, and powered. Much of this infrastructure has specific purposes and moves energy from production areas and storage facilities to be used by consumers. According to federal data, in 2018 the natural gas transportation network delivered nearly 28 trillion cubic feet (Tcf) of natural gas to about 75 million customers.[12]

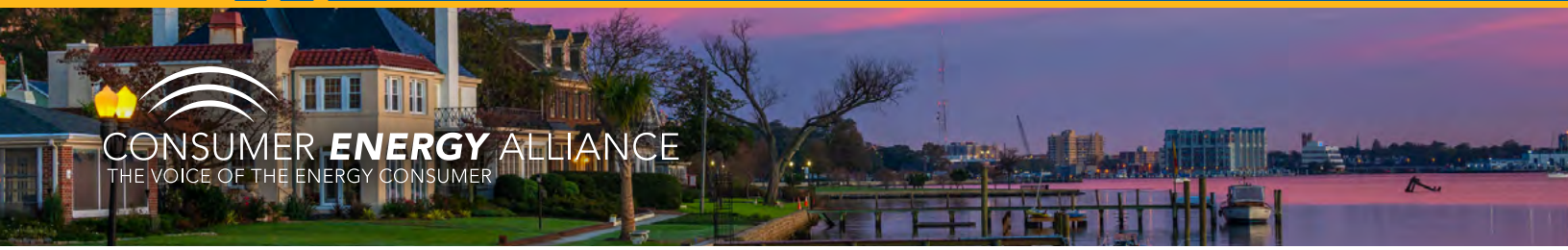
46,000

The number of miles of gas distribution, gathering, transmission and liquids pipelines across Virginia.

Utilities move natural gas through an enormous network of 2.6 million miles of distribution infrastructure delivering service to 179 million Americans.[13] Virginia has nearly 46,000 miles[14] of gas distribution, gathering, transmission and liquids pipelines that quietly and safely work 24/7 to deliver the energy needed to maintain the quality of life and increasing demands being placed on our networks for power, heating, and increasingly interconnected devices.

In order to avoid placing an undue financial burden on customers and families, and prevent service interruptions, utilities must make timely investment decisions to upgrade pipelines. Innovative cost recovery efforts have been adopted by state public utility commissions and safety regulators across the country to accelerate the modernization of the country's natural gas infrastructure to deliver energy to homes small businesses, hospitals, large employers and critical defense infrastructure in Hampton Roads.

The nation's pipeline network and Virginia's infrastructure is safe and getting safer due to continued investments made by operators to upgrade and modernize their networks. Over 99.999% of the energy delivered on these systems safely arrives at its destination every day.[15] The safety record for the natural gas and liquids pipeline industry has seen remarkable progress and incidents have been trending downward significantly over the past decade. According to data from the American Gas Association (AGA), natural gas utilities spend $22 billion annually to help enhance the safety of natural gas distribution and transmission systems and federal data shows a continual downward trend in system incidents of approximately 10% every three years.[16] Incidents impacting people or the environment from the liquids pipeline industry are down 20% over the last five years[17], and interstate gas transmission leaks are down 69% since 1998.[18]



Operators and utilities work closely with federal, state, and local regulators to maintain and upgrade the nation's natural gas pipeline system and replace or upgrade systems as necessary to ensure safety. AGA notes that natural gas utilities have installed and updated their networks with advanced materials at a rate of 30,000 miles per year.[19] Federal regulations require pipeline operators to implement a complex risk management process to evaluate and manage their networks with rigorous inspections, identify potential threats, and utilize sophisticated tools to assess when and where repairs are needed and determine if a segment needs to be replaced.[20] This process, known as the Distribution Integrity Management Program or DIMP, is required by the nation's federal safety regulator, the Pipeline and Hazardous Materials Safety Administration (PHMSA). Each operator's DIMP plan is audited by their state regulator or PHMSA to help ensure that risk mitigation is optimized and tailored towards a system network's unique characteristics.

Currently, 39 states, including Virginia, have accelerated pipe replacement programs. The National Association of Regulatory Utility Commissioners (NARUC) has approved a policy encouraging state regulators and operators to consider balanced programs aimed at expeditiously replacing the most vulnerable segments in its systems. NARUC also encourages the adoption of alternative rate recovery mechanisms in order to accelerate this transition to modernize and expand the nation's natural gas systems.

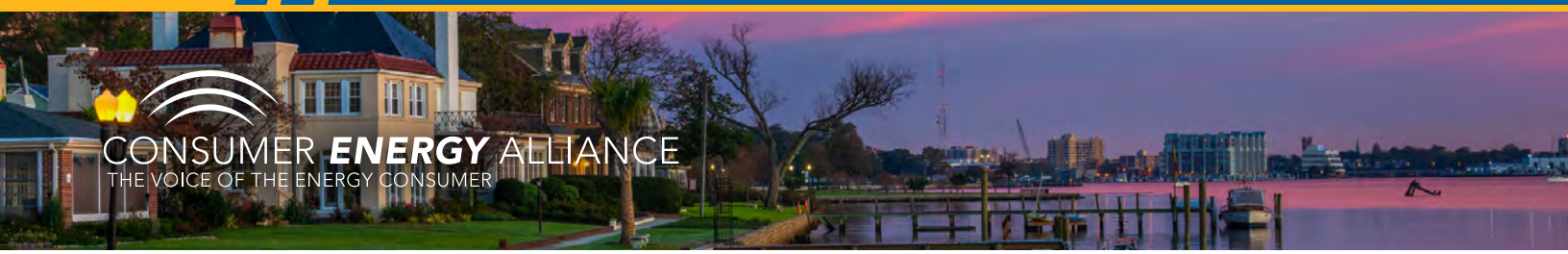
In 2010, the Virginia legislature enacted the Steps to Advance Virginia's Energy Plan (SAVE) Act. The law allows utilities to petition the state's utility regulator, the Virginia State Corporation Commission, to recover a return on investments for the modernization of natural gas infrastructure. This includes replacement projects that enhance safety and reliability, or have the potential to reduce greenhouse gas emissions by reducing risks to the integrity of pipeline infrastructure.[21]

You may not realize it, but more is being asked of our natural gas and electric infrastructure to keep up with increasing demands to have the nimble, responsive energy delivery networks we want.

The use of natural gas, infrastructure investments and increased availability have led to dramatic improvement in the nation and Virginia's air quality even while population and significant economic growth has occurred. Nationwide, federal data confirms that carbon emissions have decreased and are at levels not seen since the early 1990s thanks in large part to increased use of natural gas and system upgrades. According to the Department of Energy, natural gas consumption in the state's electricity sector increased more than tenfold from 2003 through 2018.[22] However, from 2005 to 2016, Virginia's carbon dioxide emissions decreased by almost 20% all while natural gas use and customers increased.[23] Consumers can have affordable natural gas and expand needed infrastructure improvements while ensuring Virginia's environment is protected for future generations.

Investing in a 21st Century Energy Delivery Network

You may not realize it, but more is being asked of our natural gas and electric infrastructure to keep up

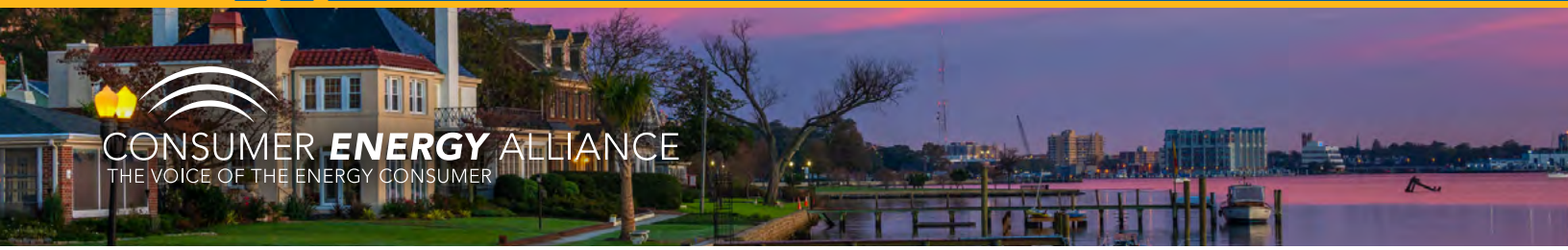


with increasing demands to have the nimble, responsive energy delivery networks we want. That means the consideration of making wise choices now to ensure the country, and Virginia, develop the type of capable, modern infrastructure needed to improve service for consumers. Further, these investments help prevent costly outages and bottlenecks for families, small businesses, and our workplaces – especially on high demand days.

Utilities such as Virginia Natural Gas are actively replacing and upgrading pipe segments, removing low pressure lines, adding new infrastructure, and improving technologies that will provide enhanced service and increased optionality for customers and businesses in Hampton Roads. Implementing these modernized systems will reap long term benefits throughout the region with improved safety, service reliability, environmental benefits and savings due to better access to lower cost natural gas energy.

Conclusion

Making smart investments today will ensure Virginia families and consumers have the affordable and reliable energy they need tomorrow. Upgrading Virginia's natural gas infrastructure and modernization will pay substantial dividends for a prosperous future. In these uncertain times with COVID-19, Virginians can have the peace of mind their energy service will be there whenever its needed so they can face unexpected challenges with confidence.



[1] Calculations developed by Orion Strategies. $5.749 billion saved by industrial users, $4.757 billion saved by residential users, and $3.738 billion saved by commercial users. This number was calculated by using the annual average price per thousand cubic feet of natural gas for residential, commercial, and industrial consumers. This EIA price was then applied to the total MMcfs consumed in Virginia, also sourced by EIA. The Consumer Price Index utilized by the Bureau of Labor and Statistics was applied to each year's price in order to adjust each price to 2018 dollars. 2018 was used as a cutoff date as it was the last year with complete data.

[2] https://www.eia.gov/consumption/residential/reports/2015/energybills/

[3] https://www.eia.gov/state/seds/sep_sum/html/pdf/rank_pr.pdf

[4] https://aspe.hhs.gov/poverty-guidelines

[5] https://talkpoverty.org/state-year-report/virginia-2018-report/

[6] http://www.richmondraceway.com/About/About.aspx

[7] https://www.bls.gov/eag/eag.va.htm

[8] http://www.truebluenaturalgas.org/natural-gas-customers/

[9] https://www.move.org/utility-bills-101/

[10] https://www.bls.gov/cex/2018/combined/age.pdf

[11] https://www.eia.gov/state/analysis.php?sid=VA

[12] https://www.eia.gov/energyexplained/natural-gas/natural-gas-pipelines.php

[13] https://www.aga.org/globalassets/2019-pipeline-safety_final.pdf

[14] https://portal.phmsa.dot.gov/analytics/saw.dll?Portalpages&PortalPath=%2Fshared%2FPDM%20Public%20Website%2F_portal%2FPublic%20Reports&Page=Infrastructure

[15] https://aopl.org/documents/en-us/d904059a-c130-41f9-b8da-3ca7e100ad4a/1

[16] https://www.aga.org/natural-gas/safe/enhancing-safety/

[17] https://aopl.org/documents/en-us/d904059a-c130-41f9-b8da-3ca7e100ad4a/1

[18] https://www.ingaa.org/Pipelines101/Safety.aspx

[19] https://www.aga.org/contentassets/7e9157649d70496391b38baff62506ed/pipeline-safety_final.pdf

[20] https://www.phmsa.dot.gov/pipeline/gas-distribution-integrity-management/gas-distribution-integrity-management-program-dimp

[21] https://pubs.naruc.org/pub/45E90C1E-155D-0A36-31FE-A68E6BF430EE

[22] https://consumerenergyalliance.org/cms/wp-content/uploads/2019/10/CEA_INFOGRAPHIC_VIRGINIA_ALL.pdf

[23] https://consumerenergyalliance.org/2019/10/virginias-emissions-have-fallen-89-percent-energy-demand-increases/