



VIRGINIA

THE HIDDEN COSTS OF A VIRGINIA NATURAL GAS BAN

Across the U.S., local governments have proposed measures to ban or discourage the use of natural gas hookups for new homes and businesses. Some have even gone so far as to push for a complete phase-out of services to existing customers that rely on natural gas or propane.

The consequences of these policies that prohibit access to affordable energy jeopardize those who can least afford it. These developments are especially troubling as the nation grapples with the COVID-19 pandemic recovery. When Texas faced power reliability challenges earlier this year, it became evident that consumers need always-on options like natural gas to balance the grid and ensure they have the power and heat they need during extreme weather events, and for everyday service as well.

Using open-source consumer data, CEA developed a cost calculator to provide an estimate of what a typical household in Richmond, Virginia, could expect to pay if policies to ban natural gas service and usage are put into place. If forced onto families, the cost would be astronomical.

An energy ban could cost as much as \$26,132 for a Richmond household to retrofit existing appliances, depending on the appliance models, home configuration, labor, and reliance on natural gas. These findings dovetail with previous CEA research that found that the cost to replace major gas appliances in homes nationwide would be more than [\\$258 billion](#).

Further, as the report shows, a tremendous amount of new transmission infrastructure will need to be built at significant cost to Virginians to meet the demands to “electrify everything.” While CEA supports voluntary efforts by consumers to use the types of appliances and services they prefer, the cost of forcing actions onto them must be balanced against costs to households and real-world, practical considerations.

THE CONSEQUENCES OF ENERGY BANS

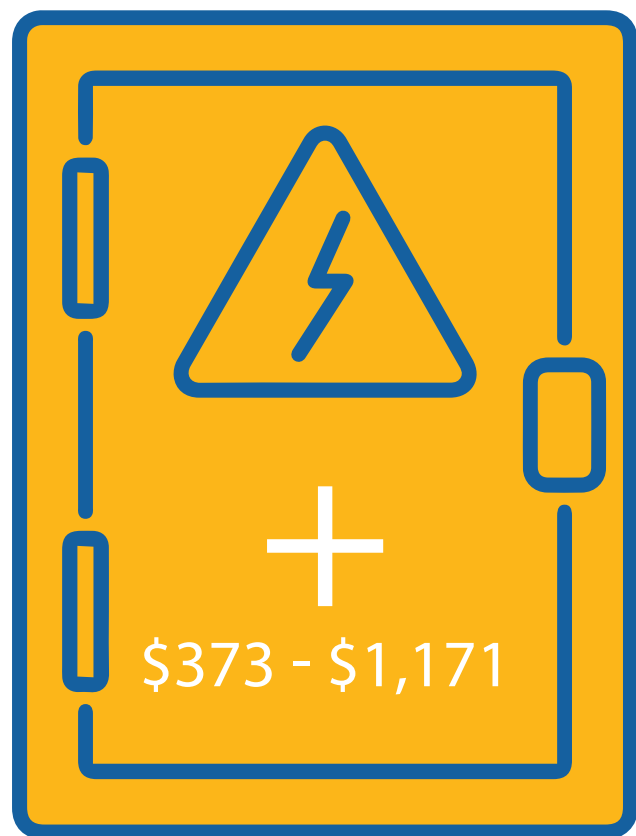
Natural gas bans deny homeowners and businesses the service they need, want and most commonly use to power their lives, heat their homes and run their operations. These energy bans dictate choices to consumers, and supporters of bans ignore science and leave out pertinent facts – mainly how expensive it will be to force people to change all their appliances to electric-only.

Arbitrarily limiting energy choice would increase costs and disproportionately affect consumers and households on fixed and low incomes.

More than half of Virginia’s electric power generation comes from [natural gas](#). Federal data also shows that one in three households rely on natural gas for [home heating](#). Banning natural gas hookups could lead to huge sticker shock on future energy bills. That’s something no household facing a stretched budget needs. A recent CNBC survey found that only [41% of Americans](#) had enough savings to cover a \$1,000 emergency.

In 2020, 9.9% of Virginians lived at or below the [poverty line](#). Additionally, the statewide unemployment rate was [4.3%](#) for June 2021. Besides the impact on lower-income populations, energy bans would add avoidable hardships to many of the state’s battered businesses. A study by the Dragas Center Economic Analysis and Policy at Old Dominion University reported that the pandemic had negatively impacted [75%](#) of Virginia businesses by November.

These businesses are the lifeblood of vibrant neighborhoods across the Commonwealth and rely on natural gas to power their operations from large manufacturers to small businesses like restaurants. Short-sighted energy service bans would be another impediment to bringing back Virginia’s most important economic generators.



ELECTRIC PANEL UPGRADE (200 AMPS):

\$373 - \$1,171 (Richmond, VA price range)



NATURAL GAS AND VIRGINIA

Given the large footprint of natural gas across Virginia – fueling [60%](#) of the Commonwealth’s electricity net generation - it’s important to see how it has benefited the state. A recent CEA report found that Virginia families, seniors, small businesses, and manufacturers have saved more than \$7 billion over the past decade because of the increased availability of affordable natural gas and related pipeline infrastructure.

A punitive natural gas ban could put those benefits in jeopardy for Virginia households. Not only would there be significant costs for new appliances, wiring upgrades and potential remodeling, but it would potentially lead to higher monthly energy bills for home heating. Conventional natural gas furnaces are less expensive to operate compared to other heating sources, including advanced heat pumps, according to data from the American Gas Association (AGA). This corresponds with their findings from the 2014 Polar Vortex, when the average cost to heat a natural gas home in January of that year was \$159 compared to \$267 for a similar home with a heat pump and an electric furnace for backup heat – a 40% difference. AGA reported that “an equivalent home with equal heating loads operating an electrical resistance furnace would have incurred a heating bill of [\\$445](#) on average.”

What is often left out of the public policy conversation is that as natural gas use has grown and expanded across Virginia, emissions have fallen dramatically.

Even more remarkable – energy-related carbon emissions (CO₂) dropped [13.1%](#) from 2000 to 2018. These reductions came as natural gas use grew, pipeline infrastructure expanded and Virginia’s economy surged. Usually, economic growth and emissions increase in parallel.

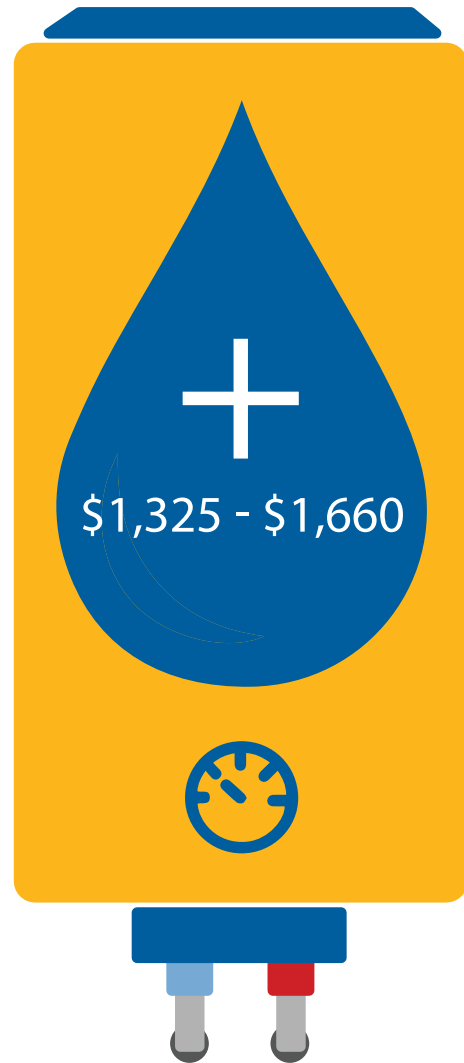
BASED ON DATA FROM THE ENVIRONMENTAL PROTECTION AGENCY, FROM 1990-2019 VIRGINIA’S EMISSIONS OF CRITERIA POLLUTANTS HAVE DECREASED ACROSS THE BOARD, WITH A:

- [71.2%](#) reduction in nitrogen oxides (NO_x)
- [65.2%](#) reduction in volatile organic compounds (VOCs)
- [93.0%](#) reduction in sulfur dioxide (SO₂)

IMPACT ON VIRGINIA HOUSEHOLDS

The harmful impacts of a natural gas and traditional fuel service ban are substantial and real. A ban or mandate to replace natural gas appliances could be potentially ruinous for many Virginians by hitting them with surprise bills. CEA developed its cost calculator by examining open-source information from consumer websites that detail average cost information for the replacement of natural gas appliances, remodeling, construction, wiring, and labor. All these costs would be forced on homeowners and landlords, the latter of whom would pass them on to renters.

According to the consumer website Homewyse, a new heat pump in Richmond, Virginia, would currently cost homeowners between [\\$4,017 and \\$5,008](#). “After labor, fees and permits, costs can hit \$20,000 or more, not including ducts,” according to consumer website [HomeAdvisor](#). This is just to replace a furnace and does not include other appliance replacement costs nor the rewiring needed for conversion. Depending on the models chosen, mandates requiring the replacement of major appliances like hot water heaters, furnaces, gas stoves, gas dryers could top out at more than \$26,132 for a Richmond household reliant on natural gas.



**ELECTRIC WATER HEATER:
\$1,325 - \$1,660**

(Richmond, VA price range includes material, labor and supplies)

IMPACT ON THE ELECTRIC TRANSMISSION AND DISTRIBUTION GRID

CEA supports a balanced and rational discussion by those who want to voluntarily pursue strategic electrification efforts that make sense from a practical or technical standpoint. However, prematurely instituting technologies comes at a cost; and a blanket adoption of forcing electrification onto consumers without examining the details could have very real cost and reliability impacts.

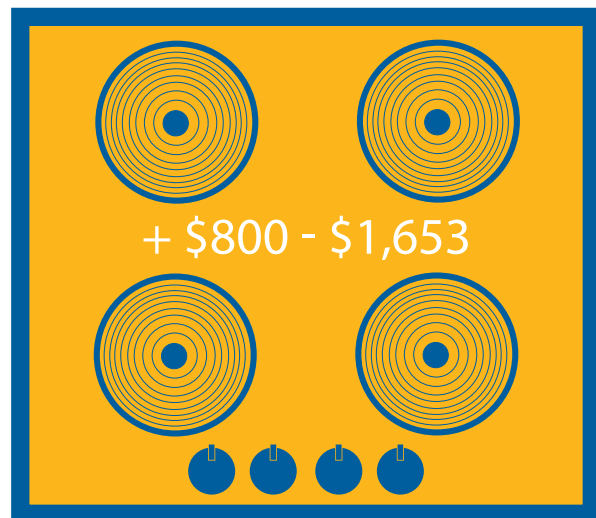
Princeton University's [Net-Zero America Study](#) took a comprehensive, multi-scenario look at how the United States could achieve net zero carbon policies by pursuing electrification and other strategies.

To execute the study's "E+ high electrification scenario" by 2050, utilities will have to make massive infrastructure investments to manage the increased load and connected costs of adding electric vehicle charging stations, heat pumps, all-electric appliances and more to Virginia's electricity grid. A high electrification (and net-zero) scenario would increase peak system demand by [50%](#) and require the replacement of nearly [21,000 megawatts](#) of traditional-fuel generating capacity, which currently meets over [60%](#) of Virginia's electricity demand .

In addition, by 2050 the study estimates nearly \$42.7 billion will need to be invested in utilities' distribution systems to support the electric load increases at a cost of [\\$12,400](#) per household. Add that to an estimated \$103.5 billion in capital investment for wind and solar and per-household costs to "electrify everything" soar to \$42,500.

The study also suggested that electric transmission capacity across the country may need to increase by 60% (2030) to 300% (2050). There are approximately [1,600 miles](#) of electric transmission lines in Virginia. While cost estimates for construction of [transmission lines](#) vary, if Virginia were to increase its transmission infrastructure by 60% at a cost of [\\$350,000](#) per mile, an additional 4,000 miles of transmission lines would cost approximately \$336 million; an additional 4,800 miles would be nearly \$1.7 billion.

As is too often the case when it comes to energy policy, low- and fixed-income communities will be most affected by untested solutions like [forced electrification](#). Policymakers and regulators will have to decide if the benefits of electrifying our economy will outweigh the costs to Virginia, which will surely exceed \$100 billion by 2050.



ELECTRIC RANGE: \$800 - \$1,653

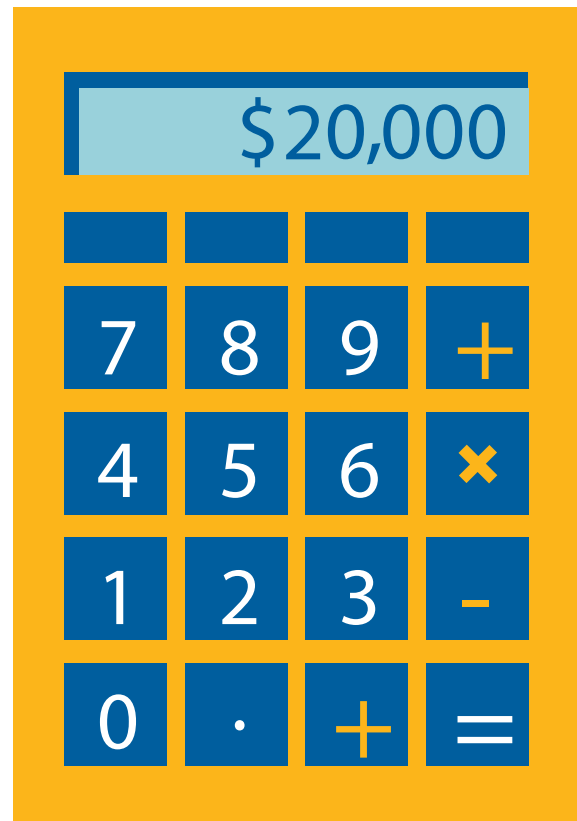
(Richmond, VA price range includes material, labor and supplies)

CLEANER FUTURES WITHOUT CONSUMER PAIN

CEA wants to see a clean future with lower emissions. We can get there without dictating energy choices to families, seniors and neighbors along the way. Exciting technologies like renewable natural gas (RNG) can help reduce potent methane emissions and improve water quality all while still using existing infrastructure. RNG captures harmful methane emissions from landfills, municipal water systems or farm operations and transforms them into useable fuel that can be transported in our existing pipeline network.

Blending hydrogen into our existing gas infrastructure is another emerging solution. Large-scale renewable opportunities from offshore wind, along with battery storage technology, are other options on the horizon that will help further drive down Virginia's emissions profile. However, misguided attempts to ban energy services will lead to astronomical costs and jeopardize energy resources that are helping reduce emissions.

Protections are needed to prevent our neighbors and communities from being hit with surprise bills and service disruptions as a result of these bans – especially as they try and recover from the incredible economic harm of COVID-19. It should be up to consumers to decide what types of appliances they want, not activists.



TOTAL COST FOR HEAT PUMP INSTALLATION: \$20,000

potentially depending on labor, fees and permits



COST CALCULATOR FOR A VIRGINIA ENERGY SERVICE BAN

- **Total Cost for Heat Pump Installation: \$20,000 potentially depending on labor, fees and permits**
<https://www.homeadvisor.com/cost/heating-and-cooling/install-a-heat-pump/#calculator>
- **Electric Panel Upgrade (200 Amps): \$373 - \$1,171 (Richmond, VA price range)**
<https://www.homeadvisor.com/cost/electrical/upgrade-an-electrical-panel/>
- **Electric Hot Water Heater: \$1,325 - \$1,660 (Richmond, VA price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_hot_water_heaters.html
- **Electric Range: \$800 - \$1,653 (Richmond, VA price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_ranges.html
- **Electric Dryer: \$798 - \$1,648 (Richmond, VA price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_dryers.html