
# THE HIDDEN COSTS OF A NORTH CAROLINA 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 every day service as well.

Using open-source consumer data, CEA developed a cost calculator to provide an estimate of what a typical household in Charlotte, North Carolina, 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.

Depending on the appliance models, home configuration, labor, and reliance on natural gas, an energy ban could cost as much as $25,871 for a Charlotte household to retrofit existing appliances. 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 costs to North Carolinians 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

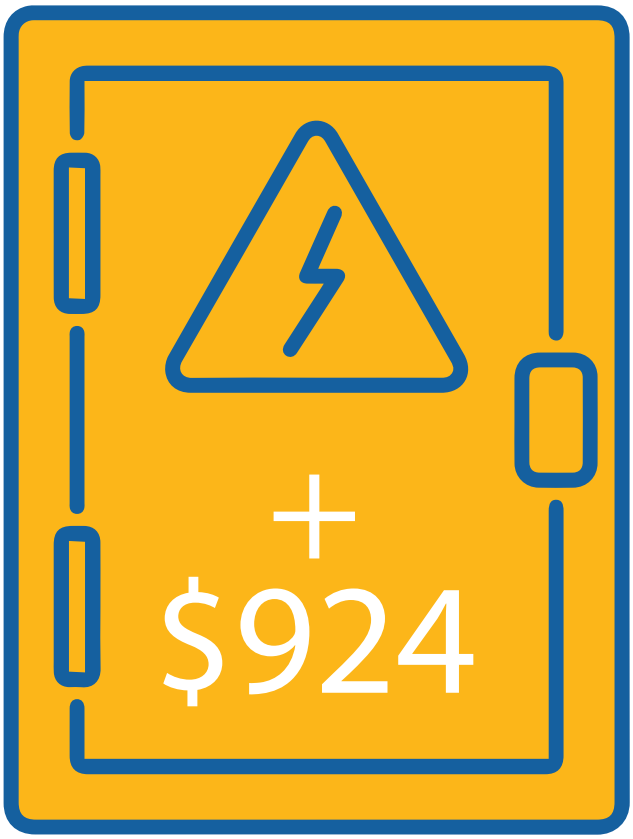
Natural gas bans deny homeowners and businesses the service they need, want and most commonly use to power their lives, heat their homes and run their operations. These energy bans dictate choices to consumers, and supporters of these efforts ignore science and leave out pertinent facts – mainly how 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.

Almost 60% of North Carolina's electric power generation comes from natural gas. Additionally, a quarter of households in the state rely on it for home heating. Banning natural gas hookups could lead to huge sticker shocks 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.[3]

In 2020, 13.6% of North Carolinians lived at or below the poverty line. Meanwhile, statewide unemployment climbed to 5.2% in March 2021 from 3.9% in March 2020.

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 Carolina Small Business Development Fund estimates that 56% of small businesses and 69% of medium-sized businesses in North Carolina are at risk of negative economic impacts due to the pandemic. These smaller businesses are the lifeblood of vibrant neighborhoods across the state and rely on natural gas to power their operations. Short-sighted energy service bans would be another impediment to bringing back one of North Carolina's most important economic generators.




**ELECTRIC PANEL UPGRADE (200 AMPS):**

$924 (Charlotte, NC average)

# NATURAL GAS AND NORTH CAROLINA

Given the large footprint of natural gas across North Carolina – 33% of power generation and used by a quarter of households – it's important to see how it has benefited the state. A recent CEA report found that North Carolina families, seniors, small businesses, and manufacturers have saved more than $8.6 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 North Carolina 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. According to data from the American Gas Association (AGA), conventional natural gas furnaces are less expensive to operate compared to other heating sources, including advanced heat pumps. 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."

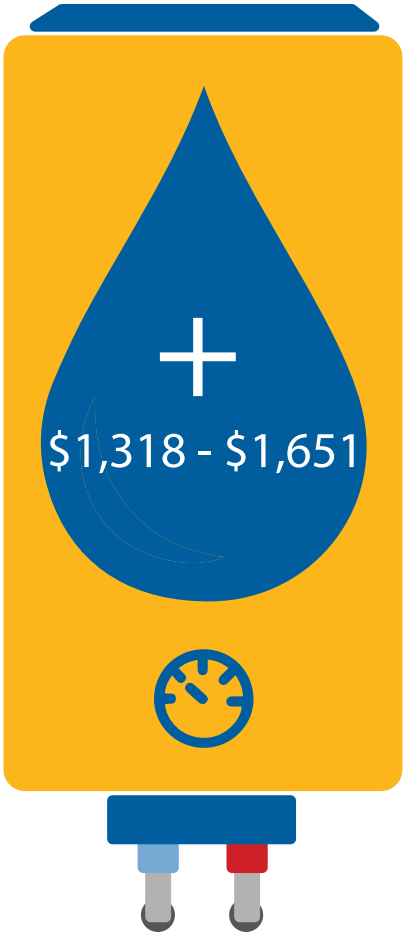
What is often left out of the public policy conversation is that as natural gas use has grown and expanded across North Carolina, carbon emissions and emissions from the Environmental Protection Agency's (EPA) criteria pollutants have fallen dramatically.

Even more remarkable – carbon emissions ($CO_2$) dropped almost 21% from 2008 to 2018. These reductions came as natural gas use grew, pipeline infrastructure expanded, and North Carolina's economy surged. Usually, economic growth and emissions increase in parallel.

## BASED ON DATA FROM THE EPA, FROM 1990 TO 2019 NORTH CAROLINA'S EMISSIONS OF KEY POLLUTANTS HAVE DECREASED ACROSS THE BOARD, WITH A:

- 69.1% reduction in nitrogen oxides ($NO_x$)
- 62.0% reduction in volatile organic compounds (VOCs)
- 93.0% reduction in sulfur dioxide ($SO_2$)

# IMPACT ON NORTH CAROLINA HOUSEHOLDS




**ELECTRIC HOT WATER HEATER: $1,318 - $1,651**

(Charlotte, NC price range includes material, labor and supplies)

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 North Carolinians 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 Charlotte, North Carolina as of now would cost homeowners between $4,005 and $4,990. "After labor, fees and permits, costs can hit $20,000 or more, not including ducts," 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 $25,800 for a Charlotte household reliant on natural gas.

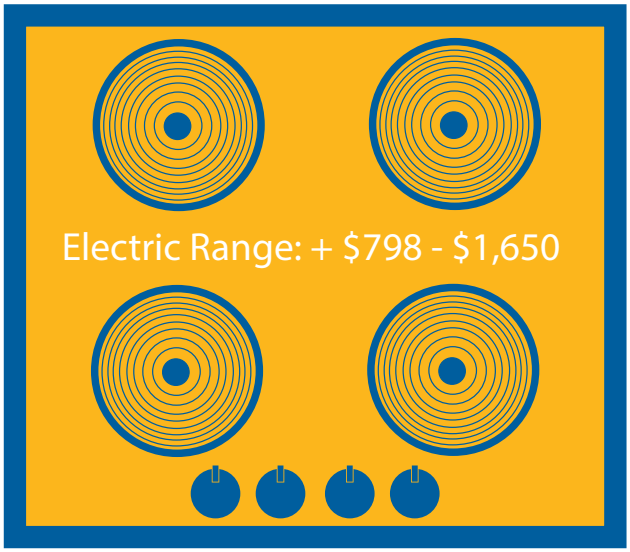
# IMPACT ON THE ELECTRIC TRANSMISSION AND DISTRIBUTION GRID

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 North Carolina's electricity grid. A high electrification (and net-zero) scenario would increase peak system demand by 50% and require the replacement of over 24,000 megawatts of traditional-fuel generating capacity, which currently meets over half of North Carolina's electricity demand.

In addition, by 2050 the study estimates nearly $55 billion will need to be invested in utilities' distribution systems to support the electric load increases




**ELECTRIC RANGE: $798 - $1,650**

(Charlotte, NC price range includes material, labor and supplies)

at a cost of $13,000 per household. Add that to an estimated $52.5 billion in capital investment for wind and solar and per-household costs to "electrify everything" soar to $25,000.

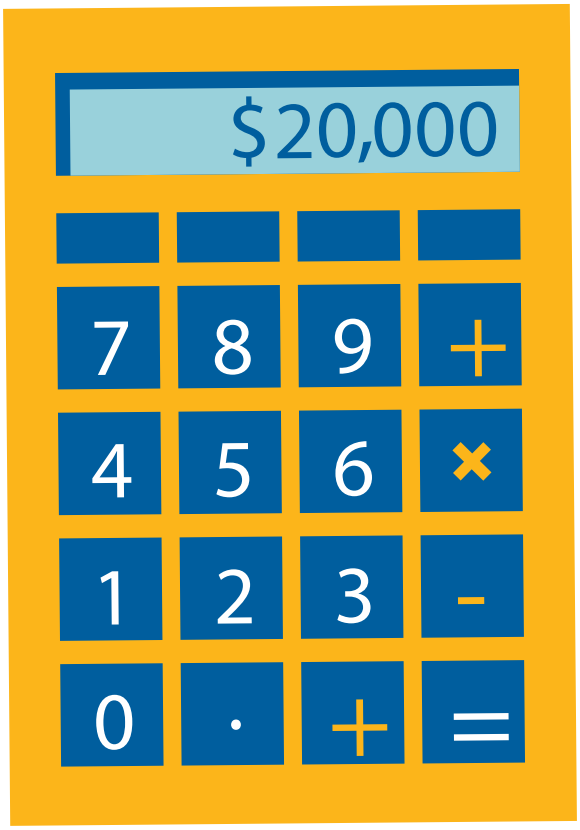
The study also suggested that electric transmission capacity across the country may need to increase by 60% (2030) to 300% (2050). There are approximately 6,700 miles of electric transmission lines in North Carolina. While cost estimates for construction of transmission lines vary, if North Carolina 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 $1.4 billion; an additional 21,000 miles would be $7.4 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 North Carolinians, which will surely exceed $100 billion by 2050.

# 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 North Carolina'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 NORTH CAROLINA 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): $924 (Charlotte, NC average)**
https://www.homeadvisor.com/cost/electrical/upgrade-an-electrical-panel/

• **Electric Hot Water Heater: $1,318 - $1,651 (Charlotte, NC price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_hot_water_heaters.html

• **Electric Range: $798 - $1,650 (Charlotte, NC price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_ranges.html

• **Electric Dryer: $798 - $1,646 (Charlotte, NC price range includes material, labor and supplies)**
https://www.homewyse.com/costs/cost_of_electric_dryers.html