THE HIDDEN COSTS OF A MARYLAND NATURAL GAS BAN

The 2030 Greenhouse Gas Emissions Reduction Act Plan (GGRA Plan) developed by the Maryland Department of the Environment, calls for net-zero economy wide greenhouse gas emissions by 2045. Reaching these goals will require Maryland homeowners, in part, to replace existing home appliances and force businesses to stop using affordable and clean natural gas. This plan inflicts economic challenges on citizens during a time when they can least afford it – especially with persistent increases seen in energy costs and consumer inflation throughout 2021. Consumers need affordable, 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 daily service. This became evident when Texas faced power reliability challenges during the February 2021 freeze.

Using open-source consumer data, Consumer Energy Alliance (CEA) developed a cost calculator to provide an estimate of what a typical household in Baltimore, Maryland 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 $26,884 for a Baltimore 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 Marylanders to meet the demands to electrify existing appliances. 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 is a clean, abundant and affordable source of energy that powers our lives, helps us produce countless products, cooks our food and warms our homes on cold winter nights. It is integral in nearly every facet of the lives of millions of households and business across the country and it is vital to Maryland. 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 businesses. 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. Households across the country have been dealing with inflation and increased cost for food, goods and energy. In September of 2021, natural gas prices nearly doubled from the same point in 2020. According to AAA, gasoline prices in September 2021 had increased by

over $1 a gallon than in the previous year adding more pain at the pump.

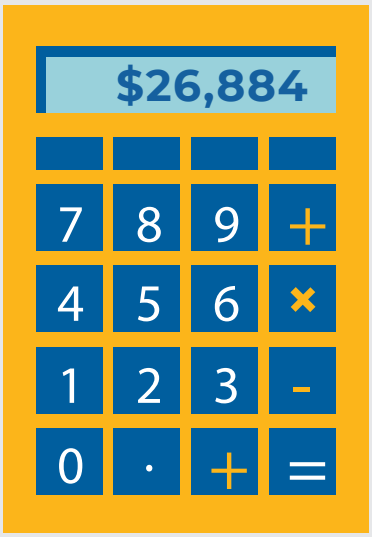
In 2020, 9.0% of Maryland's residents lived at or below the poverty line. Additionally, more than 187,600 Marylanders remained unemployed as of July 2021. More than one-third of Maryland's electric power generation comes from natural gas. Banning natural gas hookups and service would likely lead to huge 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.

In addition to the impact on lower-income populations, energy bans would add unavoidable hardships to many of the state's battered businesses. These small businesses are the lifeblood of vibrant neighborhoods across the state and rely on natural gas to power their operations. Your favorite crab house, oyster bar and seafood restaurant more than likely relies on natural gas to serve up your favorite dishes from the Chesapeake Bay. Short-sighted energy service bans would be another impediment to bringing back Maryland's most important economic generators dealing with continued supply chain disruptions and rising prices.

NATURAL GAS AND MARYLAND – THE ECONOMIC AND ENVIRONMENTAL BENEFITS

More than 40% of Maryland homes rely on natural gas during the winter for heat. A recent CEA report found that Maryland families, seniors, small businesses, and manufacturers saved more than $4.6 billion over the past decade because of the increased availability of affordable natural gas and related pipeline infrastructure. Unfortunately in policy debates in Annapolis, is the fact that as natural gas use has grown and expanded across Maryland, emissions have fallen dramatically and led to dramatically improved air quality.

Restricting use of natural gas could put those benefits in jeopardy for Maryland 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

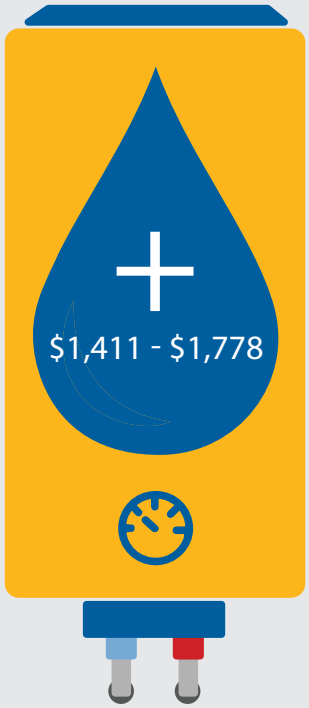


TOTAL COST TO INSTALL A HEAT PUMP AND REPLACE MAJOR APPLIANCES

(potentially depending on labor, fees and permits)

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." The US Energy Information Administration recently issued its winter of 2021–22 forecast, and it projected that retail prices for energy are at or near multiyear highs across the country. Consumers can expect winter heating bills to go up substantially across the board for those using electricity, home heating oil, natural gas and propane. The agency projected that homes using natural gas will spend $746 this winter, while those relying on electricity are expected to spend an average of $1,268 this winter. That is a projected difference and savings of $522 in overall winter home heating bills for those using natural gas compared with electricity.

Those seeking to push out, restrict or deny natural gas service have largely ignored the substantial environmental improvements that communities have enjoyed across Maryland with cleaner air and continued, always-on reliability.



ELECTRIC WATER HEATER: $1,411 - $1,778

(Baltimore, MD price range includes material, labor and supplies)

Based on data from the Environmental Protection Agency, from 1990 to 2020 Maryland's emissions of criteria pollutants have decreased across the board, with a:

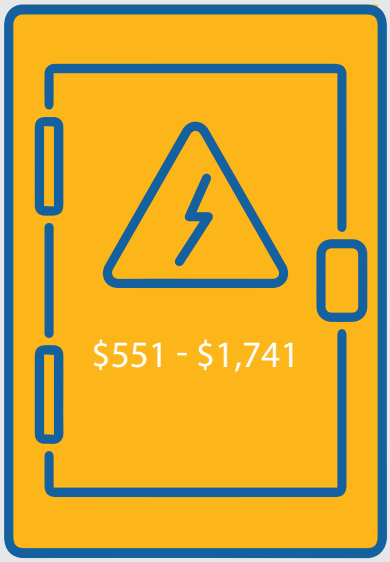
- 82% reduction in nitrogen oxides (NOx)
- 76% reduction in volatile organic compounds (VOCs)
- 97% reduction in sulfur dioxide (SO2)

Even more remarkable – energy-related carbon emissions (CO2) dropped more than 21% from 2000 to 2018. These reductions came as natural gas use grew, pipeline infrastructure expanded, and Maryland's economy surged. Usually, economic growth and emissions increase in parallel.

IMPACT ON MARYLAND HOUSEHOLDS

A ban or mandate to replace natural gas appliances could be potentially ruinous for many Marylanders 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 Baltimore, Maryland would currently cost homeowners between $4,177 and $5,239. "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



ELECTRIC PANEL UPGRADE (200 AMPS): $551 - $1,741

(Baltimore, MD price range)

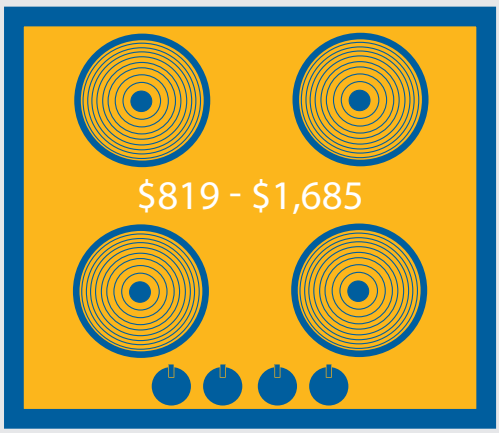
replacement of major appliances like hot water heaters, furnaces, gas stoves, gas dryers could top out at more than $26,884 for a Baltimore household reliant on natural gas.

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 Maryland electricity grid. A high electrification (and net-zero) scenario would increase peak system demand by 50% and require the replacement of over 10,000 megawatts of traditional-fuel generating capacity, which currently meets over 50% of Maryland's electricity demand. To replace this much traditional electric generating capacity also raises land-use, siting and complex federal permitting implications that also accompany the development of large-scale renewable projects. For example, a 1 megawatt solar farm using thin-film technology can require 4.5 to 5 acres of land. Thus to replace 10,000 megawatts of traditional-fuel electric capacity with nothing but thin-film solar technology would take an area nearly 10 times the size of Annapolis.



ELECTRIC RANGE: $819 - $1,685

(Baltimore, MD price range includes material, labor and supplies)

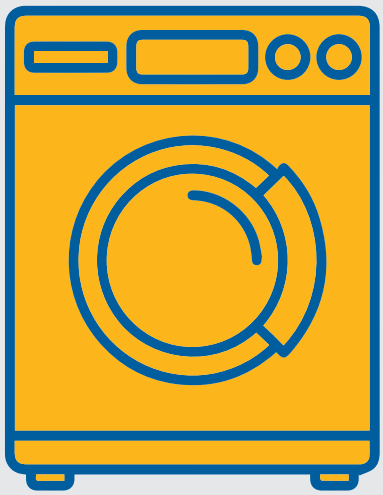
"USING THIN-FILM TECHNOLOGY REQUIRES 4.5-5 ACRES OF LAND TO PRODUCE 1 MW. 10,000 MW X 5 = 50,000. 50,000 ACRES OF LAND IS 78.125 SQUARE MILES; THE CITY OF ANNAPOLIS IS 8.1 SQUARE MILES IN AREA."

In addition, by 2050 the study estimates that nearly $29.5 billion will need to be invested in utilities' distribution systems to support the electric load increases at a cost of just under $14,000 per household. Add that to an estimated $32 billion in capital investment for wind and solar and per-household costs to "electrify everything" soar to $29,000 and do not include the costs associated with new appliance upgrades or expenses for EVs.

The study also suggested that electric transmission capacity across the country may need to increase by 60% (2030) to 300% (2050). There are 860 miles of electric transmission lines in Maryland. While cost estimates for construction of transmission lines vary, if Maryland were to increase its transmission infrastructure by 60% at a cost of $350,000 per mile, an additional 516 miles of transmission lines would cost approximately $180 million; an additional 2,580 miles would be over $900 million.

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 Maryland, which will surely exceed $50 billion by 2050.



ELECTRIC DRYER: $819 - $1,680
(Baltimore, MD 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. The fact that natural gas complements the deployment and rollout of renewables is often overlooked. 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 Maryland'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.