THE HIDDEN COSTS OF REDUCING OR ELIMINATING NATURAL GAS SERVICE IN ILLINOIS

In September 2021, Governor Pritzker signed the Climate and Equitable Jobs Act into law. The legislation establishes a goal of 50% renewable energy by 2040 and will phase out natural gas power plants by 2045. While Consumer Energy Alliance (CEA) strongly supports greater adoption of clean and low carbon technologies, this plan and other efforts to reduce natural gas as an energy choice inflicts economic challenges on many 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 a portfolio of affordable, always-on options like natural gas to balance the grid and work in tandem to deploy additional supplies of renewable energy while ensuring they have the power and heat they need during extreme weather events and for daily service. Historical examples from the Polar Vortex and the more recent reliability challenges in places like California that prematurely pushed out natural gas generation helped contribute significant grid issues on high-energy demand days.

While there are viable opportunities for natural gas and natural gas infrastructure to play an important and complementary role in reaching net zero objectives, there have also been efforts by policymakers to implement policies that mandate electrification of consumer uses currently met by natural gas. This would greatly affect families and households that rely on natural gas for space heating, by forcing a conversion to electric technology either on initial building construction or at equipment replacement. Using open-source consumer data, CEA developed a cost calculator to provide an estimate of what a typical household in the Chicago area could expect to pay if policies to ban or remove 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 **$27,266 to retrofit a Chicago household**. 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 would need to be built at significant costs to Illinoisans to meet the demands of forced electrification. 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 when families are dealing with a surge in energy prices and inflation for consumer staples.
In addition to the impact on lower-income populations, restricting energy choice would add avoidable hardships to many of the state's businesses already battered by the economic challenges associated with the COVID-19 pandemic. These small businesses are the lifeblood of vibrant neighborhoods across the state and rely on natural gas to power their operations.

THE ECONOMIC CONSEQUENCES OF ELIMINATING ENERGY CHOICES

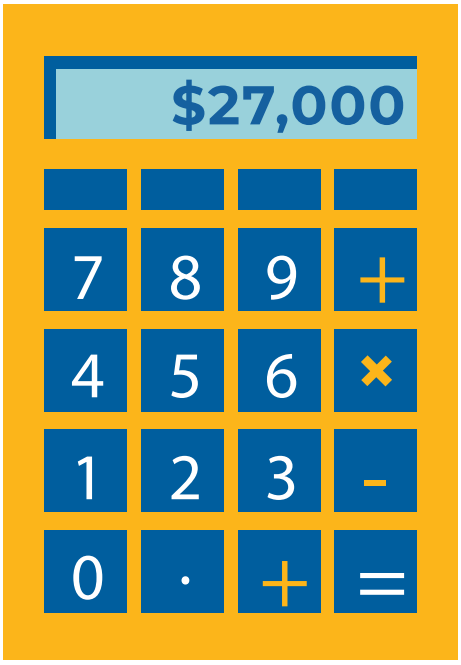
Enacting policies that focus on electrification as a single pathway and limit natural gas without considering the overall impacts to the state from an environmental and economic perspective would ultimately lead to significant and harmful consequences for Illinois homeowners and businesses that need, want and most commonly use this energy to power their lives, heat their homes and run their operations. These efforts dictate choices to consumers, and supporters of these policies ignore science and leave out pertinent facts – mainly how expensive it would be to force people to change all their appliances to electric-only or limit the ability for natural gas to play a role in a net zero pathway.

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. As painful as these current price increases are it is also important to note that natural gas prices are fortunately not at the level the economy saw in the early and mid-2000s when natural gas prices were consistently high and spot market prices hit their all-time high of over $26 when adjusted for inflation. In mid-October 2021, prices were over $5 for natural gas.

Restricting energy choice could lead to huge sticker shocks on future energy bills. That's something no household facing a stretched budget needs – especially during times of rising consume prices. A recent CNBC survey found that only 41% of Americans had enough savings to cover a $1,000 emergency. An October 2021 survey by NPR, the Robert Wood Johnson Foundation and the Harvard TH Chan School of Public Health found that nearly 40% of US households have faced serious financial problems, including struggling to afford medical care and food even as the harsher economic impacts of the pandemic have subsided.

In 2020, 11.5% of Illinois' residents lived at or below the poverty line. Additionally, almost 438,000 Illinoisans remained unemployed as of July 2021.

In addition to the impact on lower-income populations, restricting energy choice would add avoidable hardships to many of the state's businesses already battered by the economic challenges associated with the COVID-19 pandemic. These small businesses are the lifeblood of vibrant neighborhoods across the state and rely on natural gas to power their operations.



TOTAL COST FOR NATURAL GAS REMOVAL FROM HOMES: OVER $27,000

(potentially depending on labor, fees and permits)

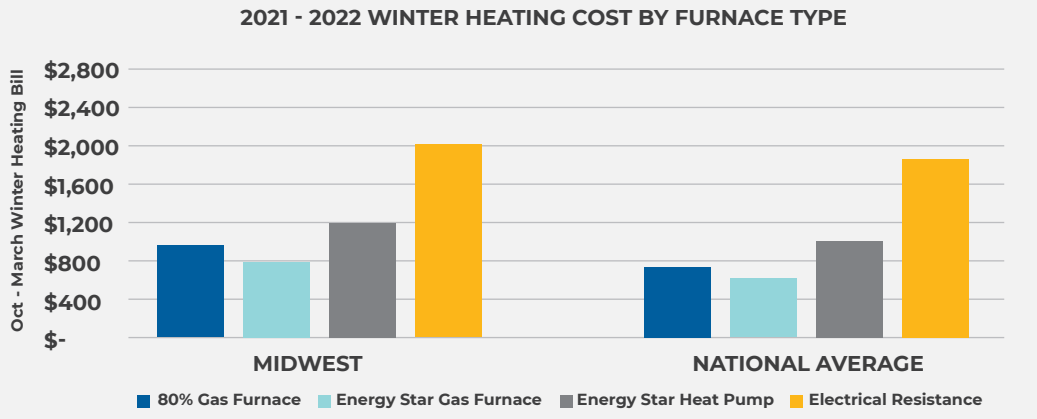
ECONOMIC AND RESILIENCY BENEFITS OF NATURAL GAS

A recent CEA report found that Illinois families, seniors, small businesses, and manufacturers saved more than $20 billion over the past decade because of the increased availability of affordable natural gas and related pipeline infrastructure.

Restricting use of natural gas could put these benefits in jeopardy for Illinois 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 electric 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 an electric heat pump and an electric furnace for backup heat – a 40% difference. AGA reported, "an equivalent home with equal heating loads operating an electrical resistance furnace would have incurred an average heating bill of $445." These savings trends are relevant even in with current rising energy prices and expected spikes in heating bills this winter. The US Energy Information Administration (EIA) 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, up 30% more than they spent last winter. Households relying on electricity are expected to spend an average of $1,268 this winter on their electricity bills, which is 6% more than last winter. That is a projected difference and savings of $522 in overall winter home heating bills for those using natural gas. The most recent outlook 2021-22 natural gas and winter heating outlook by AGA used EIA data and historical temperature information from the National Oceanic Atmospheric Administration (NOAA) found that "homes heating with natural gas this winter could save between 28% and 67% compared to an electrical alternative." Those savings were estimated to be even higher for homes in the Midwest region compared to the national average.

THE COST TO HEAT WITH ELECTRIC VS GAS THIS WINTER



Findings show, homes heating with natural gas this winter could ***save between 28% and 67%*** compared to an electrical alternative. These findings are consistent with EIA's own winter fuels forecast.

Source: AGA Based on 2017 and 2020 Winter heating data

Another important key to consider is the inherent resiliency that natural gas provides customers in addition to maintaining a suite of balanced energy options for consumers. It has played a vital role during weather emergencies, storms and extreme events in not only keeping service going for consumers when the power is out but also helping to quickly recover and respond to major events. A good example of this in the Midwest was the Polar Vortex of 2019 when Illinois' gas utilities where able to deliver more than 3.5 times the energy for home heating than the Chicago area electric utility could provide as the region was facing record cold and high demand. Gas storage and the flexibility built in the energy delivery system gives it a big advantage for storm and weather resiliency – especially when there are power outages. Another good example of this benefit was during the 2020 wildfire season in California when the state was experiencing record heat and renewable output declined – natural gas infrastructure and storage was there to quickly back up and meet the unprecedented demand being experienced on the system.

ENVIRONMENTAL BENEFITS OF NATURAL GAS

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

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

- 73% reduction in nitrogen oxides (NOx)
- 57% reduction in volatile organic compounds (VOCs)
- 94% reduction in sulfur dioxide (SO2)

Even more remarkable – energy-related carbon emissions (CO2) dropped 9.5% from 2000 to 2018. These reductions came as natural gas use grew, pipeline infrastructure expanded, and Illinois' economy surged. Usually, economic growth and emissions increase in parallel.

The efficiency of natural gas is also a big driver in helping reduce harmful air emissions. It can deliver energy directly to your home with minimal service disruptions. The appliances that deliver that energy are generally more efficient than electric versions. An electric range can use three times as much energy as to produce and deliver the same heat as a natural gas stove. One of the challenges in delivering electricity to homes is the "line loss" experienced during the transmission and distribution of power. The US Energy Information Administration estimates that 5% of the electricity transmitted and distributed in in 2015 through 2019 was lost during the power delivery process. The AGA estimates that when "you factor in energy use and emissions along the full fuel cycle, households with natural gas versus all-electric appliances produce 37 percent lower greenhouse gas emissions."

BASED ON DATA FROM THE ENVIRONMENTAL PROTECTION AGENCY, FROM 1990 TO 2020 ILLINOIS' EMISSIONS OF CRITERIA POLLUTANTS HAVE DECREASED ACROSS THE BOARD, WITH A:

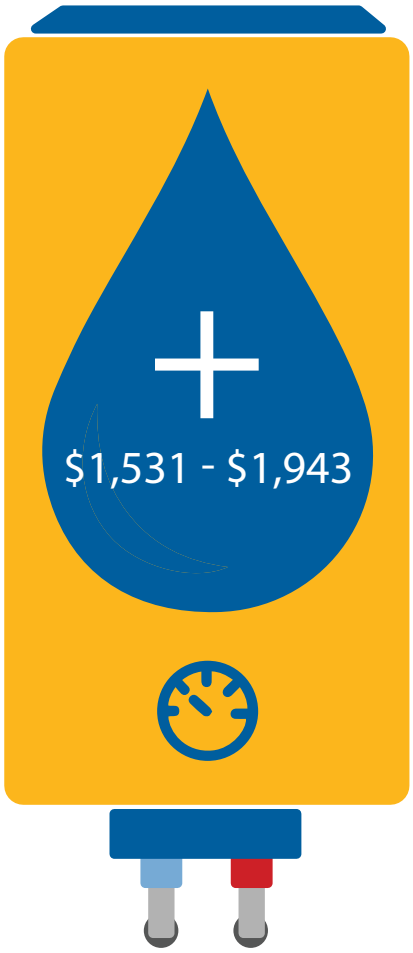
- **73% reduction in nitrogen oxides (NOx)**
- **57% reduction in volatile organic compounds (VOCs)**
- **94% reduction in sulfur dioxide (SO2)**

IMPACT ON ILLINOIS HOUSEHOLDS

Natural gas is vital for businesses, consumers, seniors and families across Illinois. It provides 14% of Illinois' electricity – five times more than in 2010. Meanwhile, an overwhelming 80% of Illinois homes use natural gas for heating. One of the provisions of the Climate and Equitable Jobs Act is the creation of a state "stretch" energy code. It essentially grants authority to municipalities to set more stringent energy and efficiency standards above state codes for commercial buildings and residences. While energy efficiency is an important pillar of offering energy savings and achieving greenhouse gas emissions reductions, attempts have been made in other states to use the building code process to force out appliances and service without considering the overall site to source environmental impact of those requirements or cost impacts to customers. According to a study by the National Association of Home Builders, requiring forced electrification onto new construction can add upwards of $15,000 for homes in colder climates in the Upper Midwest.

Replacing natural gas appliances could be potentially ruinous for many Illinoisans by hitting them with surprise bills. CEA developed a 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 electric heat pump in Chicago, Illinois would currently cost homeowners between $4,401 and $5,562. "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 $27,266 for a Chicago household reliant on natural gas. A detailed cost calculator is provided below to breakout the real world implications that a natural gas service ban would have for households in Illinois.



ELECTRIC WATER HEATER: $1,531 - $1,943

(Chicago, IL price range includes material, labor and supplies)

IMPACT ON ILLINOIS' ELECTRIC TRANSMISSION AND DISTRIBUTION GRID

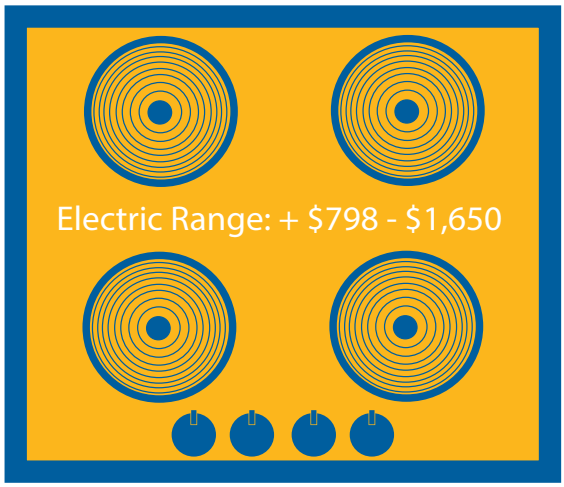
CEA supports a balanced and rational discussion by those who want to voluntarily pursue strategic electrification efforts that make sense from a practical or technical standpoint. However, prematurely instituting technologies comes at a cost; and a blanket adoption of forcing electrification onto consumers without examining the details could have very real cost and reliability impacts. An additional point for consideration is that switching to pursing an electrification strategy at the residential level will also likely necessitate building out additional natural gas power generation capacity in addition to increased renewables and battery storage. In fact, one of the key findings of the National Renewable Energy Laboratory's 2021 Electrification Futures Study found that, "Electrification drives the sustained deployment of renewable energy and natural gas generators in all regions of the United States." The report went on to find that high electrification scenarios require the doubling of our nation's installed power capacity by 2050 to meet demand.

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 Illinois electricity grid. A high electrification (and net-zero) scenario would increase peak system demand by 50% and require the replacement of over 31,000 megawatts of traditional-fuel generating capacity, which currently meets over 38% of Illinois's electricity demand.

In addition, by 2050 the study estimates that nearly $63 billion will need to be invested in utilities' distribution systems to support the electric load increases. Taking the study's estimate and using federal Census data shows that this scenario could cost $13,000 per household. Add that to an estimated $179 billion in capital investment for wind and solar and per-household costs to "electrify everything" soar to nearly $50,000 and do not include the costs associated with new home appliance and electrical system upgrades.

The study also suggested that electric transmission capacity across the country may need to increase by 60% (2030) to 300% (2050). There are over 14,000 miles of electric transmission lines Illinois. While cost estimates for construction of transmission lines vary, if Illinois were to increase its transmission infrastructure by 60% at a cost of $350,000 per mile, an additional 8,400 miles of transmission lines would cost approximately $3 billion; an additional 42,000 miles would be just south of $15 billion.



ELECTRIC RANGE: $846 - $1,731

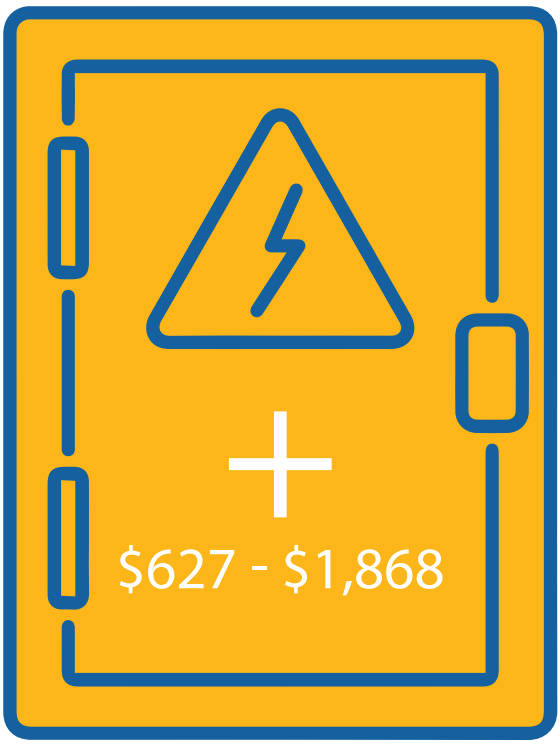
(Chicago, IL price range includes material, labor and supplies)

As is too often the case when it comes to energy policy, low- and fixed-income communities would likely 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 Illinois, which may reach an estimated **$200 billion by 2050**. Further, these challenges will be amplified and more complex with the recent passage of legislation (SB 2408) that requires the end of traditional fossil fuel use for power generation by 2045.

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 renewable energy 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 wind, along with battery storage technology, are other options on the horizon that will help further drive down Illinois' 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 policies that remove energy choices for consumers– 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.



ELECTRIC PANEL UPGRADE (200 AMPS): $627-$1,868

(Chicago, IL price range)