

Natural Gas or Electric – Chicago’s Choice

City of Chicago

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NATURAL GAS OR ELECTRIC – CHICAGO’S CHOICE

INTRODUCTION

The Chicago City Council is currently considering an ordinance regarding the use of natural gas to power new homes and businesses within the city. Those in favor of the ban argue that it will aid in the fight against climate change and offer cost savings to residents. However, opponents argue that such a ban could lead to double heating costs, increased emissions due to limited renewable energy options, and could also pose reliability risks. In this analysis, we will examine the pros and cons of the proposed ordinance that aims to ban the use of natural gas to power new structures in Chicago.

Under the Illinois Municipal Code, 65 ILCS 5/11-30-4, the City of Chicago has statutory authority to designate how buildings within the City are constructed.¹ The City supports the use of cost-effective approaches to achieve energy-efficient buildings, supports the reduction of greenhouse gas emissions, and supports the mitigation of negative environmental health impacts. The City of Chicago introduced the Clean and Affordable Building Ordinance to attenuate the negative impact of global climate change, to mitigate exposure to chemicals that potentially cause health issues, and to make heating homes more affordable. The proposed ordinance would effectively ban natural gas in most new buildings in Chicago. The proposal would set emission standards that would mandate newly constructed buildings to require electric power for heating, cooking, and hot water tanks. In the proposal, natural gas hookups would not be banned but would need to meet new emission standards.

The City Council Office of Financial Analysis has provided an objective analysis to aid the Alderperson's decision-making on whether to ban natural gas in new structures.

Advocates of the proposed ordinance argue that implementing a lower limit on natural gas usage would help reduce emissions and cut gas expenses in Chicago. They also believe that such a move would align with the environmental policies of other major cities. Currently, 76 cities have enforced regulations on natural gas usage, with most of these bans located in the Northeast and California. Similar proposals have emerged across the United States to restrict or prohibit the utilization of natural gas.

¹ <https://news.wttw.com/sites/default/files/article/file-attachments/cd502415-4ff4-440a-8f92-7cdf53888b00.pdf>

DISCUSSION – PROBLEMS WITH NATURAL GAS BAN

In 2019, residential consumers used 5,015,603 million cubic feet of natural gas in the United States; commercial usage was 3,512,607 million cubic feet of natural gas; and industrial consumers used 8,417,300 million cubic feet of natural gas accounting for 23 percent of the world’s natural gas production, making it the world’s largest producer of natural gas.² The demand for natural gas is the result of low natural gas prices and consumer savings when compared to electricity pricing. In a 2019 article in the Wall Street Journal, Jonathan Lesser explained the natural gas ban in this way.

“Consider California, the state at the forefront of natural gas hookup bans. Last year, the average price of natural gas in California was about \$12.30 per million BTUs (British thermal units – a measure of the heat content of the fuel). For a homeowner with a new 95% efficiency natural-gas furnace or water heater, that translates into a cost of just \$13 per million BTUs.

Compare that with the cost of electricity, which averages 18.84 cents a kilowatt-hour in California, about 50% higher than the national average. That works out to \$55 per million BTUs, more than four times the cost of natural gas. Even heat pumps for space and water heating cannot bridge that gap.”

As noted earlier, California’s electricity prices are 50% higher than the national average due to higher demand, inflation, and a tighter supply. Therefore, if we extrapolate the natural gas prices compared to the cost of electricity in Chicago, the cost of using electricity would hardly be four times that of natural gas. Still, potential customers could pay more using electricity. People’s Gas, the natural gas supplier for the City of Chicago indicated the proposed ordinance would be more expensive than using natural gas. Furthermore, People’s Gas indicated that converting a Chicago home to all-electric would cost \$75,000, and forcing homes to rely on all-electric heat would cost Chicagoans two times more than natural gas.³

Those who advocate for gas bans tend to overlook the current state of the United States electric grid. The power outage in Texas, which left millions of people without power, raises doubts about whether the U.S. electric grid can meet the energy needs of every American household using only renewable energy sources. While Commonwealth Edison, the electric utility company in Chicago, claims that it can handle the transition from natural gas to electricity, it’s crucial to note that Illinois

² Institute for Energy Research. https://www.instituteforenergyresearch.org/wp-content/uploads/2021/08/Natural-Gas-Ban-Report_Updated.pdf

³ Chicago City Council to weigh ordinance effectively banning natural gas in new buildings. <https://www.cbsnews.com/chicago/news/city-council-proposed-ordinance-natural-gas-ban/>

is unique in that most of its electricity is generated from nuclear energy, which is considered a clean but non-renewable source of energy.

Additionally, natural gas bans are expected to increase average household energy costs by between \$70 and \$910 or 38-46%.⁴ The electric grid failures cost Americans approximately \$150 billion per year, recent weather events have displayed the human cost of unreliable energy sources.⁵ Commonwealth Edison said the utility “will ensure the grid is ready to handle new technologies, like (electric vehicles) and heat pumps, as energy demands change and as communities adopt more renewable energy”.⁶ The challenge of relying on electricity is not only capacity but extreme weather.

DISCUSSION – ELECTRIFICATION MAY SAVE HOUSEHOLDS MONEY

The Chair of the Environmental Protection and Energy Committee on the City of Chicago City Council labeled the Clean and Affordable Building Ordinance, “the first step in a managed, planned process to move away from dirty, expensive gas and embrace a cheaper, cleaner energy future for all Chicagoans.”⁷ The Ordinance will set an indoor emissions standard that natural gas appliances cannot comply with, requiring all electric appliances and heat to be installed in new constructions. The change is said to reduce the amount of greenhouse gas emissions.

Furthermore, the analysis conducted by the Natural Resources Defense Council (NRDC) has revealed that electrification can help households save money. This is mainly because Peoples Gas has increased the prices it charges customers and there has been a significant rise in regional wholesale gas prices over the past few years. Additionally, Peoples Gas has spent a considerable amount on pipe replacement, which is recovered through variable charges on gas bills.

According to the NRDC, the prices charged by Peoples Gas are quite high. Additionally, the efficiency of electric equipment is superior to that of gas equipment. A new cold-climate heat pump is nearly three times more efficient than a new gas furnace. As a result, gas is now considerably more expensive than electricity per unit of heat supplied to a home.⁸ Furthermore, Peoples Gas customers who electrify their heating can move to a much lower fixed monthly gas

⁴ The dangers of “out of sight, out of mind” gas ban policies. <https://www.utilitydive.com/news/the-dangers-of-out-of-sight-out-of-mind-gas-ban-policies/600789/>

⁵ The dangers of “out of sight, out of mind” gas ban policies. <https://www.utilitydive.com/news/the-dangers-of-out-of-sight-out-of-mind-gas-ban-policies/600789/>

⁶ Battle Begins to Ban Natural Gas in New Chicago Homes and Businesses to Fight Climate Change. <https://news.wttw.com/2024/01/23/battle-begins-ban-natural-gas-new-chicago-homes-businesses-fight-climate-change>

⁷ Battle Begins to Ban Natural Gas in New Chicago Homes and Businesses to Fight Climate Change. <https://news.wttw.com/2024/01/23/battle-begins-ban-natural-gas-new-chicago-homes-businesses-fight-climate-change>

⁸ New Report Finds Electric Homes Can Save Chicagoans Money. <https://www.nrdc.org/bio/valeria-rincon/new-report-finds-electric-homes-can-save-chicagoans-money>

charge – saving \$25 per month.⁹ By fully electrifying households, all fixed monthly charges for gas can be eliminated, leading to savings of more than \$50 per month. People's Gas is continuing to invest in its pipe replacement program, which is expected to result in even greater cost savings in the future through electrification. A significant portion of the pipe replacement costs are recovered through fixed monthly charges, which are anticipated to increase the company's already high fixed monthly charges.

Potential cost savings from electrification are significant, especially when applied to new constructions and fully electrified existing buildings. Over 20 years, switching to all-electric homes can save up to \$15,000 for new construction and \$10,000 for existing multifamily households.¹⁰

The following graph represents cost savings from electrification for a single-family home and multi-family residence:

Single Family Cost Savings from Electrification

	All Electric New Construction	Existing Home Full Electrification	Existing Home Heating Electrification	Existing Home Water Heat Electrification
20-Year NPV's of Total Cost Savings from Electrification (Capital + Energy)				
Without Federal Incentives	\$ 20,192	\$ 13,351	\$ 8,976	\$ 1,361
With IRA Low Income Rebate	\$ 31,436	\$ 24,594	\$ 16,976	\$ 3,111
With IRA Moderate Income Rebate	\$ 25,814	\$ 18,973	\$ 12,976	\$ 2,236
With IRA Tax Credits	\$ 22,946	\$ 16,104	\$ 10,976	\$ 2,115
1st Year Energy Bill Savings from Electrification				
	\$ 1,445	\$ 1,445	\$ 941	\$ 165

Energy Futures Group

⁹ New Report Finds Electric Homes Can Save Chicagoans Money. <https://www.nrdc.org/bio/valeria-rincon/new-report-finds-electric-homes-can-save-chicagoans-money>

¹⁰ New Report Finds Electric Homes Can Save Chicagoans Money. <https://www.nrdc.org/bio/valeria-rincon/new-report-finds-electric-homes-can-save-chicagoans-money>

Multi-Family Cost Savings from Electrification

	All Electric New Construction	Existing Home Full Electrification	Existing Home Heating Electrification	Existing Home Water Heat Electrification
20-Year NPV's of Total Cost Savings from Electrification (Capital + Energy)				
Without Federal Incentives	\$ 15,299	\$ 10,889	\$ 7,373	\$ 711
With IRA Low Income Rebate	\$ 24,978	\$ 20,569	\$ 13,809	\$ 2,461
With IRA Moderate Income Rebate	\$ 20,138	\$ 15,729	\$ 10,591	\$ 1,586
With IRA Tax Credits	\$ 17,983	\$ 13,574	\$ 9,304	\$ 1,464
1st Year Energy Bill Savings from Electrification				
	\$ 1,036	\$ 1,036	\$ 605	\$ 114

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Electrification may not only reduce energy costs, but it also yields significant greenhouse gas (GHG) emissions reduction. According to the NRDC, GHG emissions over the next 20 years will at least be cut in half. The graph below shows CO2 emissions reductions in single-family homes.

Single Family CO2 Emissions Reductions Across End Users Electrified

	All Electric New Construction	Existing Home Full Electrification	Existing Home Heating Electrification	Existing Home Water Heat Electrification
1st Year % Reduction	30%	30%	28%	56%
20- Year % Reduction	52%	52%	50%	71%
20-Year Tons of Reduction per Home	78	78	57	18

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CONCLUSION

As the Chicago City Council considers an ordinance to effectively ban natural gas in most new buildings, they have the arduous task of sifting through information that is opposed. In the brief discussion proponents of electrification allege that electrification is more cost effective. Conversely, proponents of natural gas allege that natural gas is a more cost-effective solution. Cost is not the only consideration in the discussion of banning natural gas. With the use of natural gas in Chicago they must consider the pipe replacement, the impact on current and future customers' gas bills, and greenhouse gas emission reductions. In addition, electrification advocates must consider the capacity of the electric grid and extreme weather.

Given Chicagoans' current reliance on natural gas, the limited availability of renewable energy, and the fragility of the U.S. power grid, a lot is at stake when untested policies are forced on consumers. To make meaningful inroads in meeting important climate goals the Council must be prudent in considering shifting to electrification in new structures. What is of concern is an unpredictable all-electric power grid and California which is at the forefront of banning natural gas and paying more for using electricity. State law requires Illinois to migrate to 100% clean energy by 2050, in addition, timelines are set for coal and natural gas plants to stop operating.¹¹

As a first step, the Chicago City Council is weighing the ban on natural gas in new homes and businesses to have a cleaner, more affordable, and healthier environment. The shared goal is to have the greatest energy savings possible and enable the creation of a cleaner, healthier, and sustainable Chicago.

¹¹ Battle Begins to Ban Natural Gas in New Chicago Homes and Business to Fight Climate Change.
<https://news.wttw.com/2024/01/23/battle-begins-ban-natural-gas-new-chicago-homes-businesses-fight-climate-change>
