



greenlink equity map

The Cost of Getting Through Winter:

Shedding Light on the Rise of
Retail Energy Prices

Winter 2021

Prepared by Greenlink Analytics

The Cost of Getting Through Winter: Shedding Light on the Rise of Retail Energy Prices



SOURCE: JESSICA MCGOWAN/GETTY IMAGES

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This year marks the second year of the COVID-19 pandemic. The results of the pandemic are causing impacts on the global market. Coupled with market challenges, parts of the U.S. are experiencing below-average temperatures this winter. Indicators show that residential energy bills are more expensive than average, leaving thousands of residents struggling with high energy bill payments.

We are currently experiencing a La Niña - a climate pattern in the Pacific Ocean that changes global atmospheric circulation. The National Oceanic and Atmospheric Administration (NOAA) projects that La Niña's impacts are projected to cause below-normal temperatures for the

upper United States and above-normal temperatures for the south; and according to NOAA, La Niña is strongest from now until the early spring.¹

Along with La Niña, the polar vortex is occurring, bringing cooler temperatures to the United States. The polar vortex is an area of low pressure around the poles. It stretches from Canada into the United States, due to the temperature difference between the warm south and cool north. Extremely cold temperatures, like those we saw affect the U.S. in [2014](#), and again last February in [Texas](#), can result from the polar vortex.

Temperatures drive a lot of the energy demand, fluctuating the energy markets in response. According to the US Energy Information Administration (EIA)'s [Winter Fuels Outlook](#), we can expect fuel prices to be significantly higher than they have been in the past due to inconsistent temperature patterns. To measure these patterns, the EIA uses heating degree days (HDDs) which tells us how cold temperatures are compared to the base temperature.

This year, we've seen an increase in HDDs across the U.S. with the exception of the south. The Midwest, for instance, has what the EIA calls a 10% colder-than-forecast scenario, resulting in more energy demand and higher prices from fuel supply issues, and increased consumption. This may also be why the Midwest has the highest percent change in fuel prices.

On the other hand, the Northeast region is experiencing a significantly smaller price increase in comparison to other regions due to local production that eliminates the need to rely on supply being imported into the region. Due to innovative advancements in technology, Marcellus and Utica/Point Pleasant shales located in West Virginia and Pennsylvania, supply energy sources to the Northeast locally, making the Appalachian region one of the largest natural gas-producing regions in the United States. The table below details how fuel prices are projected to change in each region based on the type of expenditure used.

¹ Double-dip La Niña emerges, Climate pattern may influence remainder of hurricane season, winter ahead. National Oceanic and Atmospheric Administration. <https://www.noaa.gov/news/double-dip-la-nina-emerges>

Percent change in fuel prices per region (forecast)

Source: Winter Fuels Outlook Table, US Energy Information Administration (EIA)

	Natural Gas	Propane	Electricity
Northeast	14%	42%	7%
Midwest	45%	65%	3%
South	22%	42%	6%
West	20%	–	1%
U.S. Total	27%	–	5%

On top of temperature changes, wholesale prices of natural gas, crude oil, and petroleum products are increasing in each region due to excess demand after COVID-19 standstills.² The table below gives an extended breakdown of how changes in temperature impact fuel expenditures, which in return, can fluctuate energy bills for many households.

² Winter Fuels Outlook, October 2021. U.S. Energy Information Administration.
<https://www.eia.gov/outlooks/steo/report/WinterFuels.php>

Percent change in fuel bills from last winter (forecast)

Source: Winter Fuels Outlook, US Energy Information Administration (EIA)

	Base case forecast	If 10% warmer than forecast	If 10% colder than forecast
Heating Oil	37%	24%	51%
Natural Gas	29%	23%	45%
Proprane*	39%	17%	75%
Electricity	3%	5%	14%

*Propane expenditures are a household-weighted average of the Northeast, Midwest, and South regions. All others are U.S. averages. Expenditures do not reflect retail fuel prices locked in before the winter heating season starts.

Due to an increase in energy costs this winter, we can expect a significant rise in energy burden in neighborhoods across the country. Energy burden is the percentage of household income spent on utility costs. Households face a high energy burden if they pay more than 6% of their income on energy bills, and are severely energy burdened if paying 10% of their income on utility bills.³

When energy burden depletes households' income for other bills, further hardships can appear as a result. Unfortunately, there aren't enough financial resources to cover food, rent, and unexpected healthcare costs. As a result, vulnerable communities face utility shutoffs, evictions, increased stress, and poor health conditions, exacerbating other inequities frontline communities face across the nation.

When facing some of the most pressing equity-related issues in your neighborhood, data visualization can be effective in finding and making informed decisions. Greenlink Analytics is a clean energy, equity data, and analytics organization working at the forefront of the nation's complex energy burden landscape. Greenlink analyzes how these energy burdens affect communities from the national level down to the census tract using the [Greenlink Equity Map](#)

³ McDonald, S., Brankovic, S., Lacayo, C., Spratling, D., Gumerman, E., Madhavan, S., & Cox, M. (2021). A Nationwide Review of Energy Burden: The impact of changing income and utility bills from 2013 to 2018. Atlanta, GA: Greenlink Analytics. URL.

(GEM). GEM is an equity mapping tool enabling users to understand how energy burden relates to a series of indicators, including race, health insurance stress, internet access, and more. Since the launch of this data mapping tool in 2020, over 600 members of community-based organizations and cities use GEM across the United States to uncover a variety of energy equity insights and findings that continue to be in our GEM reports found [here](#).

If you would like to learn more about equity issues in your community, visit our [website](#) to see how you can gain access to GEM and join our Community of Practice.