



*A report summary from the Economic Research Service*

# Contributing Factors to Rural Energy Use, Costs, and Affordability in the Early 2020s

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## Key Points

- Rural households spend a higher percentage of their income on at-home energy expenditures than urban households. Approximately 26 percent of rural households were “energy-cost burdened,” meaning they spent more than 6 percent of their income on energy, compared to just 17 percent of urban households. Higher rural expenditures were driven primarily by increased heating costs.
- Fewer rural households heated their homes with natural gas, which is generally less expensive than alternatives that are more common in rural areas, such as electricity, fuel oil, and propane.
- Mobile homes are more common in rural communities. Mobile homes cost more to heat because they are less likely to be heated with natural gas and are generally less energy efficient.
- Low-income rural households were more likely to be energy insecure because they lived in less efficient homes and had higher heating and cooling costs per square foot. Rural renters and homes with children also experienced energy insecurity at above-average rates.

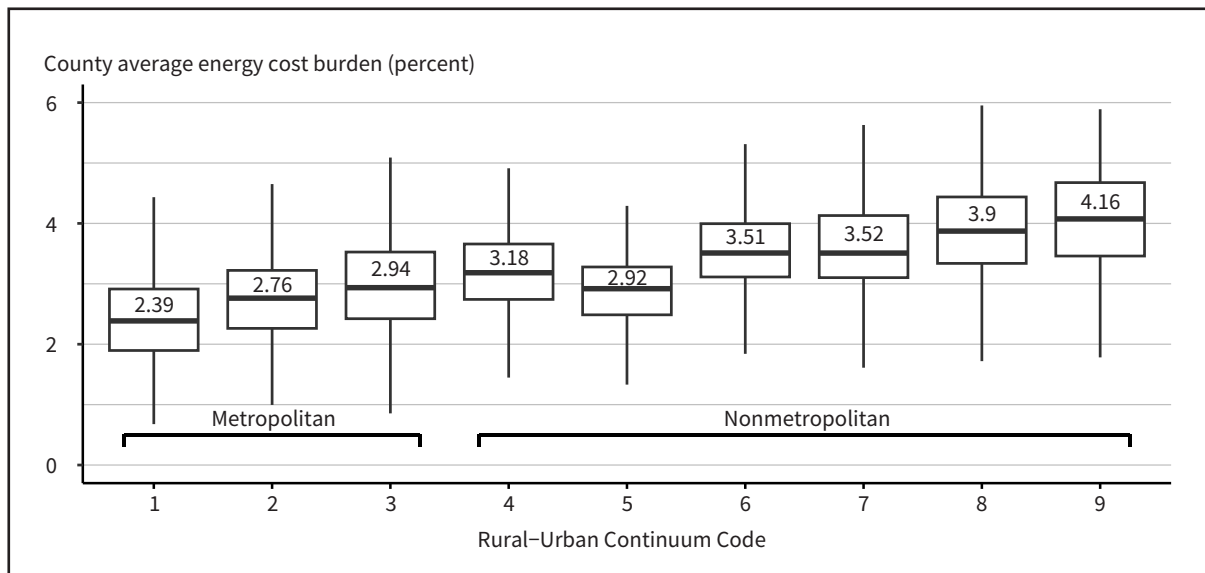
## Why Does This Matter?

Energy is an essential good, necessary for both heating and cooling. Energy insecure households may forgo other necessities such as food or medicine to pay their energy bills. These homes are generally less healthy and face other financial hardships. This challenge is particularly important for rural households, who already experience poverty at a higher-than-average rate. To address

higher energy costs in rural areas, the U.S. Department of Agriculture, through the Rural Utilities Service (RUS), facilitates several electric programs that intend to secure low-cost energy for rural Americans. Findings from this report provide insights into the factors that explain higher energy costs for rural households. This report will allow policymakers to consider ways to improve program facilitation to lower energy costs and enhance rural prosperity.

## A Few More Details

### County energy cost burden by Rural-Urban Continuum Codes



Note: Energy-cost burden is defined as the percentage of income a household spends on at-home energy. The Rural-Urban Continuum Code (RUCC) measures rurality along a continuum ranging from counties within the largest metropolitan areas (RUCC = 1) to remote counties with urban populations of less than 5,000 (RUCC = 9). For each RUCC, the bolded line in the middle of each box represents the median measure of average energy-cost burden for counties with each code. The lower and upper limits of each box represent the 25th and 75th percentile average burden. The lines extend to 1.5 times the distance of the difference between the 75th and 25th percentiles.

Source: USDA, Economic Research Service using data from the U.S. Department of Energy's Low-Income Energy Affordability Database (LEAD) and USDA, ERS Rural-Urban Continuum Codes.

Rural households spend a higher percentage of their income on energy than urban households. Energy-cost burdens (the share of income spent on at-home energy use) are higher among rural households than urban households. The most urban counties with a Rural-Urban Continuum Code (RUCC) of 1 (metropolitan-area counties with a population of 1 million or more) spent 2.4 percent of income on energy, on average. By contrast, counties with a RUCC of 9 (counties that were not adjacent to metropolitan areas with an urban population of fewer than 5,000) spent an average of 4.16 percent of their income on energy. Rural households were more likely to be energy-cost burdened, meaning they spent more than 6 percent of their income on energy expenditures.

Several factors explain higher energy cost burdens for rural households, which were primarily driven by higher heating costs. More than 60 percent of urban households are heated with natural gas, compared to about a quarter of rural homes. Electricity is the most common heating fuel for rural households, which is generally more expensive, as are other alternatives such as fuel oil or propane. Furthermore, mobile homes accounted for approximately 17 percent of rural housing units and just 3 percent of urban units. The average heating and cooling cost for mobile homes was \$0.61 per square foot, compared to \$0.45 and \$0.42 for single family homes and apartments. Finally, rural households experienced more very cold days than urban households, requiring more heating fuel to warm their homes and raising rural energy expenditures.

Low-income rural households were particularly energy insecure. Approximately 45 percent of rural households below 200 percent of the Federal poverty line experienced some form of energy insecurity, such as forgoing necessities to pay energy bills, receiving a disconnection notice, the inability to use heating or cooling equipment, or leaving their home at an unhealthy temperature.

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