

Summer Residential Cooling Outlook: Residential Electric Utility Expenditures Projected to Reach Record Levels, Highest in 10 years

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Home energy is becoming increasingly unaffordable for low-income families. The financial burden to families of keeping cool this summer will increase by 7.9% across the nation to an average of \$719 from June through September, up from \$661 during the same period last year, according to projections from the National Energy Assistance Directors Association (NEADA) and the Center for Energy Poverty, and Climate (CEPC).

Due to the unprecedented rise in summer temperatures and higher rates of extreme heat events over the last ten years, the cost of summer cooling has risen from \$476 in 2014 to a predicted \$719 in 2024. (This increase has been calculated by NEADA, based on NOAA temperature data and EIA electric usage and price data.)

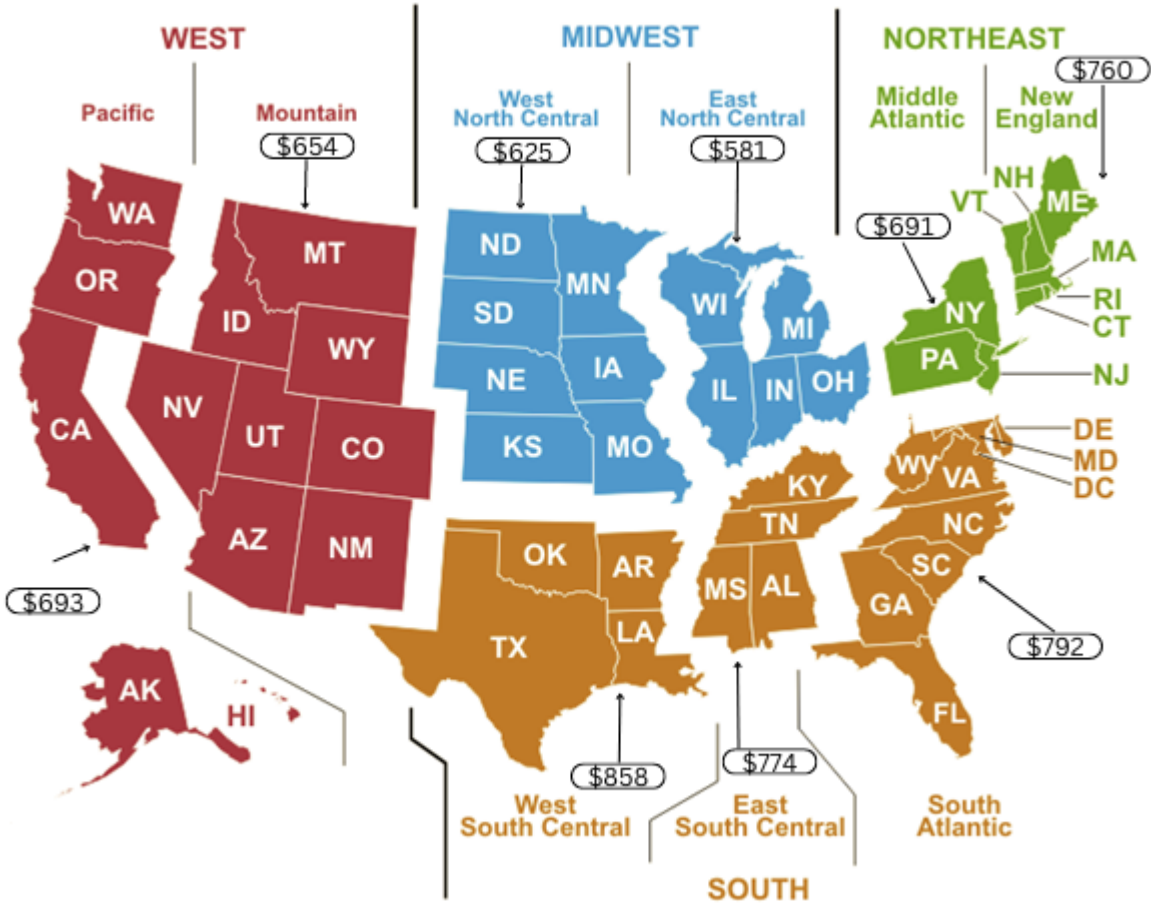
Federal Funding for the Low Income Home Energy Assistance Program Reduced by \$2 billion: The dangers of extreme heat leave low-income families at heightened risk, due to lack of access to affordable summer cooling, increasing electric costs and cutbacks in funding for the federal Low Income Home Energy Assistance Program (LIHEAP) from \$6.1 billion in FY 23 to \$4.1 billion for FY 24. States have reported that due to the reduction in federal funds, they will have no choice this year but to reduce the number of households served by about one million, and reduce average heating and cooling benefits. About 80% of program funds will be used for heating, leaving only 20% available for home cooling despite predictions of another summer of unprecedented high temperatures.

33 States Have no Summer Shut-Off Protections: Only 17 states and the District of Columbia provide some summer shut-off protections, low-income households in the other 33 states have no summer shut-off protections and could face dangerous health conditions caused by prolonged exposure to extreme heat (see appendix 1).

Almost 20% Very Low Income Families have no Air Conditioning: For households who will be shut off from electricity this summer because they cannot afford their bills, **even being inside their homes is dangerous.** In less extreme situations, a family can ride out a hot day by opening their windows, taking a cool shower, and hoping it cools down at night. But when the heat persists for weeks, or the outside air is dangerous, opening a window will only make things worse.

Summer Electric Bill (June – September 2024)					
Region	New England	Mid-Atlantic	East North Central	West North Central	South Atlantic
2024 Cooling Season	\$760	\$691	\$581	\$625	\$792
2023 Cooling Season	\$720	\$606	\$524	\$580	\$733
Difference	\$40	\$84	\$57	\$44	\$58
% Difference	5.3%	12.2%	9.8%	7.1%	7.4%
Region	East South Central	West South Central	Mountain	Pacific	US Average
2024 Cooling Season	\$774	\$858	\$654	\$693	\$719
2023 Cooling Season	\$695	\$843	\$611	\$609	\$661
Difference	\$78	\$15	\$42	\$84	\$57
% Difference	10.1%	1.8%	6.5%	12.2%	7.9%

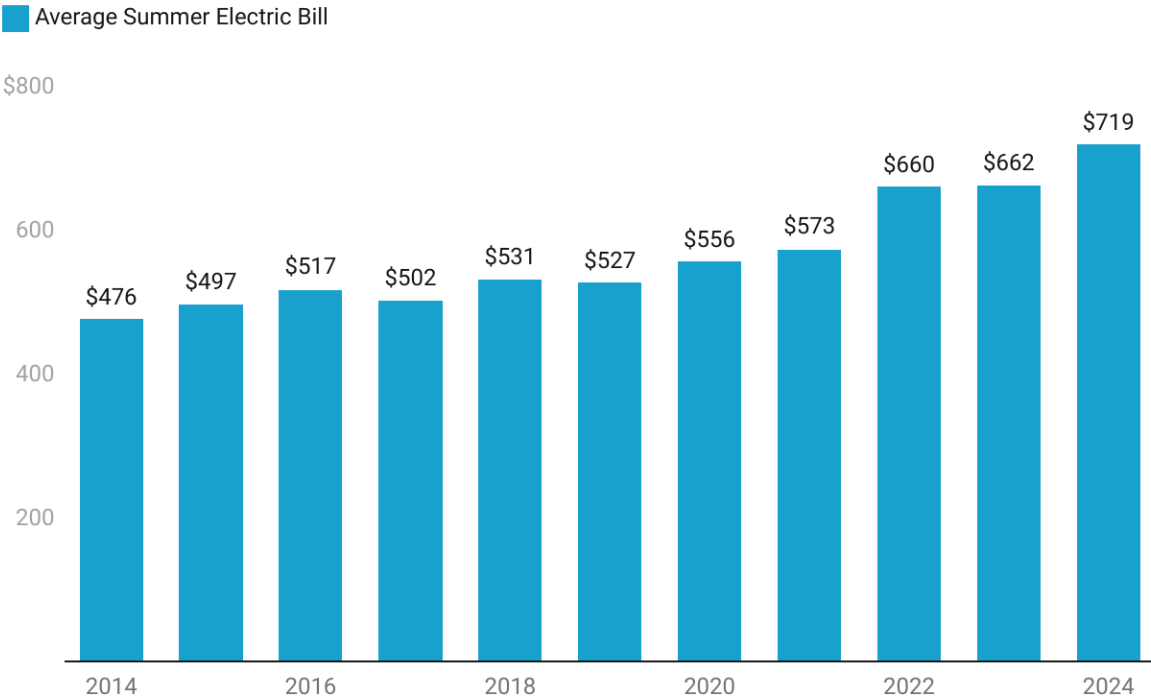
These estimates could, in fact, *understate* the final costs of home cooling this summer if temperatures continue to reach record levels.



Utility Debt Remains High: Summer cooling costs are coming right on top of this winter’s higher heating season costs. The level of utility consumer debt – the amount consumers owe their utilities – has increased from \$17.5 billion in January 2023 to \$20.3 billion in December 2023, and NEADA estimates that 16% (21.2 million) of all U.S. households are behind on their energy bills.

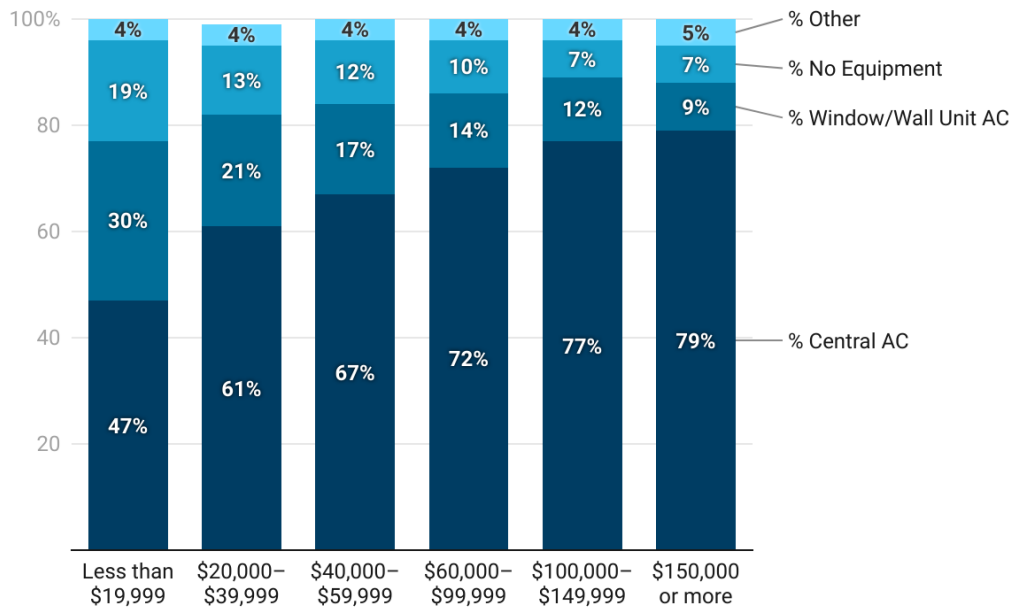
According to data collected by the Environmental Protection Agency (EPA) [between 1960 and 2021](#), the length of “heat wave seasons,” or, the amount of time between the first and last heat wave of a year in a particular location, has nearly tripled. In the 1960s, on average heat wave seasons lasted around 24 days; by 2021, that number had grown to 73 days. The EPA also found that heat waves were occurring earlier and later, too—in both the late spring and early fall, when many states have not transitioned from heating to cooling programs for families in need. This is why NEADA has included September as a cooling month.

Average US Electric Bill (June - September)



Source: EIA • Created with Datawrapper

AC Equipment Type by Income



Source: EIA RECS • Created with Datawrapper

Energy price increases fall hardest on low-income households. The average energy burden for low-income households is about [8.6% of income](#), almost three times the rate for non-low-income households (3.0%). Of even more concern are findings from the most recent [Census Household Pulse Survey \(4/18/24\)](#), which was designed to estimate the economic impact of the pandemic on families. This survey found that:

- The percentage of households that could not pay their energy bill for at least one month in the last year increased, from 21.3% to 23.5%. The largest increase in the amount of households unable to pay their energy bill for at least one month was in households with children, which increased from 28.4% to 33.1%.

Percent of Households Unable to Pay Energy Bill

Household was unable to pay an energy bill or unable to pay the full bill amount, at least one month in the last year

Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
4/26/2023 - 5/8/2023	16.7%	34.6%	20.7%	21.4%
4/2/2024 - 4/29/2024	19.4%	36.8%	25.8%	25.3%

Table: NEADA • Source: Census Pulse Survey April 2024 • Created with Datawrapper

- The percentage of households reporting that they kept their home at unsafe temperatures also increased during the 12-month period, from 22.3% to 22.9%. The largest increase with this metric was in low-income households, from 31.7% to 34.0%.

Percent of Households Keeping Home at Unsafe Temperature to Save Money on Energy Bill, by Survey Period

Household kept home at a temperature that felt unsafe or unhealthy, at least one month in the last year

Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
4/26/2023 - 5/8/2023	17.6%	33.5%	15.9%	19.3%
4/2/2024 - 4/29/2024	18.9%	31.7%	18.0%	21.5%

Table: NEADA • Source: Census Pulse Survey April 2024 • Created with Datawrapper

- More than one out of three households (34%) reduced or forewent basic household expenses at least once during the previous 12 months in order to pay their home energy bills. Of all households surveyed during the reporting period, the largest increase was in households with children, from 38.7% to 41.5%.

Percent of Households Foregoing Basic Necessities to Pay Energy Bills, by Survey Period

Household reduced or forewent expenses for basic household necessities, such as medicine or food, in order to pay an energy bill, at least one month in the last year

Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
4/26/2023 - 5/8/2023	26.3%	49.6%	29.1%	31.6%
4/2/2024 - 4/29/2024	27.8%	49.2%	32.3%	32.6%

Table: NEADA • Source: Census Pulse Survey April 2024 • Created with Datawrapper

When looking at this data in conjunction with NEADA’s research into the projected high cost of cooling for June-September 2024 a dire picture emerges. Low-income households are already struggling to pay their energy bills and will now be faced with even higher bills than in past years during the summer months. Many low-income households may choose, then, not to cool their homes. That would prove dangerous and, in some cases, even fatal.

Climate Change Makes Heat Waves More Extreme and Dangerous: It is well-established across multiple scientific communities—including environmental sciences, public health, and emergency medicine—that extreme heat events, more commonly known as “heat waves,” have become more intense, longer, and increasingly frequent across a wider geography.

Heat waves are not just a localized problem, either. The EPA studied 49 cities across the country and found a wide geographical distribution for cities that saw a dramatic increase in these extreme heat events. Cities such as Seattle, Milwaukee, Salt Lake City and Albany saw similar increases in the length of heat wave seasons as cities such as Phoenix and Tucson, San Antonio, and Baton Rouge.

As data from NASA Shows, [2023 was the hottest summer on record](#). And the summer of [2022 was the hottest on record](#) before that. Data scientists and public health experts predict that the summer of 2024 will continue that trend. NOAA’s [new summer forecast map](#) shows that the hotter than average temperatures are expected across much of the nation, suggesting that this summer could also be record breaking. NOAA predicts that extreme heat is most likely to blanket the Northeast and a large portions of the West. Extreme heat is a country-wide problem and must be combatted as such.

Dangerous Health Effects of Extreme Heat: Extreme heat causes more deaths each year than any other weather event, including floods, hurricanes, and tornadoes, [according to the National Weather Service](#). An extreme example of the impact of summer heat waves is Maricopa County, Arizona – for the summer of 2023, Maricopa County reported 469 heat-related deaths, up from 372 in 2022. Extreme heat is the [leading weather-related killer](#) in the United States, and medical professionals at Harvard Medical School and the Yale School of Medicine believe that extreme heat-related deaths are being under-counted by hospitals around the country because succumbing to extreme heat can take so many forms (including, e.g., respiratory disease, cardiovascular disease, exacerbations of extant chronic conditions, and stroke).

Doctors working at Harvard Medical School and Yale School of Medicine have found that extreme heat events affect each individual, and various populations, differently. Temperatures that may not seem excessive to a “healthy” individual (i.e., one without underlying medical conditions, who is not a child or elderly, etc.) can actually become dangerous for elderly, disabled people, low-income households, or other vulnerable populations.

Someone’s susceptibility to heat exhaustion, heat stroke, and other dangerous health effects of high temperatures depends on: their underlying medical conditions; their ability to hydrate; their ability to rest and cool off; and other non-temperature atmospheric conditions, such as humidity and pollutants. This last factor is especially notable in **urban settings**, because the [World Health Organization](#) has noted how one’s body temperature is also impacted by the ambient temperature of the ground one walks upon—heat from the ground is conducted into the body, raising one’s internal temperature—as well as radiation from the sun itself (highlighting the necessity for shade and respite from direct sunlight) *and* from sunlight bouncing off of reflective surfaces, such as buildings and cars.

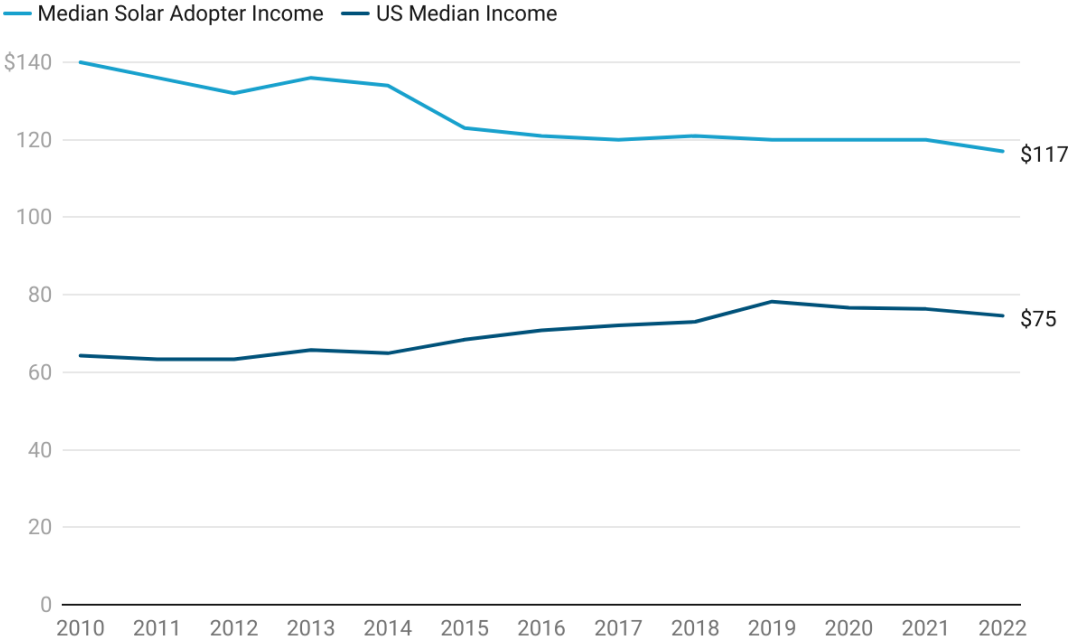
Taking this medical information into account, then, we can see **how low-income families are particularly at risk** during these protracted periods of heat waves and extreme temperatures. If one of the major indicators for being able to properly regulate temperature and not fall victim to the health effects of high temperatures is *being able to rest and cool off*, low-income households who struggle to effectively cool their homes are at higher risk than median-income and wealthy households who are able to cool their homes for as long as is necessary.

The EPA’s [research into urban heat islands](#) demonstrates how cities, especially those without much green space, are hotter on average than their suburban and rural surroundings, and these “heat islands” produced by such urbanization can impact “summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.” Low-income families living in urban areas, then, are both at higher risk for heat-induced medical conditions *and* may have to face higher utilities costs.

Solar Energy, Heat Pumps and the Energy Transition: Without policy intervention, the energy transition risks leaving out low-income households because most of the current policy solutions are market-rate tax incentives that are not accessible to low-income households.

The median income for a solar adopter was \$117,000 in 2022, compared to \$86,000 for all owner-occupied households. While rooftop solar is becoming more accessible, it remains out of reach to most Americans. In 2010, the median household income for adopters of rooftop solar was \$140,000. In 2022, this declined to \$117,000. A more accessible way to ensure that low-income households are *not* left behind during the energy transition is a shift in focus towards weatherization including the installation of high efficiency heat pumps.

Median Solar Adopter Income VS US Median Income



*Income in Thousands
Source: Berkely Lab • Created with Datawrapper

If homes can be properly weatherized before the installation of heat pumps, heat pumps have been found to be a [much more affordable option](#) for heating homes during even the coldest of months. The [National Renewable Energy Laboratory \(NREL\) found](#) that, if homes can be properly weatherized before the installation of heat pumps, heat pumps “would cut home site energy use by 41% to 52%,” and even without weatherization home site energy use could be reduced by 31% to 47% on average. That reduction in energy *use* would, of course, also mean a reduction in energy *costs*, making both heating and cooling more affordable for low-income families.

The NREL reports, “For the 49 million homes that use electricity, fuel oil, or propane for heat and have air conditioning, 92% to 100% of homes would see energy bill savings” with heat pumps installed and proper weatherization. Those savings could be, on average, between \$300 to \$650 a year, depending on heat pump efficiency. That level of savings would allow low-income families to better cool their homes during these extreme heat events and would mean that they could sustainably heat *and* cool their homes year-round without having to forego other necessities to pay their bills.

Recommendations: The following recommendations propose both bill payment measures to immediately increase the affordability of home energy and longer-term measures to increase the efficiency of the nation’s low income housing stock, thereby reducing the amount of energy needed to both heat and cool their homes. **Access to affordable cooling is more than a matter of comfort.** For many Americans, especially low-income households and members of vulnerable populations, the difference can be as stark as either staying safe and cool *or* ending up in the emergency room as a result of heat stroke, heart attacks, or other heat-related conditions. Therefore, NEADA and CEPC recommend the following to **increase the affordability** of home cooling.

- **Bill Payment Assistance:** Provide a set of tiered discounts to reflect households’ ability to pay. Several states have already implemented different levels of discounts with successful outcomes, including Connecticut, which just implemented a 50% discount on utility bills for families eligible for LIHEAP.

Another solution can be found in capping costs for low-income families. For example, states could set the price cap at a rate of no more than 3% of annual income for the total amount of electricity bills paid. Such a cap would further protect low-income families against unexpected price spikes in the cost of energy due to both unprecedented weather events and unstable global market conditions for feeder fuels to produce electricity (like methane).

- **Shut-Off Protections:** Establish comprehensive shut-off protections during the cooling season to protect families during heat waves and other high temperature conditions, in the event that households fall behind on their utility bills. Only 17 states and the District of Columbia provide some summer shut-off protections, low-income households in the other 33 states have no summer shut-off protections and could face dangerous health conditions caused by prolonged exposure to extreme heat.
- **Restore Funding for LIHEAP:** For Federal Fiscal Year 2024, Congress reduced funding for LIHEAP by \$2 billion, reducing the total appropriation to \$4.1 billion. State LIHEAP officials have told NEADA that without the additional \$2 billion, they will have to:

- Reduce crisis assistance to families to help with any remaining winter heating bills or arrearages;
- Cut back on weatherization assistance, which leaves low-income households out of the energy transition; and
- Reduce cooling bill assistance programs.

States have reported to NEADA that 80% of LIHEAP grant funds go towards heating assistance. But as temperatures rise, there is also an increased need in summer months to help families avoid the effects of extreme heat.

- **Increase Assistance to Weatherize, Retrofit, and Install Heat Pumps:** Congress has already approved programs to help retrofit the nation’s low-income housing stock. Two of the programs designed to help retrofit the low-income housing stock are the long-standing Weatherization Assistance Program (WAP), and the more recent High Efficiency Electric Home Rebate Program (HEEHRA), which was approved by the Inflation Reduction Act in 2022.

WAP provides basic retrofit assistance including installing insulation, repairing heating and cooling systems and installing hot water heaters. However, the WAP program does not have sufficient funding to replace cooling systems, let alone to cover the costs of properly weatherizing the housing stock and then installing high efficiency heat pumps.

The HEEHRA Program significantly expands access to these high-efficiency heating and cooling methods by providing funding for the installation of heat pumps. The HEEHRA program provides grants of up to \$14,000 that can be used to install high-efficiency measures including heat pumps. As explained above, heat pumps could be extremely effective in reducing utility costs for low-income families. By integrating the two programs together, families will for the first time have options for fully retrofitting their homes, increasing the health and safety and reducing their energy bills.

Both programs are funded as discretionary grants, rather than entitlements; as such, when the money runs out, the programs end. Congress should develop a long term plan to fully fund both the WAP and the HEEHRA Program as part of a strategy to help retrofit the nation’s housing stock, reduce greenhouse gas emissions from the production of electricity, and make home energy affordable for low income families.

Appendix 1: Summer and Winter Shutoff Protections by State

Protections Listed by State			
Summer Protections	No Summer Protections	Winter Protections	No Winter Protections
Arizona	Alabama	Alabama	Alaska
Arkansas	Alaska	Arizona	California
Colorado	California	Arkansas	Colorado
Delaware	Connecticut	Connecticut	Florida
District of Columbia	Florida	Delaware	Hawaii
Georgia	Hawaii	District of Columbia	Kentucky
Illinois	Idaho	Georgia	North Dakota
Louisiana	Indiana	Idaho	Virginia
Maryland	Iowa	Illinois	
Minnesota	Kansas	Indiana	
Mississippi	Kentucky	Iowa	
Missouri	Maine	Kansas	
Nevada	Massachusetts	Louisiana	
Oklahoma	Michigan	Maine	
Oregon	Montana	Maryland	
Texas	Nebraska	Massachusetts	
Washington	New Hampshire	Michigan	
Wisconsin	New Jersey	Minnesota	
	New Mexico	Mississippi	
	New York	Missouri	
	North Carolina	Montana	
	North Dakota	Nebraska	
	Ohio	Nevada	
	Pennsylvania	New Hampshire	
	Rhode Island	New Jersey	
	South Carolina	New Mexico	
	South Dakota	New York	
	Tennessee	North Carolina	
	Utah	Ohio	
	Vermont	Oklahoma	
	Virginia	Oregon	
	West Virginia	Pennsylvania	
	Wyoming	Rhode Island	
		South Carolina	
		South Dakota	
		Tennessee	
		Texas	
		Utah	
		Vermont	
		Washington	
		West Virginia	
		Wisconsin	
		Wyoming	

Source: Center for Energy Policy and Climate