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GREEN MUSLIMS



# Home Electrification and Weatherization in Wisconsin

In 2022, Wisconsin published its “Clean Energy Plan”, detailing pathways for the state to move to a more just, equitable energy future. One of four key strategies is the modernization of buildings and industry, including support for electrification and increased funding.<sup>1</sup> In 2023, the Michigan Environmental Justice Coalition (MEJC) published “Gas to Electric: Equitable Home Electrification Policy in Michigan”, which estimates costs associated with residential electrification and weatherization.<sup>2</sup> With support from the University of Michigan’s School for Environment and Sustainability, Wisconsin Green Muslims developed this document to estimate electrification and weatherization costs for Wisconsin households.

## Weatherization and Heating Electrification

The residential sector accounts for 24% of total state energy consumption in Wisconsin.<sup>3</sup> Electrification refers to converting home appliances or technologies for heating water and space to those powered by electricity, as opposed to fossil fuels. Weatherization improves a home’s efficiency by protecting it from weather conditions and ensuring it retains heat in the winter and cool air in the summer. Both electrification and weatherization of residential buildings are important strategies for decarbonization and reducing household utility bills.

## Equity and Justice

Though residential decarbonization is essential for Wisconsin to meet its broader climate goals, upgrade costs will be beyond the budget for many households. Additionally, disproportionate energy burdens already exist in the State. A Milwaukee-focused study found that the energy burden, or percent of household income dedicated to energy costs, of households in predominantly Black and Hispanic/Latinx households is nearly double that of predominantly white neighborhoods.<sup>4</sup> As an important objective of the Wisconsin Clean Energy Plan is to reduce “the disproportionate impacts of energy generation and use on low-income communities and communities of color”, existing energy burdens and the impact of upgrade costs on Wisconsin households should be anticipated.<sup>5</sup>

## Methods

Cost estimates for the state of Wisconsin are based on the methods defined in the MEJC Report. This analysis used the Advanced Building Construction (ABC) Market Guidance for Zero-carbon Aligned Residential Buildings tool, developed by the National Renewable Energy Laboratory, for housing counts corresponding to respective upgrade options and associated costs. Due to data availability, upgrades for mobile homes and electrification-only upgrades for all housing types are out of scope. Costs for households that earn less than 200% of the Federal Poverty Line (FPL) are estimated to capture a portion of the Wisconsin population who would be particularly vulnerable to increases in energy costs.

<sup>1</sup> [State of Wisconsin Clean Energy Plan](#)

<sup>2</sup> [Gas to Electric: Equitable Home Electrification Policy in Michigan](#)

<sup>3</sup> [Wisconsin Energy Profile](#)

<sup>4</sup> [Energy Burden in Milwaukee: Study Reveals Major Disparities & Links to Redlined Areas](#)

<sup>5</sup> [State of Wisconsin Clean Energy Plan](#)



## Housing Types and Upgrade Options

Weatherization and electrification upgrade packages are estimated for single-family homes, small multi-unit homes (2-4 units), and large multi-unit homes (5+ units).<sup>6</sup> Upgrades span equipment updates and, depending on the household, updates to the building envelope. Upgrades depend on many variables, including housing vintage and current fuel type.



## Mobile Homes

There are over 60,000 mobile homes in Wisconsin, over 40% of which earn less than 200% of FPL.<sup>7</sup> Though mobile homes are an essential part of the Wisconsin residential sector, cost estimates for these homes are beyond the scope of this study.

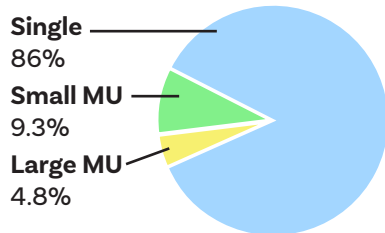
## Total Electrification and Weatherization Costs

Residential Housing	Total WI Population	Up to 200% FPL
Single Family Home (“Single”)	\$104 billion	\$18.9 billion
Small Multi-Unit (2-4 Units) (“Small MU”)	\$11.9 billion	\$4.65 billion
Large Multi-Unit (5+ Units) (“Large MU”)	\$5.73 billion	\$2.45 billion
	<b>\$121.6 billion<sup>8</sup></b>	<b>\$26.0 billion</b>

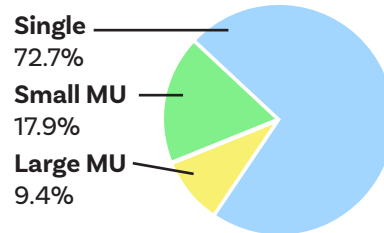
Total costs for analyzed housing types. Equipment-only upgrades and any upgrades for mobile homes are not included in these totals.

## Share of total electrification and weatherization costs by housing type

### Total WI Population



### Up to 200% FPL



## Recommendations

- Costs associated with electrification and weatherization upgrades are significant and Wisconsin needs a plan to electrify residential homes to meet near fully and long-term decarbonization goals
- Financing tools and electrification policy included in the Clean Energy Plan need to ensure adequate public funding for equitable residential electrification and weatherization or risk exacerbating existing housing and energy inequities

<sup>6</sup> ABC Market Guidance for Zero-carbon Aligned Residential Buildings.

<sup>7</sup> LEAD Tool | Department of Energy

<sup>8</sup> The MEJC Report estimated that it would cost \$73.6 Billion to upgrade all Michigan homes. Possible reasons for the increased cost in Wisconsin include more expensive construction costs, more homes in a cooler climate, and more expensive upgrade options in the ABC Market Guidance tool as compared to the original methods.

