Reaching Rural Communities with Energy Efficiency

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American Council for an Energy-Efficient Economy

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The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.

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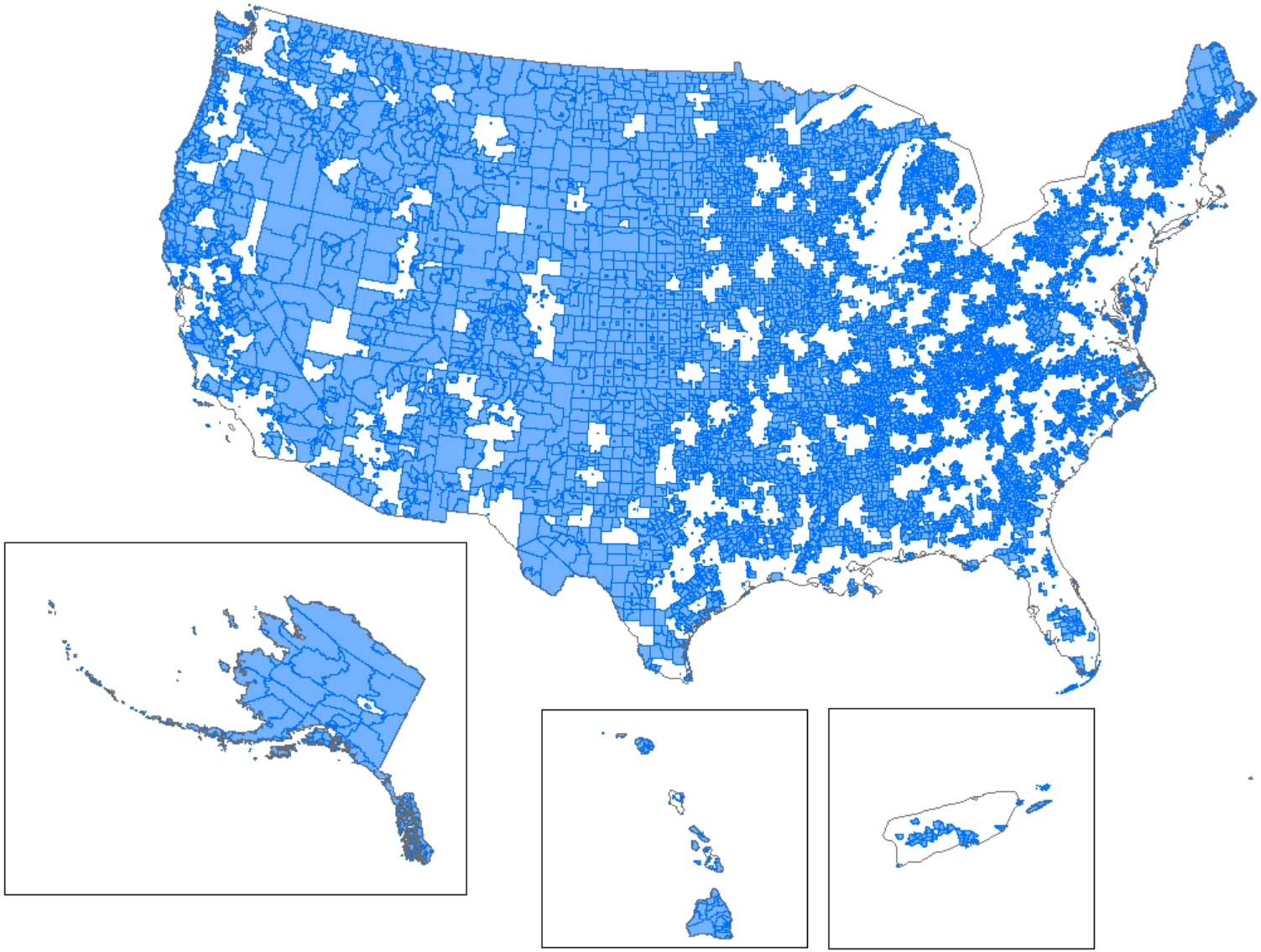
What is rural? What challenges exist to delivering energy efficiency in rural areas?



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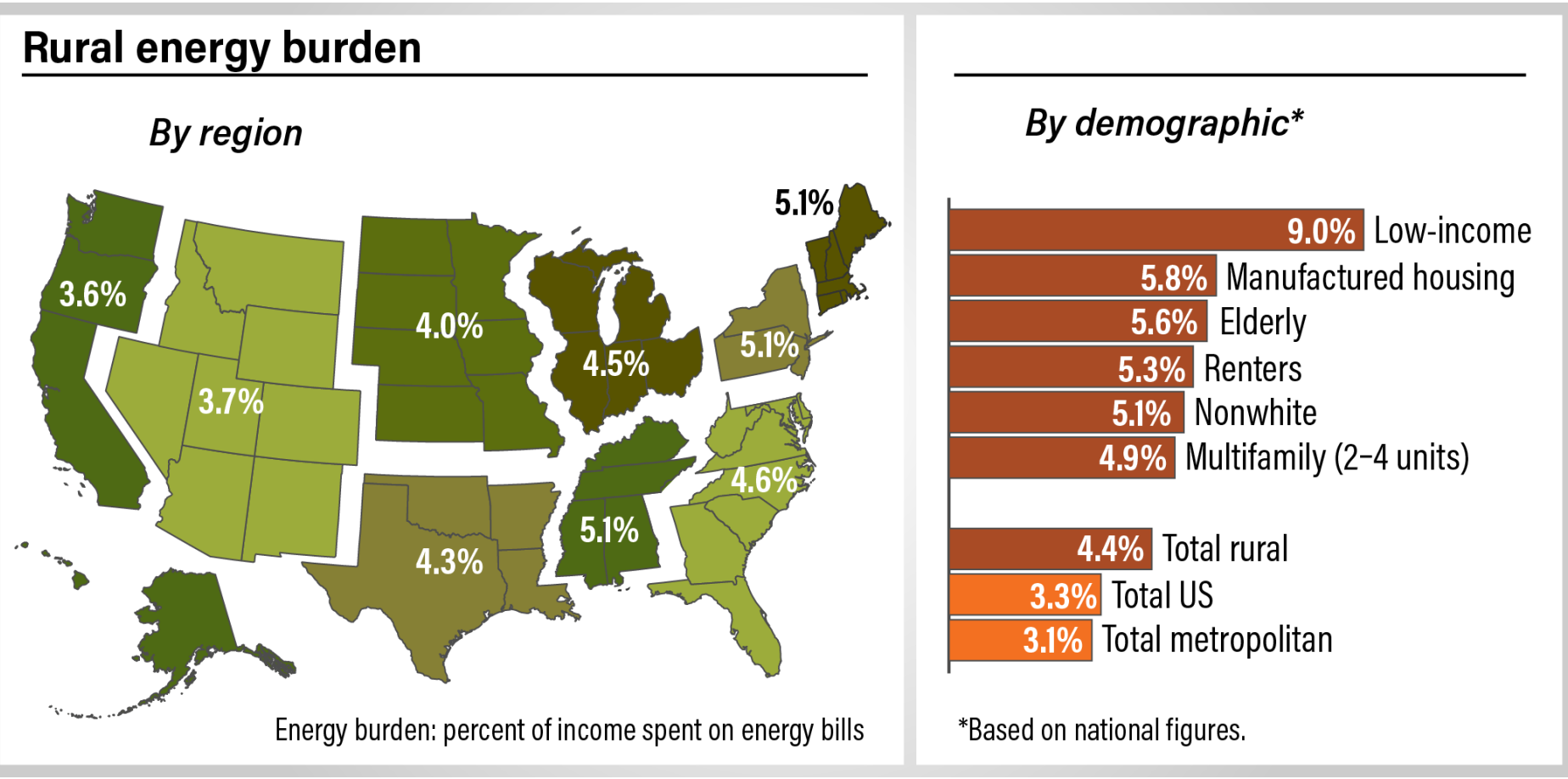
Rural Energy Burden Findings



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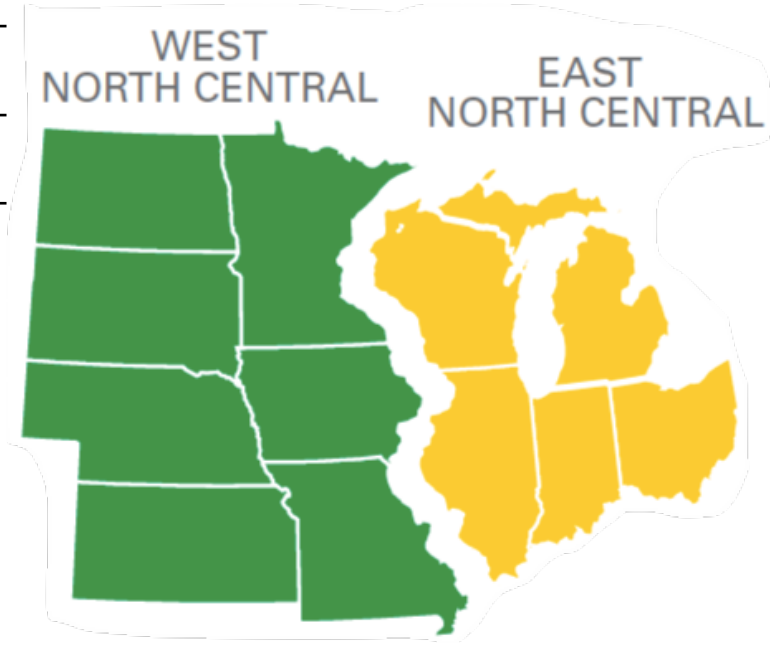
Source: aceee.org/research-report/u1806

Energy Burdens in the Midwest

Median Energy Burdens	West North Central	East North Central	All U.S. Total
Metropolitan	2.8%	3.3%	3.1%
Rural	4.0%	4.5%	4.4%
All households	3.2%	3.5%	3.3%

- West North Central region has the **highest upper-quartile burden for rural nonwhite households,** nearly twice that of rural white non-Hispanic households.
- The **oldest rural housing** is concentrated in the New England, Mid-Atlantic, and East and West North Central regions.



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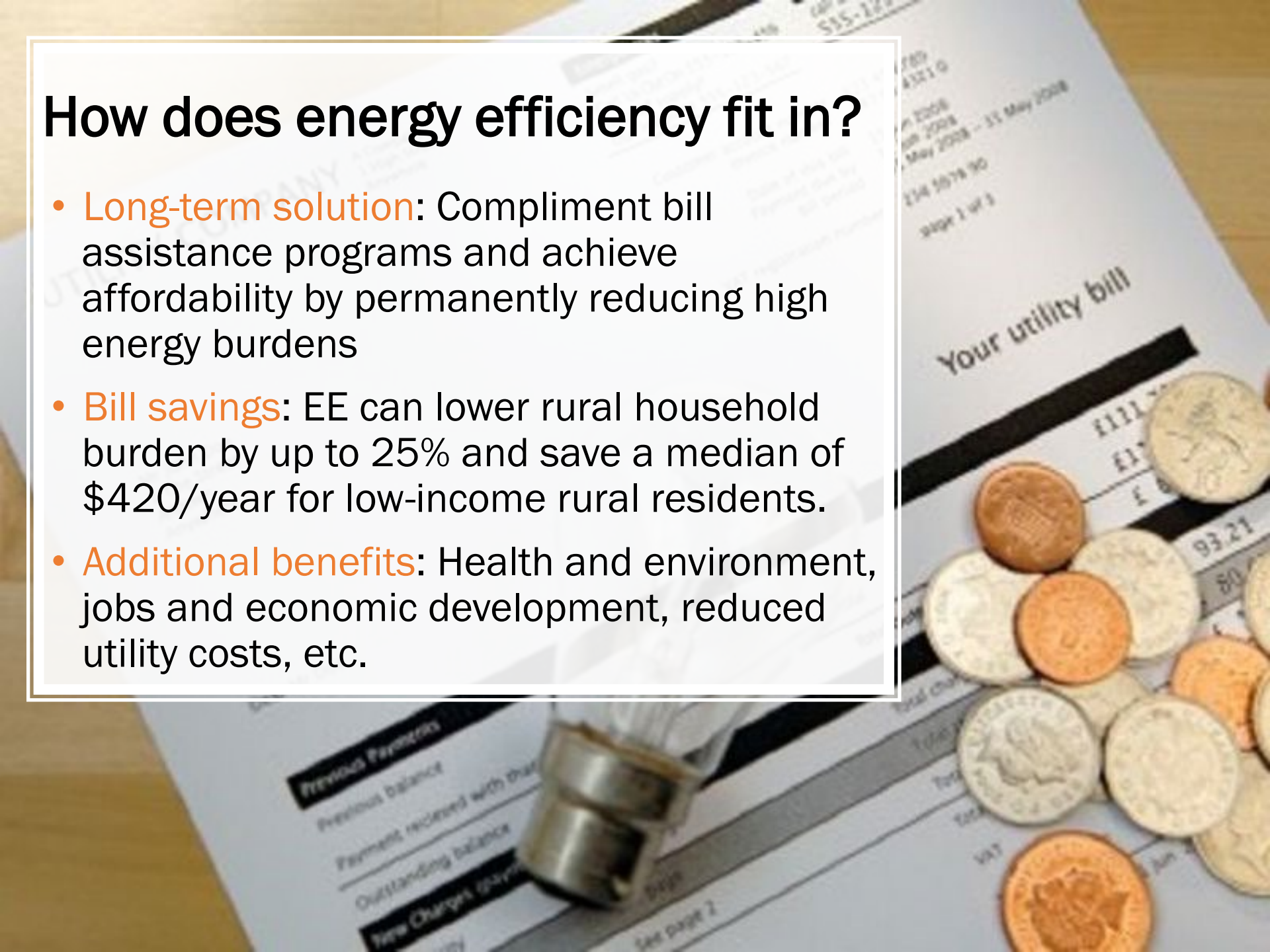
Source: aceee.org/research-report/u1806

How does energy efficiency fit in?

- Long-term solution: Compliment bill assistance programs and achieve affordability by permanently reducing high energy burdens
- Bill savings: EE can lower rural household burden by up to 25% and save a median of $420/year for low-income rural residents.
- Additional benefits: Health and environment, jobs and economic development, reduced utility costs, etc.



Delivering energy savings to rural customers

Strategies and case studies from ACEEE research, *Reaching Rural Communities with Energy Efficiency Programs*

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Challenges to Energy Efficiency in Rural Areas

- **Low population density**
- **Financial constraints**
- Shortage of workers
- Lack of broadband access
- Customers with limited exposure
- Lack of expertise
- High costs
- Insufficient outcome data

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Picture Sources: Florida Office of Energy, Efficiency Vermont

Strategy #1: Community engagement and partnerships

- Engage community members to better understand customer needs.
- Leverage local partnerships for feedback on efficiency measures, program design, and opportunities to generate awareness.
- Potential partners:
  - Local governments
  - Associations for state and local officials
  - Community action agencies
  - Local soil conservation districts
  - Agriculture cooperatives
  - Local business councils
  - Chambers of Commerce

Southern Minnesota Municipal Power Agency (SMMPA)

- Nonprofit joint action agency
- Uses energy service representatives to deliver EE programs on behalf of its member utilities
- Programs:
  - **Be Bright Campaign**
  - **CERTS C&I Outreach Project**
- Notable program elements
  - **Partnerships that enable SMMPA to leverage existing resources**
  - **Customized electronic marketing by member utility**

Picture Source: SMMPA

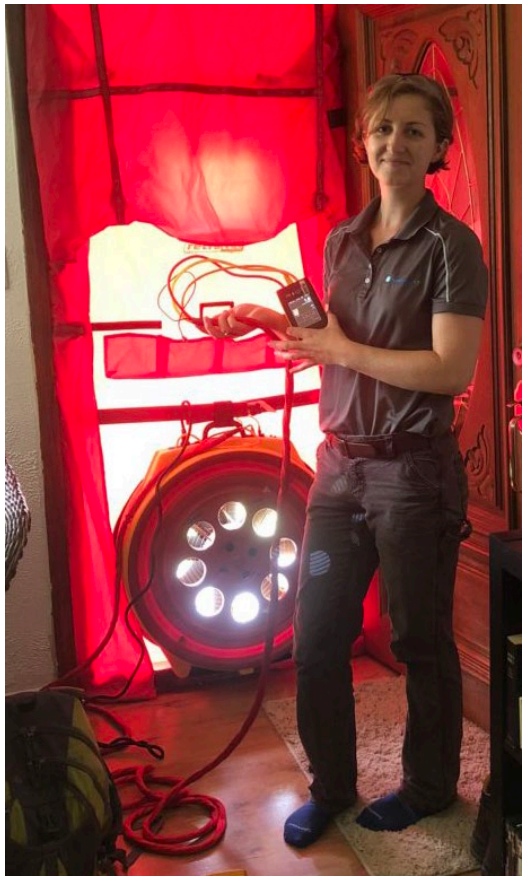
Strategy #2: Customer assistance and education

- Help prospective participants and program implementers access financial resources
  - **Natural Capital Investment Fund (NCIF)**
- Increase customer familiarity with energy efficiency and awareness of program offerings
  - **Energy Trust of Oregon**

Picture Source: Sustainable Northwest

Mountain Association for Community Economic Development (MACED)

- Eastern Kentucky-based community development financial institution (CDFI) that provides capital and operates EE program for participating co-ops
- Programs
  - **How$mart Kentucky**
  - **Energy Efficient Enterprises (E3)**
  - **New Energy Intern**
- Notable program elements
  - **Tariffed on-bill financing model**
  - **Uses utility payment history instead of credit check**



Picture Source: MACED

Strategy #3: State policies to drive rural energy savings

- Energy efficiency targets for munis and coops.
  - **Minnesota Conservation Improvement Program (CIP)**
- Guidelines for hard-to-reach customers that include geographic criterion
  - **California Public Utilities Commission**
- State energy plans
  - **Utah Energy Action Plan**

	Electric EERS		Natural gas EERS	
	Co-ops	Munis	Co-ops	Munis
AZ	x		x	
CT		x		
HI	x			
MA	x	x	x	x
MI [a]	x	x	x	x
MN [b]	x	x		
NC	x	x		
RI		x		x
WA	x	x		
WI	x	x		

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a Michigan includes co-ops and munis in its electric and natural gas EERS through 2021, after which requirements apply only to utilities regulated by the Michigan Public Service Commission. b 2017 Minnesota legislation exempts co-ops and munis under a specific size threshold. Source: ACEEE 2017; ACEEE 2018b.

Michigan Agriculture and Rural Communities Energy Roadmap

- **Goal**: Research-driven roadmap to guide Michigan energy waste reduction and renewable energy policies and programs in the agricultural sector and rural communities.
- **Team**: Michigan Energy Office, Public Sector Consultants, and ACEEE
- **Project phases**:
  - **Inventory of current policies and programs**
  - **Impact evaluation, benchmark, and initial recommendations**
  - **Actionable roadmap**
- **Stakeholders**: Utilities, government agencies, associations, nonprofits, agricultural commodity groups, etc.

Rural Energy Efficiency Resources

Reaching Rural Communities with Energy Efficiency Programs: aceee.org/research-report/u1807

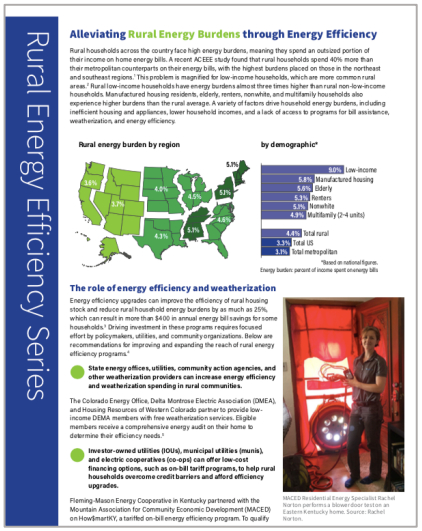
The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency: aceee.org/research-report/u1806

Rural Energy Efficiency fact sheet series:

- **Rural Energy Burdens:** aceee.org/fact-sheet/rural-energy-burden
- **Coops and Energy Efficiency (*forthcoming*)**
- **Funding Sources for Rural Energy Efficiency Programs (*forthcoming*)**
- **Rural Energy Efficiency and Renewable Energy (*forthcoming*)**

2018 ACEEE Conferences

- **Rural Energy Conference:** aceee.org/conferences/2018/rural
- **Summer Study Proceedings:** aceee.org/files/proceedings/2018/index.html#/event/event-data/details
    - **Rural-focused papers from: ACEEE, Island Institute, Franklin Energy Services, and VEIC**



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Source: www.youtube.com/watch?v=ttJj9xAiRfg&t=75s

Thanks!

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Additional Slides

What is an energy burden?

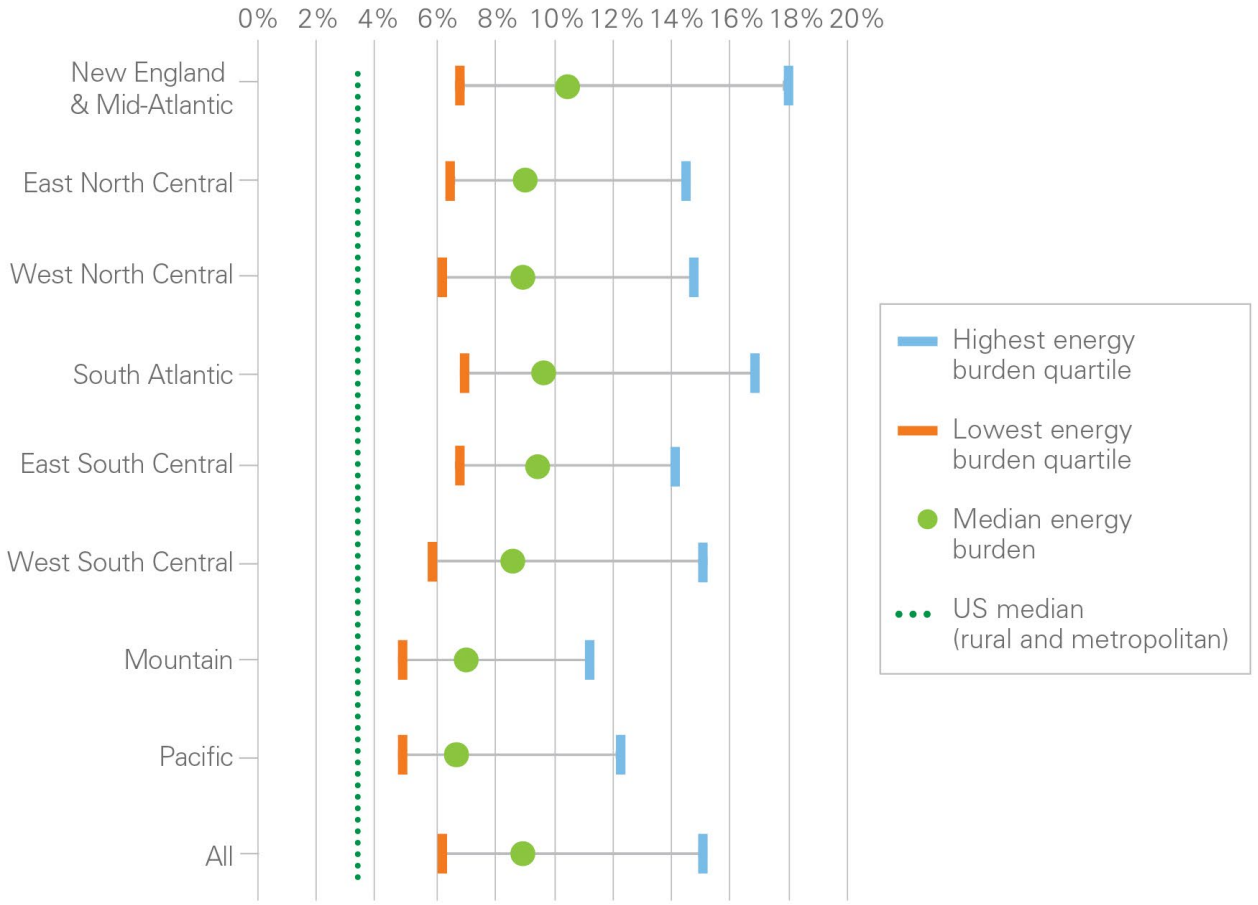
Energy burden % =
Annual energy costs/Annual household income

E.g. ($200/month) x 12 months/$60,000 = 4%

- **Drivers:** physical, economic, policy, behavioral
- **Impacts:** health, economic, social

Rural Affordability Program Types

- Bill assistance
  - **e.g. Low Income Home Energy Assistance Program (LIHEAP), modified rate design**
- Energy efficiency and weatherization
  - **e.g. Department of Energy (DOE) Weatherization Assistance Program (WAP), other federal programs, utility-led ratepayer funded EE**
- On-bill financing
  - **e.g. on-bill loans**



Low-income energy burden quartiles

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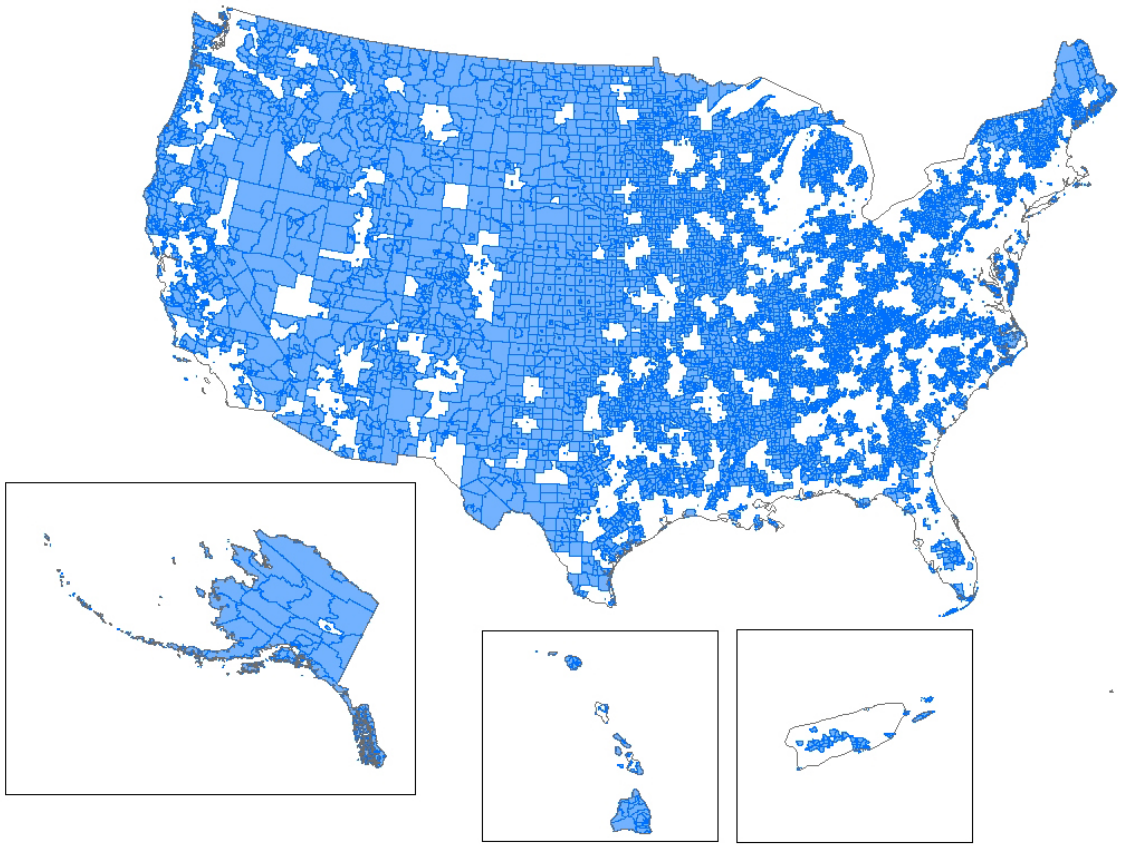
Drivers of household energy burden

Physical	Economic	Behavioral	Policy
Housing age and type	Chronic poverty or economic hardship due to persistent under or unemployment	Lack of access to information about bill assistance or energy efficiency program options	Insufficient or inaccessible policies and programs for bill assistance, weatherization, and energy efficiency for low-income households
Fuel type by use, and fuel cost	Sudden economic hardship	Increased energy use due to age, number of people in the household, or disability	High customer fixed charges, that limit customers' ability to respond to high bills through energy efficiency or conservation
Inadequate sealing, insulation	Inability to afford (or difficulty affording) up-front costs of energy efficiency investments	Increased energy use due to changes in socially required home technology	Utility cost/benefit test undervalue the benefits of retrofitting low income housing
Inefficient or poorly maintained HVAC	Difficulty qualifying for credit or financing options to make efficiency investments	Split incentives between building owners and tenants	
Inefficient large appliances	Lower home values mean fewer options to finance upgrades through refinancing		
Weather extremes, particularly unseasonal			



Rural and Small Town America

Common characteristics:

- Household income
- Population & density
- Housing age and type
- Heating fuel
- Electricity/utilities provider

* Nonmetro counties include urban areas with populations <50,000 and small towns

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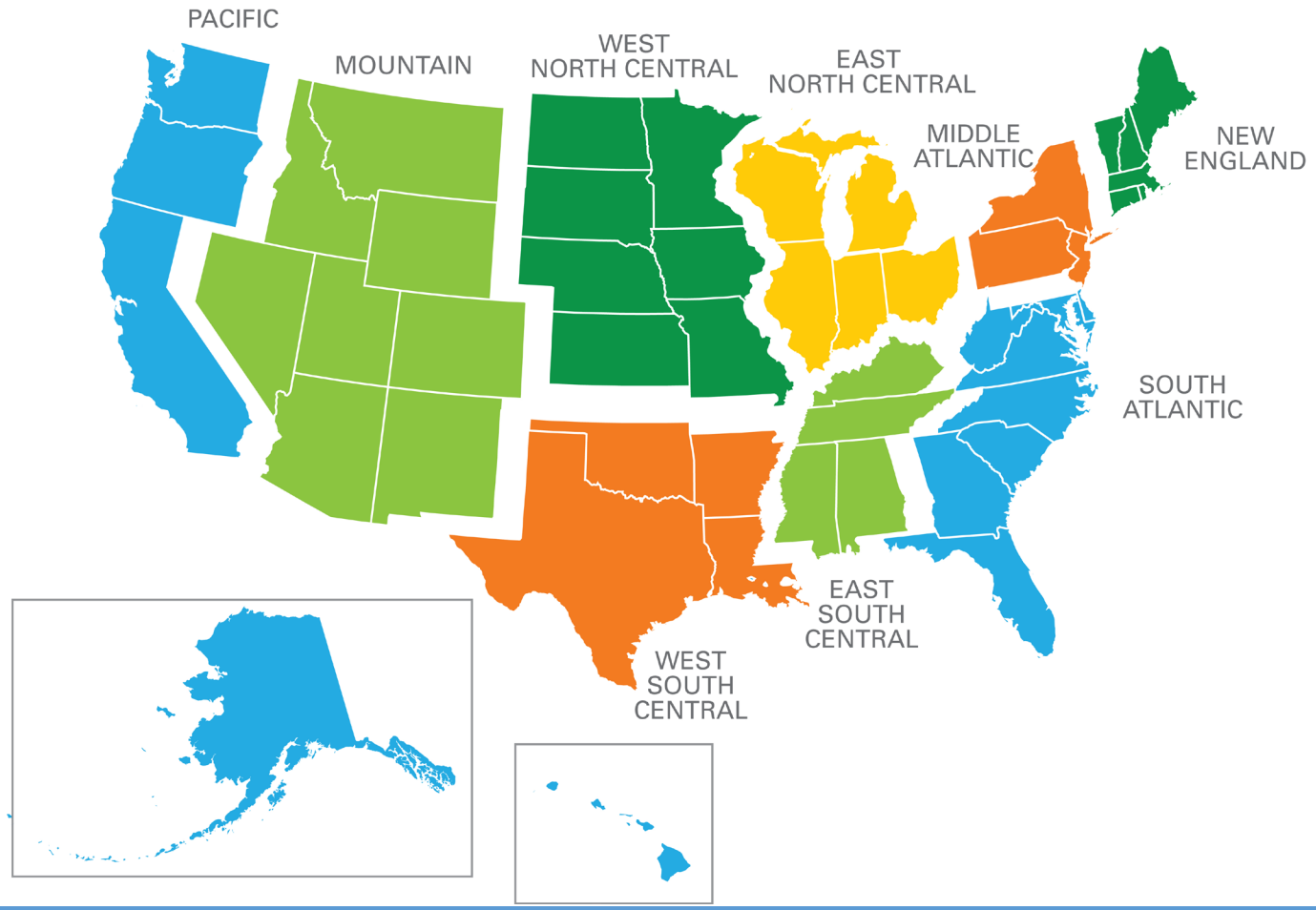

Regional Study

Energy Efficiency for All (EEFA)

Ensure housing and energy policies provide sufficient resources to advance investments in energy efficiency in affordable multi-family housing, which will combat climate change, improve public health, increase energy affordability and support environmental justice.

Methods

- Definition of energy burden
  - **Annual household energy spending/annual household income**
  - ***Excludes transportation and water***
- Definition of rural household
  - **Rural Census tracts (RUCA Codes 4 through 10): micropolitan areas, small towns, and rural areas**
- Subgroups for analysis
  - **Housing type, tenure status, ethnicity, age, income**
- Data source for analysis
  - **American Housing Survey, 2015**
  - **Self-reported data**

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