

# Bridging the Rural Efficiency Gap

## Expanding Access to Energy Efficiency in Remote and High Energy Cost Communities

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NASEO Webinar

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Governor's Energy Office



ISLAND  
INSTITUTE



# Maine Governor's Energy Office

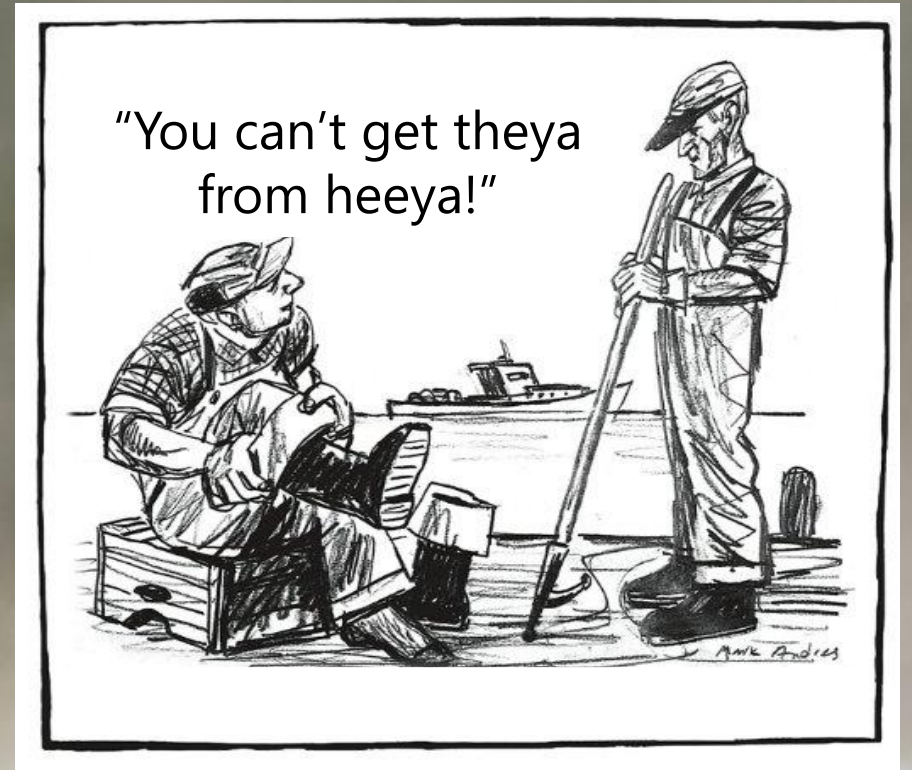
- The mission of the Maine Governor's Energy Office (GEO) is to create effective public and private partnerships that advance Maine's energy security, economic development, and environmental health.
  - Responsible for planning and coordinating state energy policy and serves as the primary energy policy advisor to the Governor



Governor's Energy Office



# The Rural Efficiency Gap





# Rural and Remote: Some Statistics

- One in every five Americans lives in a rural area<sup>1</sup>
- Maine has the largest percentage (61%) of its population living in rural areas than any other state in the country<sup>2</sup>
- Maine has the longest coastline of any state, with many remote peninsulas
- There are also 15 Maine islands with year-round communities only accessible by boat or plane
  - *Year-round populations range from 50 – 1,200*
- Energy is expensive, due to small customer base, local ownership, logistical delivery challenges
  - *Electric rates up to \$0.70/kWh (on the islands)*
  - *Heating oil can be more than a dollar more per gallon on the islands*
  - *Limited number of fuel options (non-utility) and lack of competition in rural communities*

<sup>1,2</sup> - U.S. Census, American Community Survey

# Doug's Story





# Island Institute



Community development organization working to sustain Maine's island and coastal communities, and exchange ideas and experiences to further the sustainability of communities in Maine and elsewhere



Governor's Energy Office



# About the Project

Bridging the Rural Efficiency Gap is connecting rural communities in heating oil-dependent states like **Maine, Alaska, New Hampshire, and Vermont** with financial assistance for home energy efficiency.

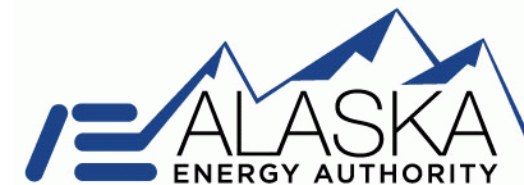
<http://www.islandinstitute.org/bridging-rural-efficiency-gap>

## *Project Leads:*



## *Project Partners:*

New Hampshire Office of  
Strategic Initiatives



Maine Office of the  
Public Advocate



# Shared Challenges

	Alaska	Maine	New Hampshire	Vermont
Percent Population in Rural Areas (rank) <sup>1</sup>	33.9% (14 <sup>th</sup> )	61.3% (1 <sup>st</sup> )	39.7% (11 <sup>th</sup> )	61.1% (2 <sup>nd</sup> )
Heating Oil Consumption Per Capita (rank) <sup>2</sup>	7 <sup>th</sup>	1 <sup>st</sup>	5 <sup>th</sup>	2 <sup>nd</sup>
Percent of Homes Built Before 1940 (rank) <sup>3</sup>	1% (51 <sup>st</sup> )	23% (8 <sup>th</sup> )	21% (12 <sup>th</sup> )	24% (7 <sup>th</sup> )
Energy Expenditures Per Capita (rank) <sup>4</sup>	\$7,487 (1 <sup>st</sup> )	\$4,565 (5 <sup>th</sup> )	\$3,934 (19 <sup>th</sup> )	\$4,273 (9 <sup>th</sup> )
Average Energy Burden <sup>5</sup>	5%	6%	5%	5%

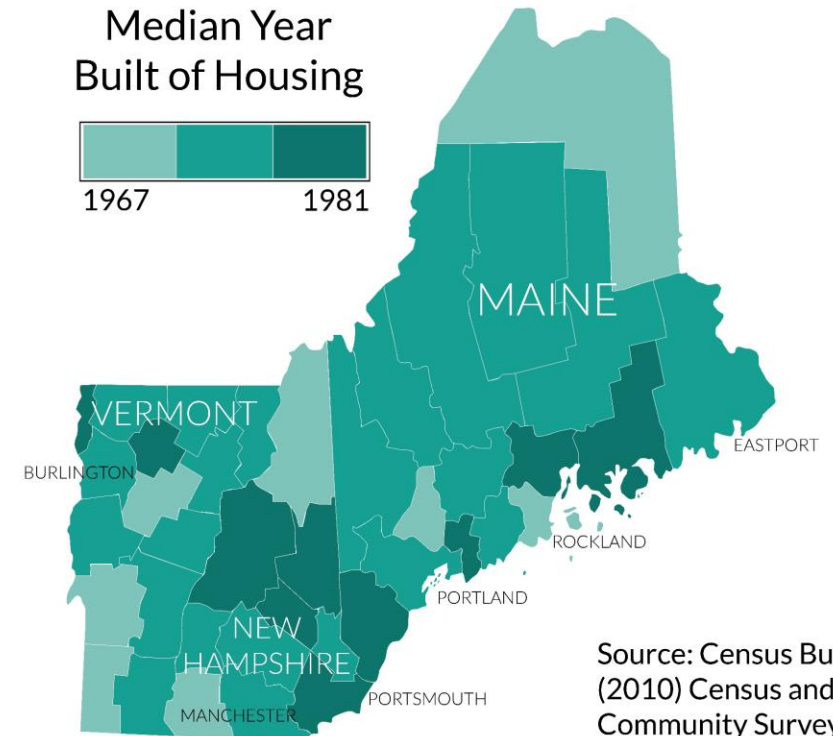
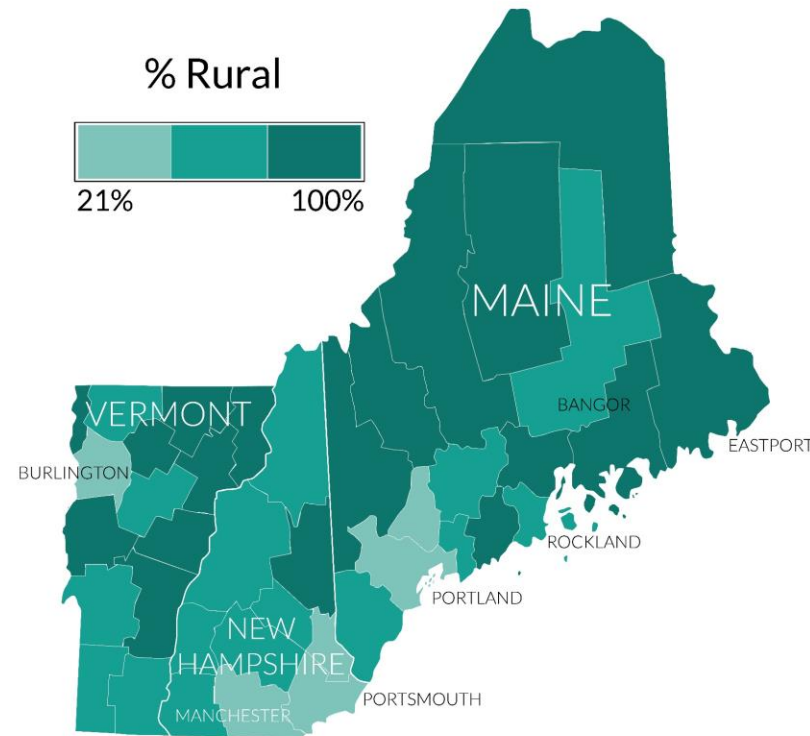




# Rural Housing Stock: Age

**Figure 4. Percent rural residents by county (left) vs. median year built of housing (right) in Maine, New Hampshire, and Vermont**

*Source: Census Bureau (2010) Census and American Community Survey (2012-2016)*



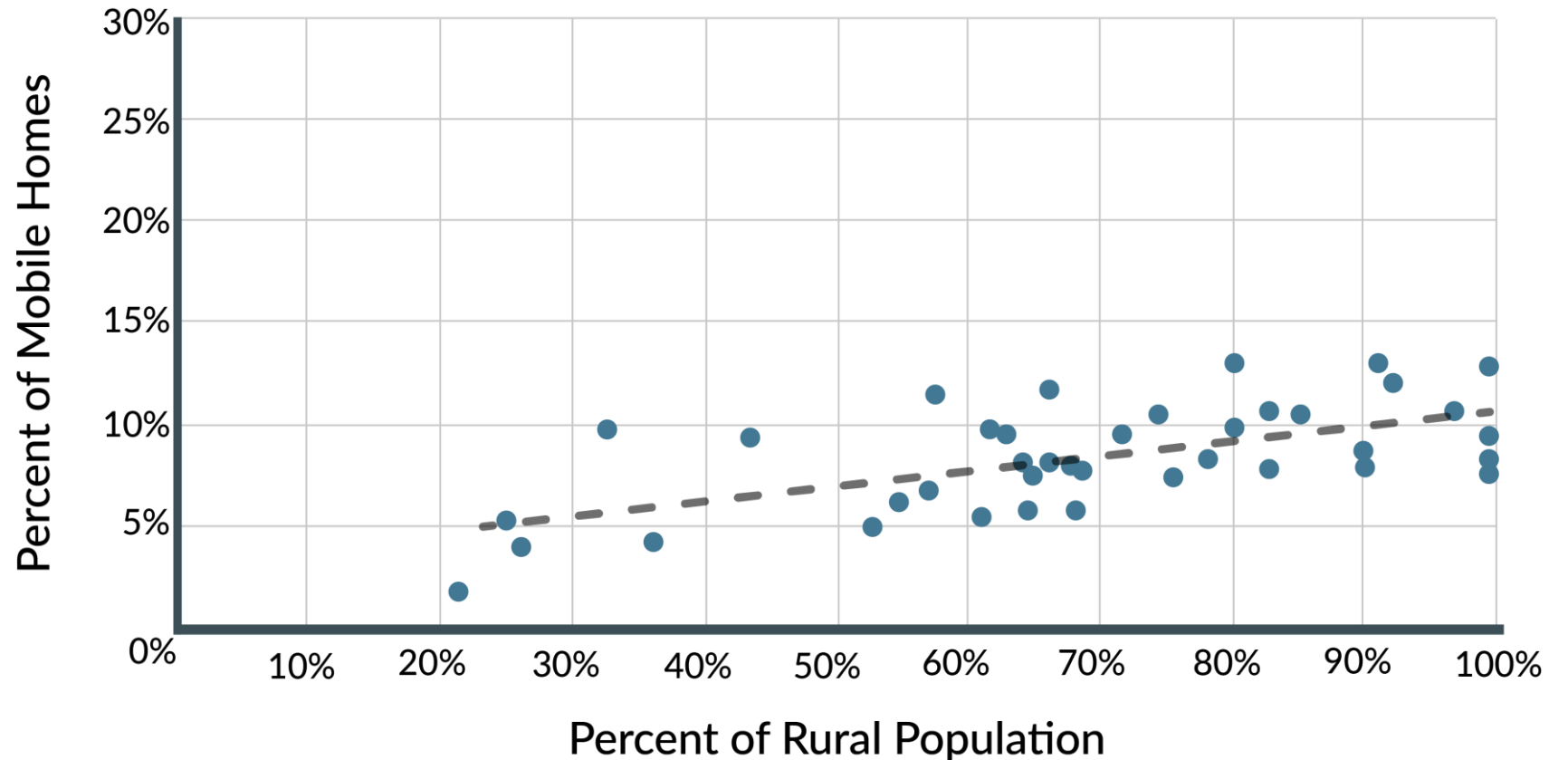
*Source: Census Bureau (2010) Census and American Community Survey (2012-2016)*



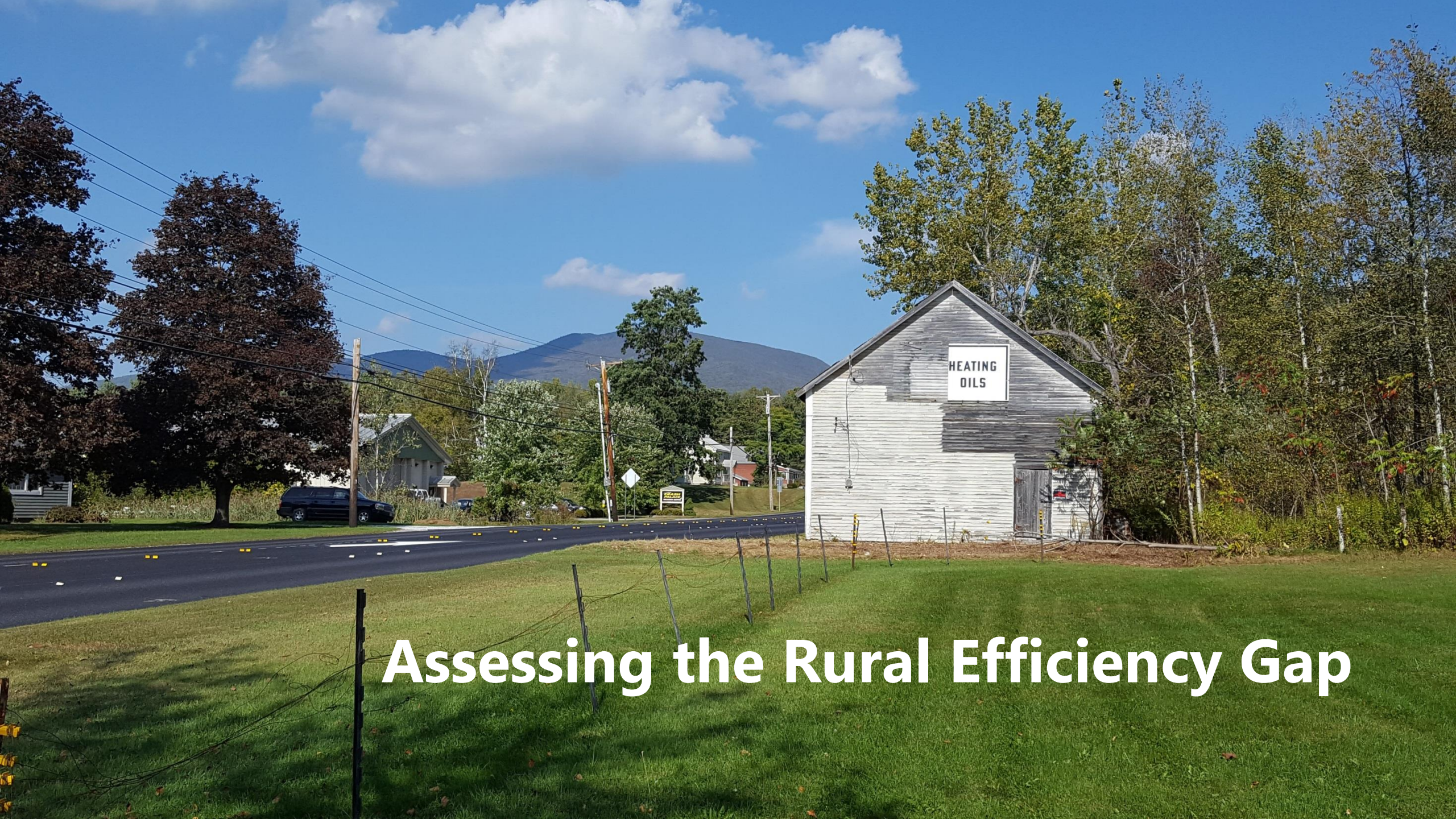
# Rural Housing Stock: Mobile Homes

**Figure 5. Relationship between percent of mobile homes and percent of rural population in Maine, New Hampshire, and Vermont counties**

*Source: Census Bureau, American Community Survey (2016)*







HEATING  
OILS

# Assessing the Rural Efficiency Gap



# Methodology

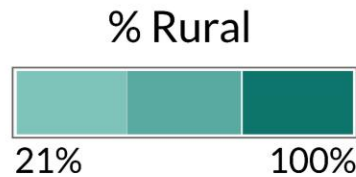
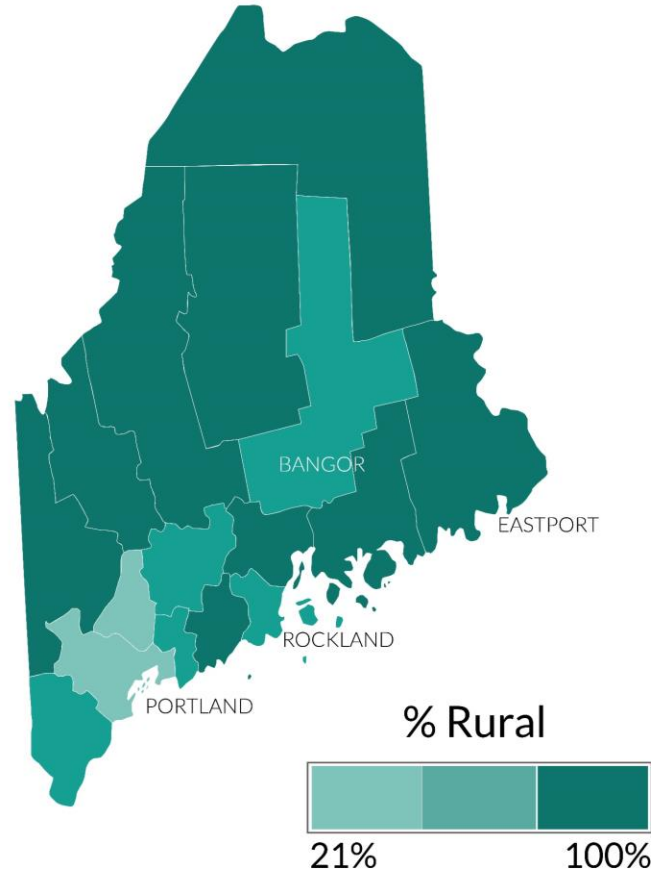
- Interviews with 50+ stakeholders (AK, ME, NH, VT, and other rural states)
  - Administrators, implementers, customers
- Analysis of Census & EIA data, DOE's LEAD tool
- Analysis of energy efficiency program participation data



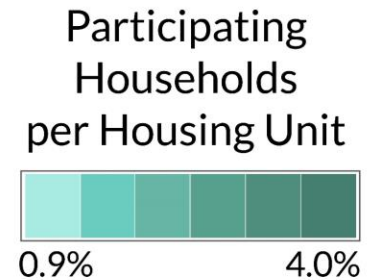
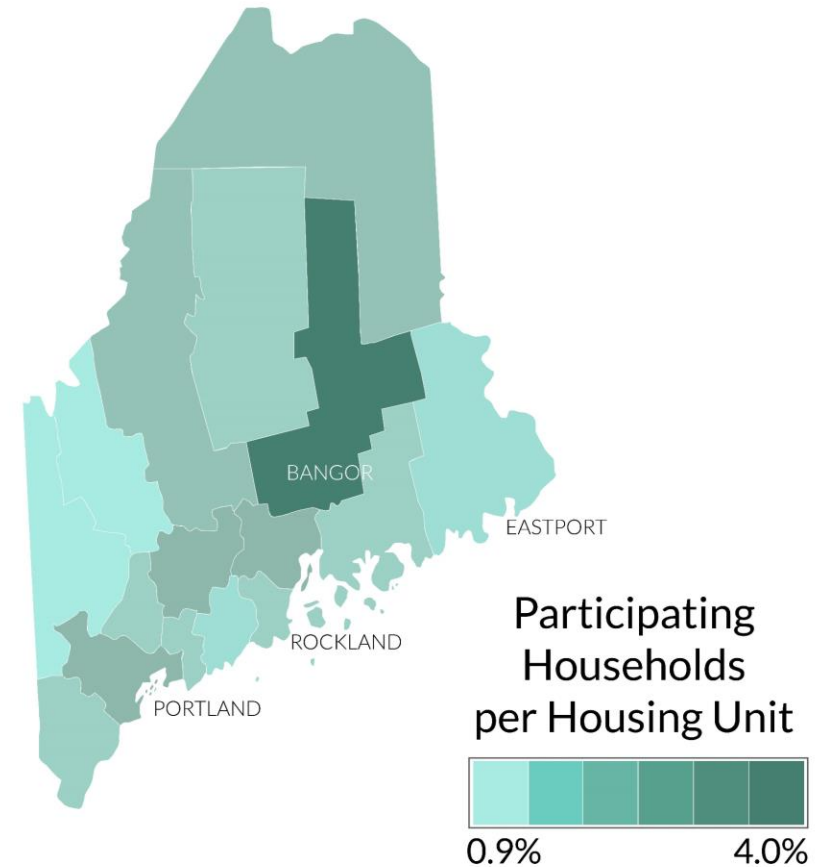
# Program Participation Impacts

**Figure 6. Percent rural population (left) vs. Efficiency Maine participating households per housing unit by county (right)**

*Sources: Efficiency Maine Home Energy Savings Program and Affordable Heat Initiative Participating Households for Fiscal Years 2016 and 2017; Census Bureau (2010)*



Source: US Census



Source: Efficiency Maine



# Barriers to EE in Rural Communities

- **Geographic**

- Geographic isolation & dispersed population
- Lack of energy efficiency contractors



- **Financial**

- Upfront cost
- Lower incomes, higher energy burdens
- Credit access and debt aversion



- **Awareness & Access**

- Lack of access to traditional marketing channels
- Lack of awareness or skepticism of existing resources





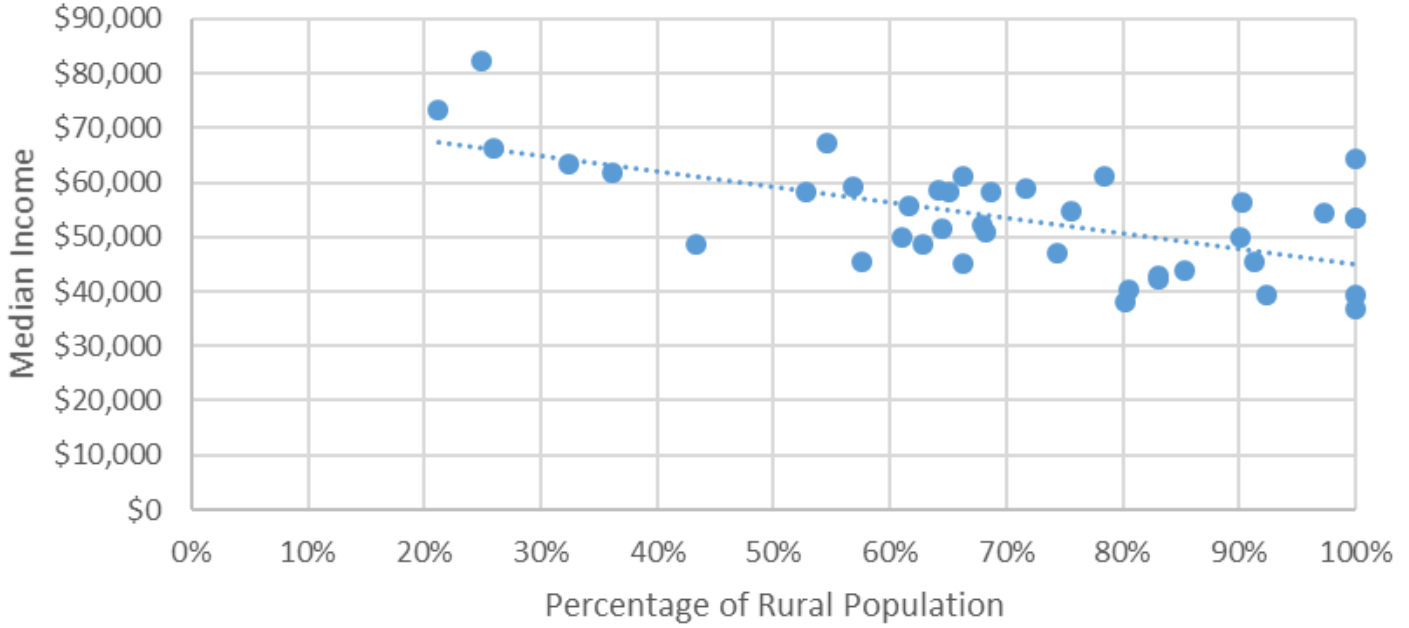
# Geographic Barriers



*A barge unloads an insulation truck on Monhegan Island, Maine. Photo credit: Portland Press Herald*

# Financial Barriers: Lower incomes, higher energy burden

Percent Rural Population vs. Median Income in Maine, New Hampshire, and Vermont Counties



Source: U.S. Census

PERCENT OF MEDIAN HOUSEHOLD INCOME THAT GOES TO HOME HEATING AND ELECTRICITY



3%  
U.S.



8.8%  
MAINE

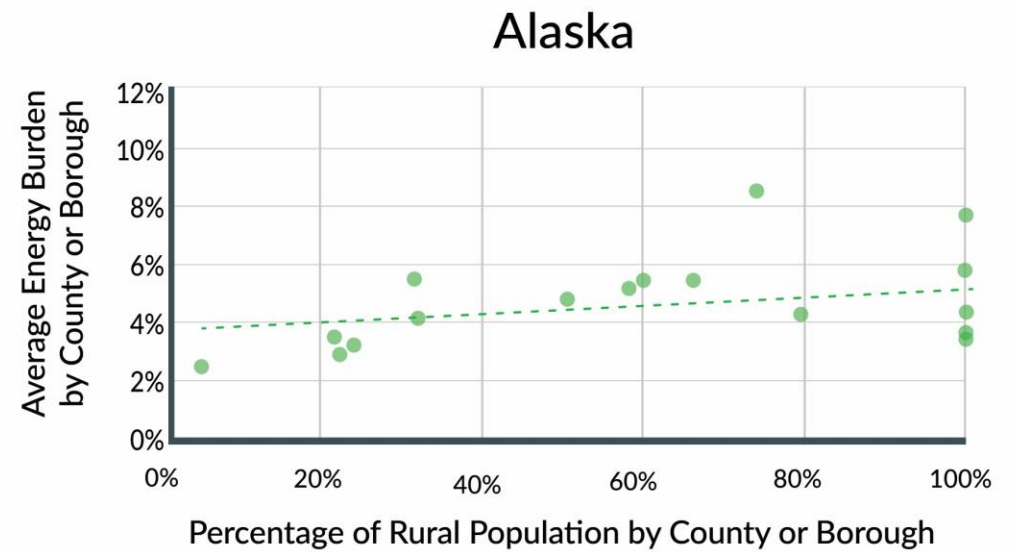
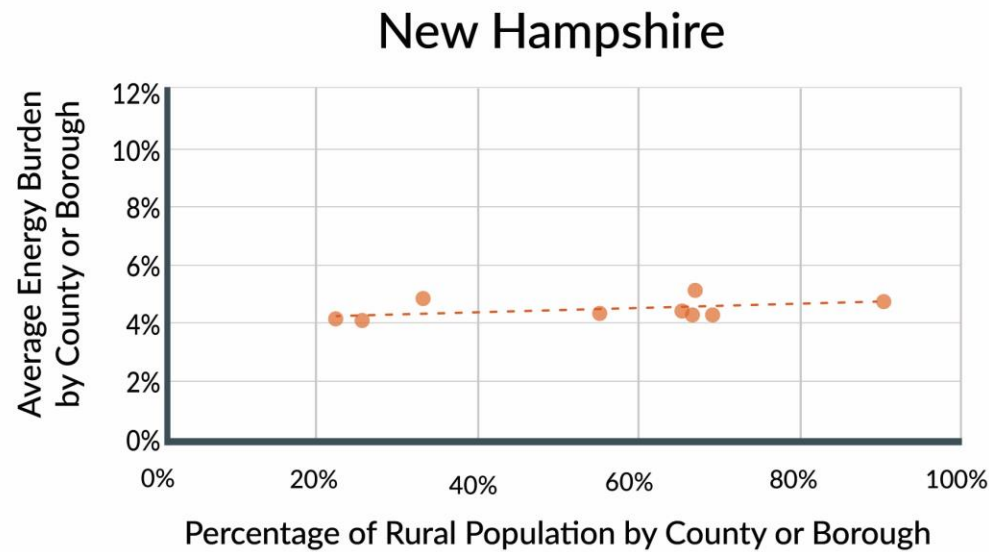
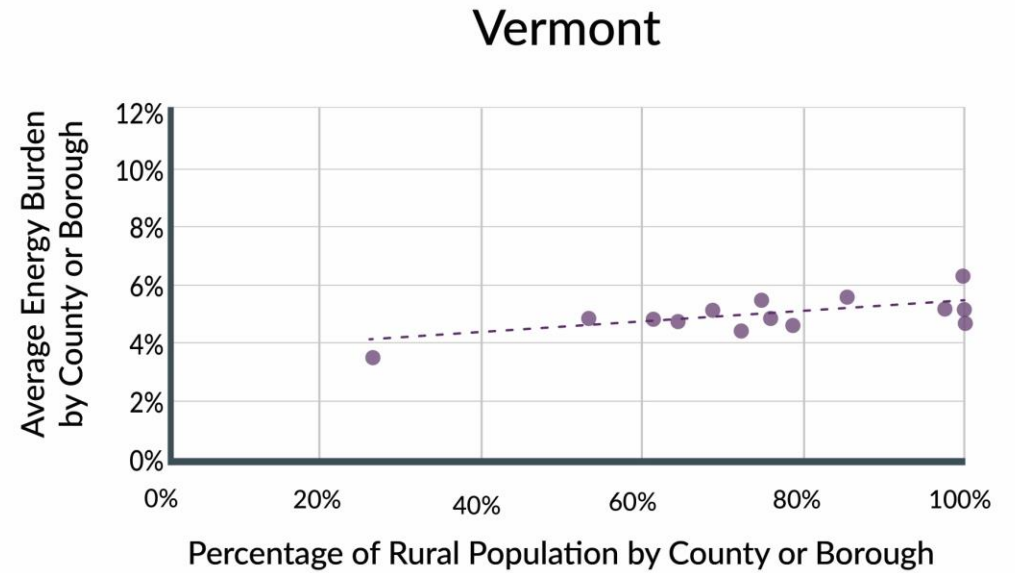
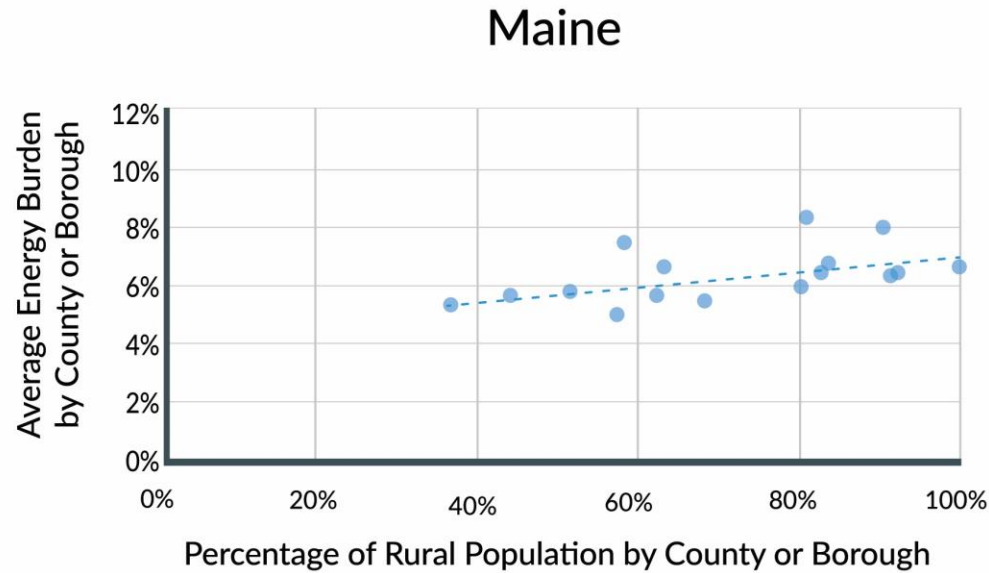


16-18%  
UNBRIDGED ISLANDS

Source: Island Institute's 2017 Waypoints



**Figure 12. Energy Burden vs. Percent Rural Population by County in Alaska, Maine, New Hampshire, and Vermont** *Source: DOE Low-Income Energy Affordability Data (LEAD) Tool (2015)*





# Awareness & Access Barriers





# Models & Strategies for Bridging the Gap



*Photo credit: Matthew Baron*



# Bridging Model Highlights

- Program design – staged upgrades (ME), DIY rebate (VT), rural-specific program (AK)
- Implementation models – Community-scale energy efficiency initiatives Energy Wise(AK), Weatherization Weeks (ME), Weatherize campaigns (NH, VT)
- Policies – Geographic equity mandate (VT)

The screenshot shows a website interface for residential rebates. At the top, there are tabs for 'Rebates' and 'Available Rebates'. The main heading is 'FOR RESIDENTIAL DIY Insulation and Air Sealing'. Below the heading, a paragraph states: 'Small steps can have a significant impact on how you feel in your home. Efficiency Vermont provides a rebate to cover the cost of materials to air seal and insulate your attic or basement yourself. Because tightening up a home improperly can worsen air quality issues or lead to mold, we require review of our DIY Insulation and Air Sealing Quality Standards Manual before submitting your rebate application.' To the right, a large graphic displays '\$250 cash back after purchase' with an illustration of a hand using a spray nozzle to seal a window. Below this, it lists the 'EFFECTIVE DATE' as 'April 9, 2018' and includes a note: 'Rebate offer and amount subject to change.' At the bottom, there is a green button labeled 'Download Manual & Form' and a 'Contact Us' link with a phone icon.

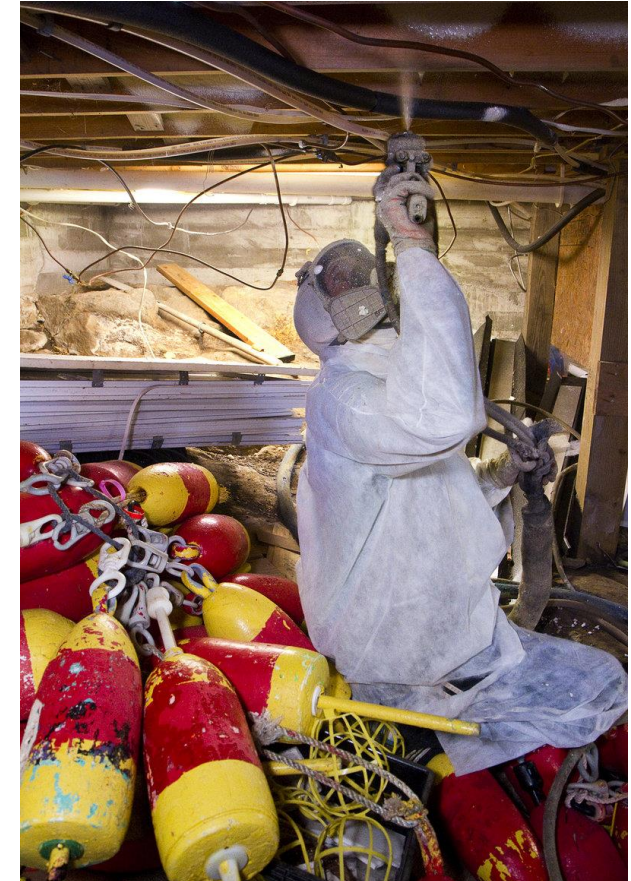
This grid lists eight energy efficiency rebate categories, each with an icon and a description of the rebate amount:

- Air Sealing**: Air Sealing with Assessment \$400 rebate
- Energy Efficient Insulation**: Insulation rebates up to \$3,000
- Ductless Heat Pumps**: Ductless Heat Pump \$500 - \$750 rebate
- Heating Systems**: High Efficiency Central Heating Systems \$500 rebate
- Pellet & Wood Stoves**: Pellet and Wood Stoves \$500 rebate
- BIOMASS BOILERS & GEOTHERMAL**: Renewable Central Heating Systems \$3,000
- LOW-INCOME OPTIONS**: Home Efficiency Upgrades for as little as \$50
- Find a Residential Vendor**: Find a Registered Vendor



# Maine Case Studies

- Weatherization Weeks
  - Flexible program design
  - Aggregated demand and collective purchasing
  - Community partnerships
  - Travel and lodging support for workforce
- Maine Climate Table
  - Convening stakeholders to share information and resources
  - Cross-sector collaboration



Spray foam insulation installed in a lobsterman's basement on Monhegan Island, Maine. Photo credit: Portland Press Herald.



# Project Resources

- White paper
- Video series
- Toolkit for Implementers
- *What Works Solutions Library* entry

**[http://www.islandinstitute.org/  
bridging-rural-efficiency-gap](http://www.islandinstitute.org/bridging-rural-efficiency-gap)**



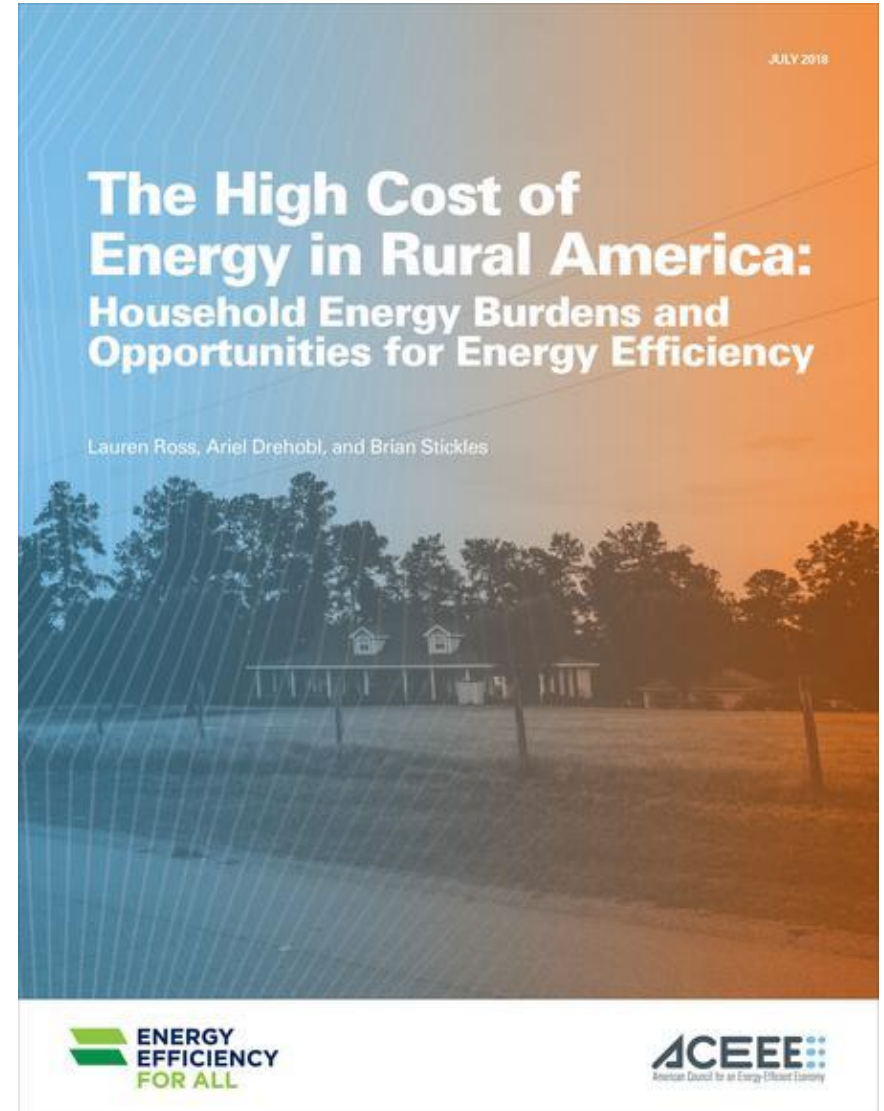


# Next Steps

- Continued dissemination
- New research and collaborations
- Applying the findings
  - State of Maine Comprehensive Energy Plan



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<https://aceee.org/topics/rural-and-small-town-communities>



# Contact Us

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