

A Deeper Dive into the National Rural Codes Collaborative (NRCC)

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Building Energy Codes and Rural Communities

In rural areas, states often face workforce limitations when verifying energy code compliance and experience higher enforcement costs, including staff time associated with travel to remote locations.^{1,2}

The National Rural Codes Collaborative (NRCC) will convene the states of Connecticut, Kentucky, Maine, Maryland, Mississippi, Montana, New York, New Mexico, Oklahoma, and Texas. These states have rural populations ranging between 12.6 and 61.4 percent of their respective populations.³ Nationally, rural households have a 42 percent higher energy burden than metropolitan households, with the highest rural energy burden in the East, South Central, New England, and Mid-Atlantic regions.⁴

Within this multi-state cohort, Maine has one of the highest percentages of rural population in the nation. In Maine, all construction is required to adhere to the state energy code; however, the code is only enforced in municipalities of at least 4,000 people due to fiscal constraints, geographic size, and workforce shortages. Other cohort members face similar challenges.

Relevance and Outcomes: Building energy codes save energy and lead to healthier, safer, and more resilient buildings. When codes fall behind or are not effectively enforced, rural and tribal communities are left with homes and buildings that have higher energy bills, higher pollution, and that pose potentially adverse comfort, health, and safety impacts.

In the NEEP region, most states have adopted the most recent national model code.⁵ But in these states, as in the rest of the U.S., rural and tribal communities continue to face disparities when it comes to compliance and enforcement. Additionally, according to a report by the

¹ <https://www.energy.gov/sites/default/files/2019/01/f58/bridging-rural-efficiency-gap.pdf>.

² <https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf>.

³ <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html>.

⁴ <https://www.aceee.org/research-report/u1806>

⁵ The NEEP Region includes CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT, WV, and the District of Columbia.

National Association of State Energy Officials (NASEO),⁶ rural communities are slower to adopt above-base codes that may increase construction costs or require a specialized workforce to implement. Where geographic scale and the pace of new construction limit the supply of Home Energy Rating System (HERS) raters and other workers needed to construct high-performing homes and buildings, some energy codes can be viewed as unachievable.⁷ Without effective and realistic codes, knowledge-building, and compliance support, rural and tribal communities nationwide cannot reap the benefits of energy codes.

Table A outlines the rural population and poverty rates for NRCC partner states as defined by the 2020 U.S. Census⁸ and the Rural Health Information Hub.⁹ There are 66.3 million residents of rural areas throughout the United States.¹⁰ Collectively, the rural population of NRCC partner states accounts for approximately 15.4 million people, or 23.2 percent of the national rural population.

Table A: Rural Population and Poverty Rate			
State	2020 State Rural Population	Rural Pop. as % of State Pop.	2022 Rural Poverty Rates
Connecticut	495,791	13.7%	8.2%
Kentucky	1,860,980	41.3%	19.9%
Maine	863,050	61.4%	12.9%
Maryland	888,464	14.4%	13.3%
Mississippi	1,590,489	53.7%	21.2%
Montana	505,048	46.6%	13.8%
New York	2,536,083	12.6%	14.3%
New Mexico	538,970	25.5%	20.3%
Oklahoma	1,400,742	35.4%	17.9%
Texas	4,744,808	16.3%	17.1%

Research also shows that rural households face a greater energy burden than their metropolitan counterparts, with rural low-income families experiencing the highest median energy costs nationally. Median energy expenses for low-income households are more than double the overall rural average and nearly three times higher than those in metropolitan

⁶ “Rural Data Resources for State Energy Planning and Programs,” National Association of State Energy Officials (NASEO), May 2020,

<https://naseo.org/data/sites/1/documents/publications/Final%20Rural%20Report%20May%2020201.pdf>.

⁷ <https://www.naseo.org/data/sites/1/documents/publications/Final%20Rural%20Report%20May%2020201.pdf>.

⁸ <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html>.

⁹ <https://www.ruralhealthinfo.org/charts/60?state=ME>.

¹⁰ <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2020-ua-facts.html>.

areas.¹¹ The same research finds that New England and the Mid-Atlantic regions have the highest median rural energy burden in the country at 5.1 percent, and a quarter of all rural households in these areas dedicate 8.5 percent of their income to energy costs.

The NRCC Will Increase the Benefits of Energy Codes in Rural Communities

The NRCC will characterize challenges and test solutions for building energy code implementation in rural communities across the country.

Goal: A reduction in energy use and a decrease in energy burden¹² in rural communities.

Objective: The main objectives of this project are (1) to bridge the gap in building energy code delivery for rural communities, (2) increase rural stakeholder knowledge of energy code compliance and implementation, and (3) decrease the energy burden in rural communities.

Metrics of Success: The project's targeted rural communities will benefit from (1) a 60 percent increase in builder and contractor understanding of energy code requirements for new buildings and retrofits, and (2) a 60 percent increase in code official knowledge of energy code compliance and enforcement requirements.

The NRCC will identify common challenges with rural energy codes and create pilot strategies to address them. The Collaborative will share lessons learned beyond these states by providing strategies that can support rural and tribal communities across the country facing similar challenges.

The project will target rural single-family, multifamily, and other building typologies as applicable, and focus on five key steps: (1) Identify national, regional, state, and local stakeholders familiar with rural energy-related barriers to advise the project; (2) Identify capabilities and gaps to energy code enforcement and map current energy code implementation initiatives; (3) Develop and pilot intervention strategies that complement existing programs and address identified high priority barriers; (4) Support partner states and organizations in piloting intervention strategies, potentially including IECC code adoption, code enforcement initiatives, expert circuit rider programs, electronic permitting, and community outreach; and (5) Develop and disseminate a nationally applicable rural code roadmap to 2030 that includes replicable resources, models, and locally-relevant strategies that address common rural energy code adoption and implementation challenges.

¹¹ ACEEE, "The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency." 2018. <https://www.aceee.org/research-report/u1806>

¹² Energy burden is defined as spending a greater proportion of income on energy bills than the average household. ACEEE defines energy burden as spending greater than 6% of income on energy bills. [Energy Burden Research | ACEEE](#)

Long-term success will be marked by a greater distribution of energy code-related knowledge and resources, resulting in improved energy efficiency practices across rural communities. This will lead to reduced energy burden, increased occupant comfort, enhanced building resilience, and reduced emissions.

The project will test a series of pilot interventions that will result in progress toward developing and supporting locally relevant strategies for rural communities. The project will work through the NRCC to develop, test, and share successful interventions. These national strategies could include 2021 or 2024 International Energy Conservation Code (IECC) code initiatives; circuit riders that travel and/or staff “hotlines” to provide expert assistance and expand the reach of current code officials; electronic energy code permitting and compliance initiatives; and community education and outreach programs, including training in initial certification necessary to become a code official. An increase in the number of code officials in rural communities, including tribal communities, would inherently make resources more accessible and codes more enforceable.

The states participating in the NRCC face common challenges in hiring and retaining code professionals and funding proper training and modern compliance tools. Yet, they experience inconsistencies across the state with respect to the implementation of the currently adopted version of the building code and existing enforcement programs. The project team will address these inconsistencies through cross-state working groups – the Project Advisory Committee (PAC) and the Technical Advisory Group (TAG) – to support local priorities and maximize opportunities for regional consistency.

The NRCC Aims to Improve Energy Affordability in Rural Communities and Reduce Emissions Over the Long Term

This project will be executed with partners from different states using a collaborative model to achieve a broad impact. Bringing together technical experts and stakeholders from each partner state and other regions to collaborate on the needs of rural communities will lead to a more robust understanding of challenges and barriers to adopting and enforcing codes. The project's solutions will have a significant impact on code implementation, enforcement, and compliance. Some rural areas covered by this project lack any enforcement. The NRCC will track improvements in enforcement for all participating rural counties by assessing stakeholder knowledge of energy code compliance and enforcement before and after pilot project completion.

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