

# Rural Data Resources for State Energy Planning and Programs

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The National Association of State Energy Officials (NASEO) prepared this document to assist members of the Rural Energy Task Force in their efforts to develop effective policies and programming to support rural communities.

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## Summary

Rural and small-town energy use, access, and costs present a major challenge for state policymakers and program administrators, but also an opportunity for investment and economic development by leveraging energy efficiency, fuel production, and energy-generating technologies, and inclusive policymaking to reduce the household, agricultural, and small business energy burden in these communities. States are increasingly concerned with the “rural energy burdens”, meaning the percentage of household income spent on energy consumption. A recent study found that the energy burden for rural households was about 33 percent higher than the national average (3.3 percent of household spending), largely due to higher home heating and cooling costs, and longer commutes requiring more fuel. This difference in energy burden is even more drastic for low-income rural households, who spend an average of nine percent of household income on energy.<sup>1</sup> Of the nation’s 350 persistently poor counties, 300 are rural,<sup>2</sup> making it vital to understand patterns of energy use and needs in these communities to craft effective public policy and programs. This disparity has highlighted the need for states to tailor policies and programs to account for the differences in rural America.

State and Territory Energy Offices play an important role in helping rural areas improve energy access and energy system performance in support of economic development, cost savings, environmental stewardship, and improved quality of life. However, through engagement with NASEO’s Rural Energy Task Force, states have identified a lack of data and knowledge of rural-focused resources as a key barrier in developing policy and programs to support these communities. Although energy data specific to rural communities are relatively sparse, various information sources can help State Energy Offices and others better understand energy production and use in rural areas of their states and integrate these considerations into state energy planning, programming, and policy development. The impacts of higher energy burdens are felt throughout these communities, impacting transportation, public health, housing, employment, and economic development. Thus, working in partnership with other state agencies (such as agricultural departments, divisions of commerce or economic development, and housing authorities), localities, electric service and fuel providers, and other stakeholders is key to achieving these goals and refining support for rural areas. This brief aims to support states as they develop rural programming and policies, identifying key attributes of the rural energy sector, providing data sources that can be helpful to State Energy Offices, identifying potential partner agencies through data sources, and providing examples of data-driven policies or programming, with the ultimate goal of improving the delivery of energy-related assistance and services to these underserved communities.

## Rural Community Energy Challenges and Opportunities

The energy profile of rural America differs from that of urban and suburban communities. Rural and remote areas supply many of the fuels and resources used to produce power, food, and materials that Americans use in daily life. Fossil fuels—natural gas, oil, and coal—are mostly extracted and sometimes processed in rural areas. Many electrical generating facilities, whether fossil-fueled, nuclear, or renewably powered, are located in rural communities. Biofuels, such as ethanol and biodiesel, are derived from crops that are grown in rural areas and mostly processed in nearby facilities. Electricity and fuels are brought to demand centers by transmission lines,

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<sup>1</sup> American Council for an Energy-Efficient Economy. “The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency.” July 2018. <<https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf>>.

<sup>2</sup> United States Department of Agriculture. “Rural America at a Glance: 2017 Edition.” Economic Research Service, Bulletin 182. November 2017. <<https://www.ers.usda.gov/webdocs/publications/85740/eib-182.pdf?v=0>>.

pipelines, and rail traversing rural and remote areas. As a result, the workers who operate, maintain, and repair this infrastructure are often located in or near rural communities.

As in other infrastructure sectors (for instance, in telecommunications and broadband access), low population densities and long distances challenge the economic provision of energy services to rural and small-town communities. In response to such challenges, the first rural electric cooperatives were created in the 1930s to serve nearby communities and stimulate their economies. Consumer-owned and investor-owned utilities serving rural areas may face challenges of few customers and lower revenues per mile of line as compared to those serving denser populations. This disparity is clear when comparing high-speed internet access rates: the Federal Communications Commission (FCC) reports that 97 percent of urban residents have high-speed internet access, while only 65 percent of rural Americans have high-speed internet.<sup>3</sup> Finally, people in rural and small-town America are also more reliant on vehicles, with higher rates of motor fuel consumption, fewer public transportation options, and greater challenges to vehicle electrification.

The expansive geography of rural regions also presents a challenge to programs aimed at reducing the rural energy burden, with more time and higher costs required to deliver these projects far from urban centers. This lack of density may reduce the attractiveness of rural and small-town markets to private sector energy service providers. Smaller jurisdictions sometimes lack the technical expertise or bandwidth to develop and deliver energy efficiency and renewable energy financing programs and project development options, such as use of Energy Savings Performance Contracts (ESPCs). Finally, training and credentialing programs often fail to reach the workforce in small, remote communities, creating an additional barrier. At the same time, many rural areas are rich with local energy resources that can provide economic development opportunities. Improved energy efficiency, demand management, and locally provided energy can save households, businesses, and public institutions money and keep dollars flowing in the local community. Several tools and guides for facility managers are listed in the “Resource List” below, to facilitate energy efficient building management and provide information on simple energy-saving interventions.

If broadband is available, remote energy management as well as audits can become viable for businesses and institutions. Information and communication technologies are also advancing the energy productivity of manufacturing and agriculture. To ensure these technologies benefit rural communities, several State Energy Offices are including broadband access into their programming. Since 2013, the AHFC has used a portion of its State Energy Program formula funds to develop [a building monitoring project – BMON](#). BMON uses equipment sensors and a wireless, web-based platform to gather real-time building data at 10-30 minute intervals. Through the [Focus on Energy](#) Program the Wisconsin Office of Energy Innovation partners with local utilities to provide information on energy efficiency upgrades, renewable installations, broadband service expansion, and a marketplace for energy efficient products. Providing consistent internet access and data management capabilities can enable additional efficiencies, such as precision agriculture practices, which reduce materials, energy waste, and pollution by applying farm inputs only where and when needed. State Energy Offices may consider working with rural jurisdictions and institutions to support shared energy management services (e.g., multiple school districts or wastewater authorities sharing an energy manager), offer regionally oriented workshops and demonstrations, and aggregate procurement.

State Energy Offices play important roles in reducing barriers to energy development and energy efficiency implementation in rural and small-towns by facilitating access to energy service providers and offering technical and financing assistance. New policy and technology approaches may mitigate the unique distance, density, and

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<sup>3</sup> Federal Communications Commission. “Bridging the Digital Divide for All Americans.” Accessed April 29, 2020. <<https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans>>.

scale challenges of rural service delivery. In 2019, Maine, Vermont, New Hampshire, and Alaska collaborated on project “[Bridging the Rural Efficiency Gap](#)”. This collaboration identified key barriers in targeting rural communities through state programs, identified local stakeholders, and developed strategies to tailor programming to rural conditions. Similarly, the Alaska Housing Finance Corporation (AHFC) used U.S. State Energy Program (SEP) funding from the U.S. Department of Energy to identify opportunities to reduce the energy burden for residents. AHFC used a three-part approach to reach rural communities – they organized technical assistance resources, secured expertise from multiple sources, and used that expertise to perform building energy audits.<sup>4</sup> Moving forward, there is progress in remote and virtual energy auditing that can provide facility operators and owners with energy advice, and screen facilities for in-depth in-person assistance.

In the following pages, NASEO has compiled data resources that can help State Energy Offices better understand their states’ rural contexts, in order to facilitate the development of rural-focused policies and programs. Furthermore, examples will be provided on how states have already applied data to their operations. While the list of resources is incomplete, and new tools and data sources are currently under development, the resources listed below will help State Energy Officials incorporate rural energy concerns into state comprehensive energy plans and provide targeted programs and services.

## The NASEO Rural Energy Task Force: Framing Data Points

NASEO established a Rural Energy Task Force to learn and improve on approaches for State Energy Offices to address energy issues, challenges, and opportunities salient to rural communities and small-towns, and to share state best practices in rural energy programs. NASEO engaged State Energy Offices to seek their views on rural and small-town energy topics, challenges and opportunities, programs and initiatives, key stakeholders, and other pertinent matters. The Rural Energy Task Force will focus on supply and demand side issues, as well as workforce development to help achieve these goals and support local job creation. From the supply side, the Task Force will address issues such as biofuel production, efficient and reliable infrastructure for delivering electricity and energy products, and new electric generation installations. Demand side issues will cover energy efficiency, transportation fuels, demand management from major infrastructure and agricultural operations, and their interactions with fossil- and nuclear-based supply of electricity, natural gas, and delivered heating fuels such as heating oil and propane.

As part this work, NASEO performed research to better discern rural energy issues, including reviewing data and reports of the U.S. Departments of Agriculture, Commerce, Energy, and Transportation, as well as other sources. While rural energy-related data appear to be sparse or lacking, there is select information available on rural employment, income, housing, electric use, and transportation that can be used to understand energy production and use in rural areas. In addition, various demographic, economic and social data provide context for understanding and addressing rural energy issues and opportunities. A few key data points to help frame energy and affordability challenges of advancing energy efficiency and renewable energy in rural communities follow. The “Resource List” in the pages ahead provides an annotated data and analysis resource list that State Energy Offices and others may find useful.

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<sup>4</sup> See DOE SEP success story: January 28, 2019. <<https://www.energy.gov/eere/success-stories/articles/eere-success-story-doe-and-alaska-housing-finance-center-team-help>>.

**Table 1: Demographic comparison between rural and urban communities in the United States.**

Demographic Data <sup>5</sup>	Urban	Rural
Population	80.7%	19.3%
Median Household Income	\$54,296	\$52,386
Average Energy Burden (% of household income)	3% (\$1,629 for median income)	4.4% (\$2,305 for median income)
% of Population Employed	70%	67.6%
Poverty Rate	14%	11.7%
% of Nation’s Persistently Poor Communities	15%	85%
Home Ownership Rate	59.8%	81.1%
% of Manufactured Housing in U.S.	8%	70%
Average Annual Household Electricity Demand	10,290 kWh	15,258 kWh
High-Speed Internet Access	97%	65%

- In 2015, rural employment (full- and part-time) was 5.7 percent farming; 3.6 percent mining, forestry, fishing, and related activities; 5.7 percent construction; 10.7 percent manufacturing; 17.5 percent trade (both wholesale and retail), transportation, and utilities; 41.2 percent services; and 15.6 percent government.<sup>6</sup>
- Over 300 rural counties (about 15 percent of all rural counties) are persistently poor, meaning over a 30-year period, 20 percent or more of population is in poverty. Comparatively, 50 urban counties (about 4 percent of all urban counties) are persistently poor. 85 percent of persistently poor rural counties are in the South.<sup>7</sup>
- Rural homes are about 30 percent bigger than urban homes, but use only about 10 percent more energy.<sup>8</sup>
- More than half of all manufactured homes are in rural and small-town areas.<sup>9</sup>

<sup>5</sup> Data in Table 1 is either sourced elsewhere in this brief, or from: United States Census Bureau. “Measuring America: Our Changing Landscape.” December 8, 2016. <<https://census.gov/library/visualizations/2016/comm/acs-rural-urban.html>>.

<sup>6</sup> Economic Research Service, U.S. Department of Agriculture (2017), Rural Employment and Unemployment. <[www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-employment-and-unemployment/](http://www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-employment-and-unemployment/)>.

<sup>7</sup> Economic Research Service, U.S. Department of Agriculture (2017), “Rural America At A Glance, 2017 Edition,” Economic Information Bulletin 182 (November). <[www.ers.usda.gov/publications/pub-details/?pubid=85739](http://www.ers.usda.gov/publications/pub-details/?pubid=85739)>.

<sup>8</sup> Muratori, Matteo (2013), “Rural Energy Use and the Challenges for Energy Conservation and Efficiency,” National Agricultural & Rural Development Policy Center. <<https://aese.psu.edu/nardep/publications/policy-briefs/rural-energy-use-and-the-challenges-for-energy-conservation-and-efficiency>>.

<sup>9</sup> Housing Assistance Council (2012), “Taking Stock: Rural People, Poverty, and Housing in the 21<sup>st</sup> Century.” <[www.ruralhome.org/storage/documents/ts2010/ts\\_full\\_report.pdf](http://www.ruralhome.org/storage/documents/ts2010/ts_full_report.pdf)>.

- While highly dependent on the specific state, urban building codes tend to be more modern and more likely to be enforced. For example, the State of Missouri is a “home rule state” meaning that local jurisdictions set their own codes. However, the state classifies counties and bars the rural counties from setting codes.<sup>10</sup> Iowa’s State Code only requires cities with over 15,000 residents to adopt and enforce building codes.<sup>11</sup> Finally, in regard to the building inspection and code enforcement, International Code Council wrote that “in small communities and rural areas, a single code official may be responsible for building inspections, plumbing inspections, fire prevention inspections, mechanical and electrical inspections, building and zoning administration.”<sup>12</sup> Third party energy raters can serve as a supplement to building officials, but raters may not cover rural or remote communities. Building officials in rural and urban communities are often resource constrained, leading to uneven enforcement of codes or a lack of inspection equipment. This problem is exasperated in rural communities which struggle to achieve economies of scale for these services.
- Rural families drive about 7,000 more miles and consume about 300 more gallons of gasoline annually than urban families.<sup>13</sup>
- Higher transportation burden can augment public health concerns, as rural hospitals close and reduce access to healthcare services. From 2010 through 2018, 95 rural hospitals closed around the U.S. 32 of these were Critical Access Hospitals, a designation to support rural facilities which provide the only regional emergency healthcare services.<sup>14</sup>
- Many rural areas are served by rural electric cooperatives with relatively low average revenue and few customers per mile of service line. Rural electric co-ops average eight customers and \$19,000 in annual revenue per mile of service line, compared to 32 customers and \$79,000 annual revenue for other electric utilities.<sup>15</sup>
- In 2018, 97 percent of urban households had access to high-speed internet as compared to 65 percent of rural households.<sup>16</sup> Counties with broadband subscription rates of under 60 percent tend to be (1) in isolated, sparsely-settled counties in parts of the Great Plains, West, and Alaska and (2) high-poverty, high-minority areas in the Southeast, and tribal lands in the West.<sup>17</sup>
- Supported by agricultural production and rural processing facilities, in 2018 production capacity for fuel ethanol reached just over 1 million barrels per day, with an additional 120,000 barrels per day of bio-diesel production.<sup>18</sup>

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<sup>10</sup> [Missouri law](#) allows counties to adopt one of several building codes, except for Class III counties. [This map](#) shows that Class III, rural counties cover most of the state’s geography.

<sup>11</sup> Iowa State Code §364.17, November 24, 2019. <<https://www.legis.iowa.gov/docs/code/364.17.pdf>>.

<sup>12</sup> Lukasik, Tara. “Bring on Building Safety: Code Enforcement Explained.” Building Code Safety Journal. April 30, 2018. <<https://www.iccsafe.org/building-safety-journal/bsj-dives/bring-on-building-safety-code-enforcement-explained/>>.

<sup>13</sup> Muratori, op cit.

<sup>14</sup> Health Resources and Services Administration. “Rural Hospital Programs.” May 2019 <<https://www.hrsa.gov/rural-health/rural-hospitals/index.html>>.

<sup>15</sup> National Rural Electric Cooperative Association (2018), Electric Co-op Facts & Figures, “America’s Electric Cooperatives,” <[www.electric.coop/wp-content/uploads/2018/03/NCS-2815\\_Co-op-Facts-and-Figures-Packet\\_Individual-Letter-Sheets.pdf](http://www.electric.coop/wp-content/uploads/2018/03/NCS-2815_Co-op-Facts-and-Figures-Packet_Individual-Letter-Sheets.pdf)>.

<sup>16</sup> Federal Communications Commission. “Bridging the Digital Divide for All Americans.” Accessed April 29, 2020. <<https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans>>.

<sup>17</sup> “Rural America At A Glance,” op cit.

<sup>18</sup> Energy Information Administration, “Today in Energy.” March 1, 2019. <<https://www.eia.gov/todayinenergy/detail.php?id=38532>>.

- In 2018, ethanol production directly supported over 70,000 jobs nationally. This created \$25 billion in household income and other \$10 billion in tax revenue.<sup>19</sup>
- From 2014-2017, renewable electricity generation accounted for more than half of new generation, creating new job opportunities and revenue streams for residents and local governments (i.e. taxes).<sup>20</sup>
- In 2016 2.2 GW of wind capacity was installed nationwide. Nearly half (0.9 GW) was installed by electric co-ops, which tend to serve rural communities. Wind farms also provided \$245 million in lease payments to landowners, and in some cases up to 20-30 percent of local tax revenue.<sup>21</sup>

Going beyond nationwide analysis, states are also taking holistic looks at their rural communities, to provide better, more targeted services, and coordinate between agencies. In July 2019, the State of Michigan concluded a “Baseline Assessment and Policy and Program Evaluation” focused on agriculture and rural communities.<sup>22</sup> The report examines past policy initiatives and their participation and impact on rural communities, concluding that many current and past programs “do not emphasize serving agricultural or rural customers, and because of this lack of focus, these groups have not realized the same benefits as others.”<sup>23</sup> After analyzing key demographic differences and the impact of program design, which have created this gap in program access, the report provides suggestions on how to better reach rural communities. Similar efforts are being planned in Pennsylvania and Oregon. NASEO will continue to explore these issues, and provide State Energy Offices with appropriate tools and data to advance rural energy goals. Furthermore, there are federal data resources available to help understand the specifics of rural regions and help tailor policies to their needs. For example, the Low-Income Energy Affordability Data (LEAD) Tool. This web-accessible tool allows users to build their own community profiles with household energy and type and income levels (more details are available in the resources list).

## Task Force Recommendation – Data Needs

Based on research efforts and discussions with states, the Task Force has identified a major need around the packaging and availability of data to support effective decision-making by State Energy Offices. As shown above, energy not only provides vital services to rural residents, but is central to local economies through the competitiveness of rural industries and the income and expenditures of rural households, as well as rural transportation patterns and public health. A deeper understanding of these patterns through data analysis can empower state policymakers and program managers to craft effective and targeted policies and programs to support rural communities. However, county-level data or state-level metro/non-metro (rural) comparisons and analyses of energy consumption, and their linkages to demographic and economic factors are not readily available. Such products as the Census Bureau’s online data portal, Bureau of Economic Analysis (BEA) Regional Data, Annual Survey of Manufactures (Census Bureau), and Census of Agriculture (USDA) provide tremendous

<sup>19</sup> Renewable Fuels Association. “Rural Economy: Ethanol Renewing the Heartland.” Accessed December 23, 2019. <<https://ethanolrfa.org/rural-economy>>.

<sup>20</sup> Energy Information Administration, “Today in Energy.” May 7, 2018. <<https://www.eia.gov/todayinenergy/detail.php?id=36092>>.

<sup>21</sup> Natural Resources Defense Council. “Clean Energy Sweeps Across Rural America.” November 2018. <<https://www.nrdc.org/sites/default/files/rural-clean-energy-report.pdf>>.

<sup>22</sup> Public Sector Consultants and the American Council for an Energy-Efficient Economy. “Baseline Assessment and Policy and Program Evaluation: An Assessment of Current Policies and Programs for Energy Efficiency and Renewable Energy for Agriculture and Rural Communities.” Prepared for the Michigan Energy Office, Department of Environment, Great Lakes, and Energy. July 2019. <[https://www.michigan.gov/documents/energy/BaselineReportFinal\\_668264\\_7.pdf](https://www.michigan.gov/documents/energy/BaselineReportFinal_668264_7.pdf)>.

<sup>23</sup> *Id.* Pg 4



amounts of useful data, often to the county level, but do not include energy information. The U.S. Energy Information Administration (EIA) also provides excellent information, but not always at the county level, making it difficult to identify trends in rural energy consumption. If direct energy data are not available, then it may be useful for EIA and the U.S. Department of Energy (e.g., National Laboratories) to work with BEA, Bureau of Transportation Statistics (BTS), Census, USDA, and others to develop county-level estimates of energy use and cost and of energy intensity or productivity. State-specific (and national) metro/non-metro (rural) comparisons would also be useful.

Such data and analyses should also be packaged for ready access and use by State Energy Offices, utilities (including rural co-operatives and public power), economic development authorities, local officials, and private energy service providers in order to identify energy efficiency and cost reduction targets, and opportunities for increasing new generation installations, energy-related economic development, and business activity. This data would be readily leveraged by State Energy Offices to develop and refine policies supporting energy efficiency, new generation, and development in rural communities. These granular analyses would not only help identify unique rural issues and patterns of energy generation and consumption, but also shed light on local solutions and engagement strategies. For example, a low-income community may be more responsive to potential cost savings. Meanwhile, a community in proximity to resource extractive and polluting industries may respond more positively to environmental benefits of energy efficiency, while requiring workforce development programs to develop new skills in the labor force.

Such data-driven decisions will help states efficiently allocate limited resources, support new communities through policy and program engagement, and leverage their states' unique resources and capabilities to enhance their energy economy. The resources listed through the rest of this document are meant to provide states with a starting point to gather rural-specific data, and gain a deeper understanding of available resources and potential partners to engage while developing rural policy and programs.

### **CASE STUDY – WASHINGTON STATE APPLYING DATA TO POLICY**

The Washington State Department of Commerce has been working to support renewable natural gas development throughout the state for years. In 2017, the State Energy Office leveraged funds from the U.S. Department of Energy's State Energy Program to support the study "[Harnessing Renewable Natural Gas for Low-Carbon Fuel: A Roadmap for Washington State](#)." The study, conducted by Washington State University, provides hypothetical estimates of current and future RNG production, resources to be leveraged in RNG production, and maps detailing the geography of resources and necessary infrastructure. Finally, the report examines uses for RNG within state agencies, strategies to reduce carbon emissions from RNG production, and supportive policies for this nascent industry.

The next year, the Washington Legislature passed [HB 2580](#) in nearly unanimous fashion. The stated goal was "to stimulate investment in biogas capture and conditioning, compression, nutrient recovery, and use of renewable natural gas for heating, electricity generation, and transportation fuel." Beyond financial incentives, the bill aims to support the RNG production supply chain, and tasks Washington's Energy Office and a coalition of partners with developing recommendations to support sustainable RNG production. When signing the Bill, [Gov. Inslee stated](#) that this effort "will help in our fight against climate change by reducing highly-polluting methane emissions and displacing fossil fuels," and increase productivity from "landfills, wastewater treatment plants, food processing, and agriculture, while also helping create jobs and promote rural economic development across our state."

## Resource List

*United States Department of Agriculture*

### **State Fact Sheets** (Economic Research Service)

[www.ers.usda.gov/data-products/state-fact-sheets/](http://www.ers.usda.gov/data-products/state-fact-sheets/)

ERS State Fact Sheets provide information on population, income, poverty, food security, education, employment, organic agriculture, farm characteristics, farm financial indicators, top commodities, and agricultural exports. Links to available county-level data are included.

### **Atlas of Rural and Small-Town America** (Economic Research Service)

<https://www.ers.usda.gov/data-products/atlas-of-rural-and-small-town-america.aspx>

The Atlas of Rural and Small-Town America provides statistics separated into broad categories of socioeconomic factors:

**People:** Demographic data from the American Community Survey (ACS) including age; race and ethnicity; migration and immigration; education; household size; and family composition.

**Jobs:** Economic data from the Bureau of Labor Statistics and other sources, including information on employment trends, unemployment, and industrial composition of employment from the ACS.

**County classifications:** The rural-urban continuum, economic dependence, persistent poverty, persistent child poverty, population loss, onshore oil/natural gas counties, and other ERS county typology codes.

**Income:** Data on median household income, per capita income, and poverty (including child poverty).

**Veterans:** Data on veterans, including service period, education, unemployment, income, and demographic characteristics.

### **Rural America at a Glance, 2018 Edition** (Economic Research Service)

<https://www.ers.usda.gov/publications/pub-details/?pubid=90555>

This report highlights recent social and economic conditions in rural America, focusing on county-level trends in population, employment, income, poverty, and broadband internet connectivity.

See related Webinar: [Rural America at a Glance, 2018 Edition](#).

### **Rural Manufacturing at a Glance, 2017 Edition** (Economic Research Service)

[www.ers.usda.gov/publications/pub-details/?pubid=84757](http://www.ers.usda.gov/publications/pub-details/?pubid=84757)

This report examines trends in the rural manufacturing sector, including employment and wages for various manufacturing industries, during a period that includes a longstanding decline in manufacturing employment and the aftermath of two recessions.

### **Rural Education at a Glance, 2017 Edition** (Economic Research Service)

[www.ers.usda.gov/publications/pub-details/?pubid=83077](http://www.ers.usda.gov/publications/pub-details/?pubid=83077)

This report highlights trends in educational attainment among rural Americans and the relationship between educational attainment and economic prosperity for rural people and places. Educational attainment is growing in rural America. However, gains in educational attainment vary across demographic groups. Low education in rural areas is closely related to high poverty and unemployment rates.

### **Rural Development Data Sets** (Rural Development)

[www.sc.egov.usda.gov/data/data\\_files.html](http://www.sc.egov.usda.gov/data/data_files.html)

This site provides access to various USDA Rural Development (RD) data sets concerning RD programs, housing and property, and utilization of government support programs.

**USDA Rural Housing Data** (non-USDA site, provided by the Housing Assistance Council)

[www.ruralhome.org/sct-information/usda-housing-program-data](http://www.ruralhome.org/sct-information/usda-housing-program-data)

Since the 1950s, USDA has financed the construction, repair, and affordability of millions of homes for low- and moderate-income rural Americans. This activity is accomplished primarily through its Rural Development (RD) agency (formerly the Farmer's Home Administration). The Housing Assistance Council (HAC) presents regular information and data on USDA's rural housing loan and grant obligation activity.

**USDA Climate Hubs** (Agriculture Research Service and Forest Service)

<https://www.climatehubs.usda.gov/>

This collaboration across departments at the USDA aims to develop and deliver region-specific information on climate change, impacts to the agricultural sector, and strategies to mitigate impacts or adapt to changes. With ten regional hubs around the country, this program seeks to enable informed decisions making on topics such as agricultural production, natural resources, rural development, disaster preparedness, nutrition, and climate change mitigation.

**USDA Economic Research Service, Claudia Hitaj and Shellye Suttles.** "Trends in U.S. Agriculture's Consumption and Production of Energy: Renewable Power, Shale Energy, and Cellulosic Biomass." August 2016.

[https://www.ers.usda.gov/webdocs/publications/74658/60128\\_eib159.pdf?v=42593](https://www.ers.usda.gov/webdocs/publications/74658/60128_eib159.pdf?v=42593)

This report examines recent trends in energy use in the agricultural sector and the extent to which farm businesses engage in on-farm energy production.

*U.S. Department of Commerce*

**Census Data** (Census Bureau)

[data.census.gov/cedsci/](http://data.census.gov/cedsci/)

This census data website replaced the "American FactFinder" in March 2020 in order to centralize and streamline data dissemination. It provides searchable data about the every State, Puerto Rico and the Territories, as well as built-in data visualization tools. The Census Bureau also gathers annual information through their [Annual Community Surveys](#) program, with datasets available on the following topics: [the American Community Survey](#); [the American Housing Survey](#); [Annual Survey of Manufactures](#); [the Economic Census](#); [Annual Surveys of Governments](#); [Census of Governments](#); [Consumer Expenditure Survey](#); [Commodity Flow Survey](#); [Decennial Census of Population and Housing](#); [Manufactured Housing Survey](#); [Manufacturing Energy Consumption Survey](#); and the [Puerto Rico Community Survey](#).

**Regional Data** (Bureau of Economic Analysis)

[www.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1](http://www.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1)

For the latest employment in metro/nonmetro areas, see the U.S. Department of Commerce, Bureau of Economic Analysis website, [Regional Data](#), and choose "LOCAL AREA PERSONAL INCOME AND EMPLOYMENT" and then select "Total Full-Time and Part-Time Employment by Industry (CA25,CA25N)." Under the "Major Area" tab, select "Metro/Nonmetro portions" to generate the underlying data table.

**Small Area Income and Poverty Estimates (SAIPE) Program** (Census Bureau)

[www.census.gov/programs-surveys/saipe.html](http://www.census.gov/programs-surveys/saipe.html)

The U.S. Census Bureau's Small Area Income and Poverty Estimates program produces single-year estimates of income and poverty for all U.S. states and counties as well as estimates of school-age children in poverty for all 13,000+ school districts.

*United States Department of Energy*

**EERE Success Story** (State Energy Program)

<https://www.energy.gov/eere/success-stories/articles/eere-success-story-low-cost-high-yield-automated-building-monitoring>

Since 2013, the Alaska Housing Finance Corporation (AHFC) has used a portion of its State Energy Program formula funds to develop a building monitoring project – BMON. BMON uses equipment sensors and a wireless, web-based platform to gather real-time building data at 10-30 minute intervals.

**The Low-Income Energy Affordability Data (LEAD) Tool** (Clean Energy for Low-Income Communities Accelerator)

<https://www.energy.gov/eere/slsc/maps/lead-tool>

Low-Income Energy Affordability Data (LEAD) Tool. A web-accessible, interactive platform that allows users to build their own state, county, census tract and city profiles with specific household energy characteristics associated with various income levels and housing type, vintage, and tenure.

**The RACEE Peer Exchange Network** (The DOE Office of Energy Efficiency and Renewable Energy)

<https://www.energy.gov/eere/racee-competition-peer-exchange-network>

The website provides an information sharing platform for the 64 Community Efficiency Champions of the RACEE Competition, provides an archive of monthly technical webinars tailored to technologies and approaches specifically for rural communities by local subject matter experts.

**Rural Resources for States, Local Governments, and K-12 School Districts** (EERE State and Local Solution Center)

<https://www.energy.gov/eere/slsc/downloads/rural-resources-states-local-governments-and-k-12-school-districts>

The U.S. Department of Energy's (DOE) Weatherization and Intergovernmental Programs Office provides this webpage as a starting point for rural communities seeking to achieve significant energy and cost savings through energy efficiency by featuring existing technical assistance resources; information on how these resources are relevant to rural communities; and applicable examples, case studies for Connecticut, New York and North Carolina, as well as success stories.

**Rural K-12 School Facility Workforce Development and Training** (Better Buildings Initiative)

<https://betterbuildingsolutioncenter.energy.gov/resources/rural-k-12-school-workforce-development-and-training>

This resource includes materials, trainings, and certification courses designed to provide building operators of rural K-12 school facilities with actionable steps to improve their energy efficiency knowledge and create comfortable, cost-saving, and energy-efficient learning environments.

**Energy Efficiency and Renewable Energy Resources for Rural K-12 School Energy Managers and Educators** (Better Buildings Initiative)

<https://www.energy.gov/sites/prod/files/2019/02/f59/rural-k-12-energy-managers-educators.pdf>

This document links to resources for K-12 school districts and provides some best practices for implementing energy efficiency strategies in rural schools. These resources can help states, local school administrators, school boards, and facilities personnel make prudent decisions around the use of operating funds, capital budgets, and other financing mechanisms for energy efficiency improvements as a part of their master facilities management plan.

#### *U.S. Department of Labor*

##### **Local Area Unemployment Statistics (LAUS)** (Bureau of Labor Statistics)

<https://www.bls.gov/lau/lauov.htm>

The Local Area Unemployment Statistics (LAUS) program is a federal-state cooperative effort in which monthly estimates of total employment and unemployment are prepared for approximately 7,000 areas.

#### *U.S. Energy Information Administration*

##### **State Energy Data System**

[www.eia.gov/state/seds/](http://www.eia.gov/state/seds/)

The State Energy Data System (SEDS) is the source of the U.S. Energy Information Administration's (EIA) comprehensive state energy statistics. EIA's goal in maintaining SEDS is to create historical time series of energy production, consumption, prices, and expenditures by state that are defined as consistently as possible over time and across sectors for analysis and forecasting purposes.

#### *U.S. Environmental Protection Agency*

##### **U.S. EPA Facility Registry Service**

<https://www.epa.gov/frs>

The Facility Registry Service (FRS) provides facility data to support EPA's mission of protecting human health and the environment. FRS allows search and identification of EPA registered facility by location, type, and other parameters. Learn more about facilities, sites, or places of environmental interest that are subject to regulation.

#### *U.S. Department of Transportation*

##### **State Transportation Statistics** (Bureau of Transportation Statistics)

[www.bts.gov/product/state-transportation-statistics](http://www.bts.gov/product/state-transportation-statistics)

State Transportation Statistics (STS) are a series of reports highlighting major federal databases and other national sources related to each state's infrastructure, safety, freight movement and passenger travel, vehicles, economy and finance, and energy and the environment. Along with tables generated for each state, the reports describe databases and give information on access, formats, and contact points. [This resource does not appear to have county-level or rural-specific data.]

##### **Transportation Statistics Annual Report – 2019** (Bureau of Transportation Statistics)

<https://www.bts.gov/TSAR>

This is the Bureau of Transportation Statistics' primary data publication each year. While it does not contain state and local level data, it does contain key information on national statistics across all modes or transit, both freight and passenger.

### **National Transportation Statistics** (Bureau of Transportation Statistics)

<https://www.bts.gov/browse-statistical-products-and-data/national-transportation-statistics/national-transportation-6>

National Transportation Statistics presents information on the U.S. transportation system, including its physical components, safety record, economic performance, energy use, and environmental impacts. National Transportation Statistics is a companion document to the Transportation Statistics Annual Report, which analyzes some of the data presented here, and *State Transportation Statistics*, which presents state level data on many of the same topics presented here. [Includes some rural-related data.]

### **Rural Public Transportation Systems**

<https://www.transportation.gov/mission/health/Rural-Public-Transportation-Systems>

This site provides links to data and other resources pertinent to rural public transportation. The focus is on the health benefits of providing reliable and affordable transportation in rural areas, and provides resources to assess these impacts.

### **Rural Transit Assistance Program**

<https://www.nationalrtap.org/#>

RTAP is managed by the Federal Transit Administration, and provides funding to states in order to “establish and maintain transit systems in communities with populations under 50,000.” They focus on providing training and technical assistance to the rural transit industry, encouraging peer networks and the exchange of best practices, developing tools and web-based applications, and developing a database of information about the rural transit industry.

### **Study of Rural Transportation Issues** (Joint USDA-DOT study)

[www.ams.usda.gov/services/transportation-analysis/rti](http://www.ams.usda.gov/services/transportation-analysis/rti)

This report is in response to Section 6206 of the Food, Conservation, and Energy Act of 2008 ([PL 110-246](#)), which directs the Secretaries of Agriculture and Transportation jointly to conduct a study of rural transportation issues. The report reviews transportation and its effect on rural communities, with an emphasis on agricultural transportation. It looks in depth into each of the four major modes of transportation commonly used by agriculture in the United States: trucking, railroads, barges, and ocean vessels. It examines each in light of its ability to meet rural America’s transportation needs now and in the future. It identifies some broad issues that merit attention from policy makers.

### *Other Resources*

**American Council for an Energy Efficient Economy** “The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency.” July 2018 (updated periodically).

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

This ACEEE report, in collaboration with the Energy Efficiency for All Coalition, examines residential energy affordability in rural and small-town America. The report focuses on measuring energy burden, the percentage of household income spent on energy bills, and describes successful programs to increase investment in rural and small-town communities.

**American Society for Healthcare Engineers** “Energy to Care Dashboard Tool.” September 2019.

<<https://www.ashe.org/ashe-launches-energy-care-dashboard-tool-hospitals-gain-improved-energy-efficiency>>.

This tool for healthcare facility managers was developed to provide intuitive and visual data on energy use at healthcare facilities. It tracks energy use compared to modeling scenarios to identify inefficiencies, and offers suggestions and interventions to enhance energy efficiency and lower utility bills.

#### **National Agricultural and Rural Policy Development Center**

[www.nardep.info/](http://www.nardep.info/)

The National Agricultural & Rural Development Policy Center (NARDeP) is organized by the [Regional Rural Development Centers](#) to provide information about the increasingly contentious and complex rural policy issues facing the U.S.

**National Agricultural and Rural Development Policy Center, Matteo Muratori.** “Rural Energy Use and the Challenges for Energy Conservation and Efficiency.” November 2013.

<https://aese.psu.edu/nardep/publications/policy-briefs/rural-energy-use-and-the-challenges-for-energy-conservation-and-efficiency>

NARDeP is funded by the USDA National Institute of Food and Agriculture, and is hosted in Pennsylvania State University. This policy brief examines unique patterns of energy consumption in rural communities, and how they increase local dependence on fossil fuels. The author examines energy efficiency and renewable generations as energy independence strategies.

**National Renewable Energy Laboratory.** “Biomass Resource Maps.” Published in 2005, with periodic updates.

<https://www.nrel.gov/gis/biomass.html>

NREL provides county-level data and maps on the local feedstock for biomass throughout the country. The maps cover a range of resources to support bio-energy, such as crop residue, forest residue, solid biomass, and methane from various sources (landfills, animal operations, wastewater treatment, and industrial waste).

**Natural Resources Defense Council,** “Clean Energy Sweeps Across Rural America.” November 2018.

<https://www.nrdc.org/sites/default/files/rural-clean-energy-report.pdf>

This NRDC report focuses on the growth of renewable energy in the rural Midwest. It relies on case studies and regional data to show the impact of a growing renewables sector on the economy and jobs sector throughout the Midwest.

**Organization for Economic Cooperation and Development.** “Linking Renewable Energy to Rural Development.”

<https://www.oecd.org/regional/regional-policy/Renewable-rural-energy-summary.pdf>

The OECD developed a policy paradigm for economic development in rural areas. This report discusses the 3.0 version of this paradigm and has four dimensions: 1) competitiveness, 2) investments over subsidies, 3) widening the economic scope beyond agriculture, and 4) ensure policy decision work with communities and are considered at the right level of government.

#### **Rural Community Assistance Partnership**

<https://rcap.org/>

RCAP is a national network of non-profit organizations working to provide technical assistance, training, resources, and support to rural communities across the United States, tribal lands, and U.S. territories. Federal programs and organizational interests are maintained in the national office in Washington D.C. while state and regional programs and field work are managed through six regional offices. RCAP field staff live and work in the states and communities RCAP serves.

**Rural Transit Fact Book – 2017** (Upper Great Plains Transportation Institute)

<https://www.surtc.org/transitfactbook/downloads/2017-rural-transit-fact-book.pdf>

Produced the by North Dakota State University, in their Small Urban and Rural Transit Center, this fact book provides a wide variety of statistics on rural lifestyles. Some data is broken down by states and FTA region.

**RuralTransportation.org (National Association of Development Organizations)**

<http://ruraltransportation.org/>

The National Association of Development Organizations (NADO) provides advocacy, education, research, and training for the nation’s regional planning and economic development organizations, including the emerging network of nonmetropolitan regional transportation planning organizations (RTPOs). The association and its members promote regional strategies, partnerships, and solutions to strengthen the economic competitiveness and quality of life across America’s local communities.

**Still Living Without the Basics in the 21<sup>st</sup> Century (RCAP)**

[opportunitylinkmt.org/wp-content/uploads/2015/07/Still-Living-Without-the-Basics-Water.pdf](http://opportunitylinkmt.org/wp-content/uploads/2015/07/Still-Living-Without-the-Basics-Water.pdf)

Still Living Without the Basics in the 21st Century is the culmination of nearly a year of research and analysis that documents the availability of adequate water and sanitation service in U.S. homes. It is based in large part on data from the 2000 decennial census, supplemented by other publicly available information. This publication is a sequel, updating an analysis published in 1995 by the Rural Community Assistance Partnership (RCAP, Inc.) that focused on data from the 1990 decennial census.

**The Rural Data Portal (Housing Assistance Council)**

<http://www.ruraldataportal.org/otherresources.aspx>

The Rural Data Portal is a simple, easy to use, on-line resource that provides essential information on the social, economic, and housing characteristics of communities in the United States. The RURAL DATA PORTAL is targeted toward rural communities, but a wide range of information is presented for the nation, states, and counties for rural, suburban and urban areas.

**Water Infrastructure Database**

<http://www.waterid.org/>

This site provides access to data, information, and other resources pertinent to water and wastewater infrastructure systems. It is meant to provide a “cradle to grave” tracking on water infrastructure in order to better assess the lifetime value of sustainable asset management.



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