Empowering Rural America with Manufacturing Energy Efficiency

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Truman Fellow

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American Council for an Energy-Efficient Economy

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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Rural Research Initiative

- The High Cost of Energy in Rural America
  - Higher proportion of Low-income households
  - Older housing stock (pre 1980 codes) and larger homes
  - Rural household energy burdens are 42% greater than non-rural household within each census region
- Reaching Rural Communities with Energy Efficiency Programs
  - Low population density is a challenge to rural utilities
  - Unique infrastructure, energy use, and fuel mix
  - 6 case studies across residential, MUSH, and commercial

1/3 of all energy consumed in the US goes into Manufacturing

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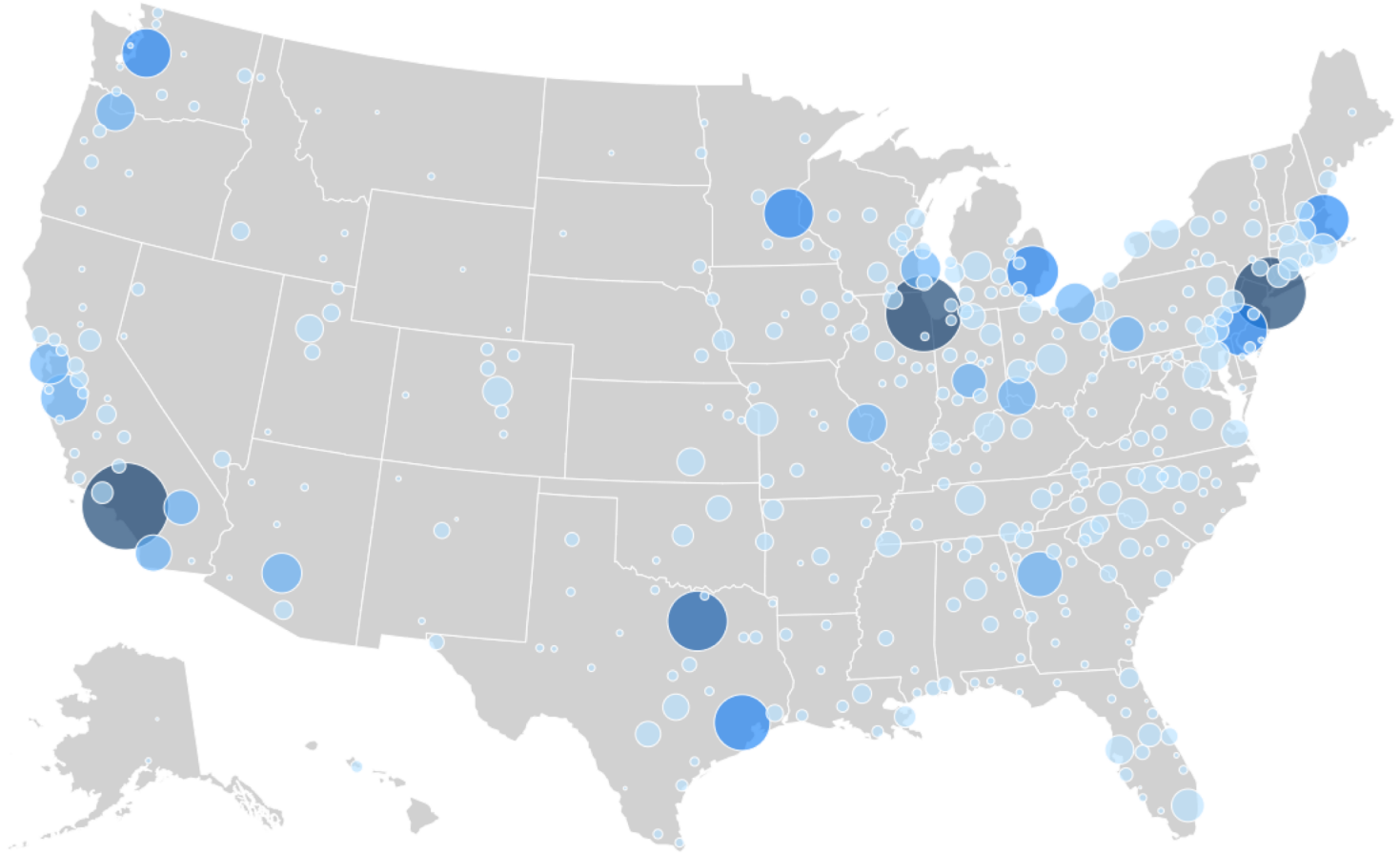
Source: ACEEE (Ross,Drehobl, Stickles, 2018) and (Shoemaker, Gilleo, Ferguson,2018)

Source: htthttps://www.energy.gov/sites/prod/files/2013/11/f4/energy_use_loss_opportunities_analysis.pdf

Urban Manufacturing

80% of all manufacturing jobs and 95% of all high tech manufacturing jobs are in metro areas.



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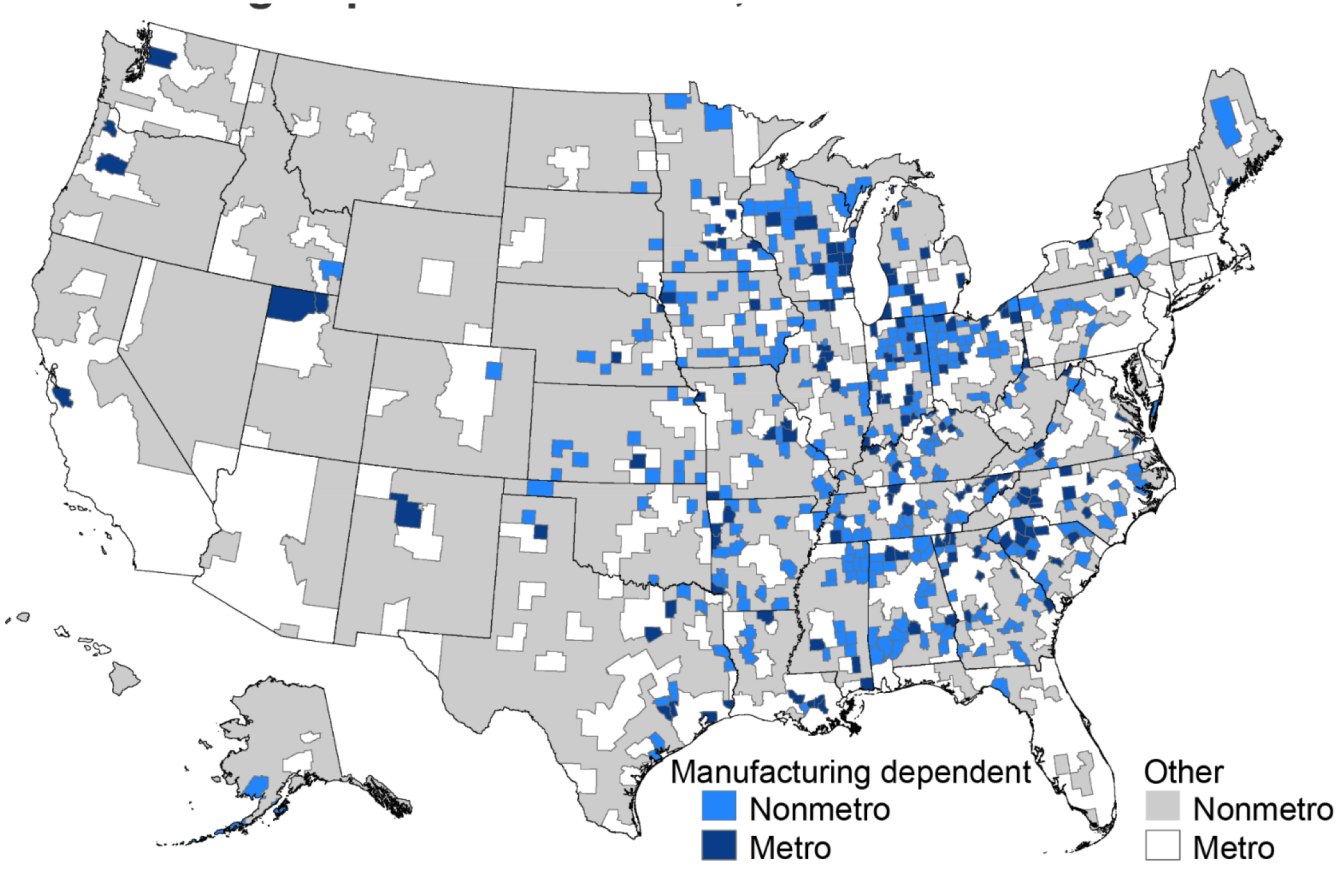
Source: https://www.brookings.edu/interactives/interactive-locating-american-manufacturing/

The Rural Economy is Manufacturing Dependent

80% of counties that derive greater than 20% of economic share from manufacturing are rural



Rural depends on manufacturing but manufacturing also depends on rural

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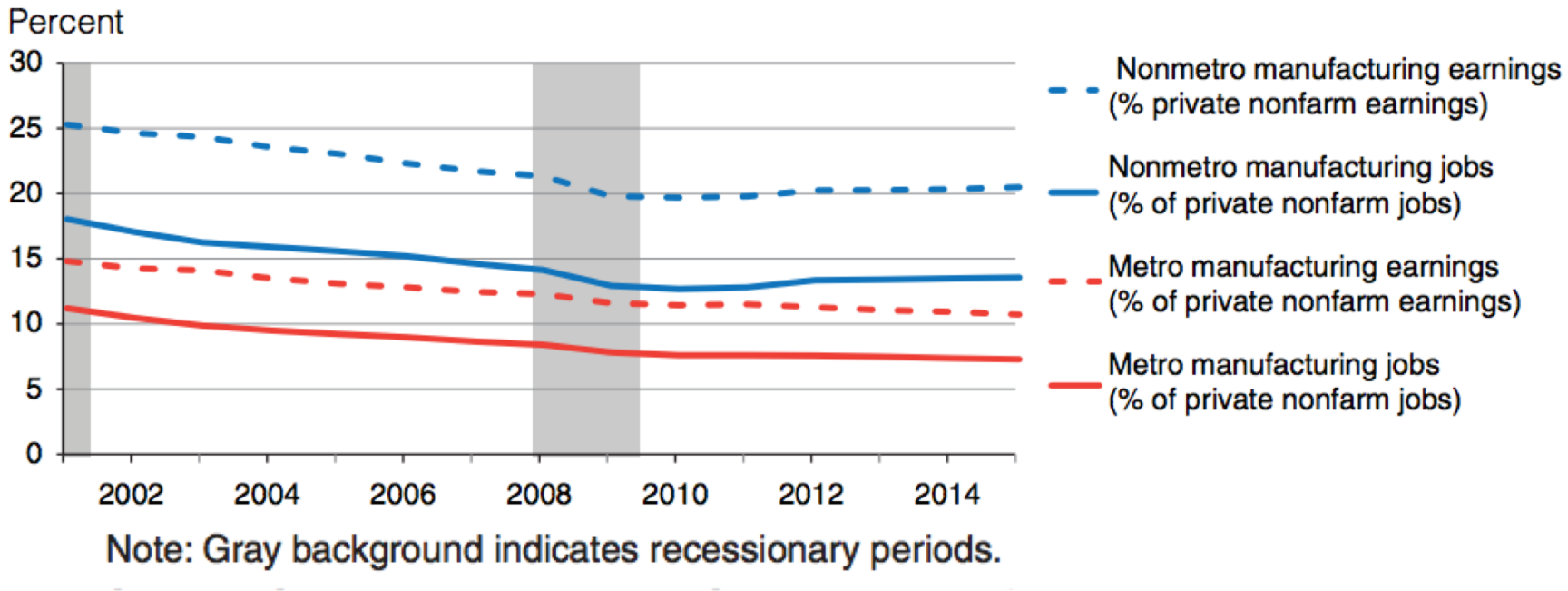
Source: https://www.ers.usda.gov/data-products/county-typology-codes/descriptions-and-maps/#manufacturing

Jobs and Earning Share is Higher in Rural



(National Average 9.9% economic share and National Average 7.0% employment)

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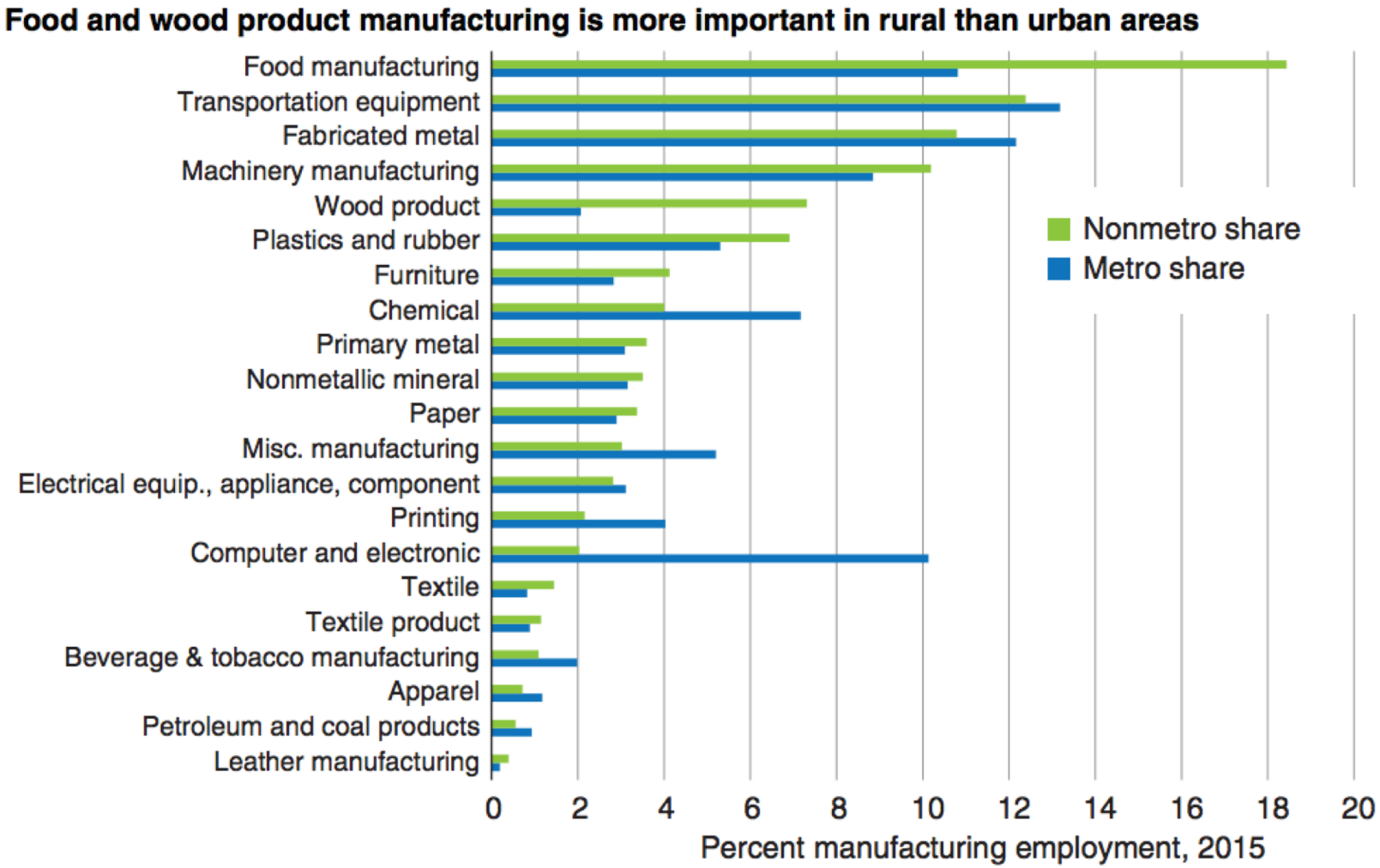
Source: Low, S. (2017) Manufacturing at a Glance, USDA

Rural Energy Efficiency Potential



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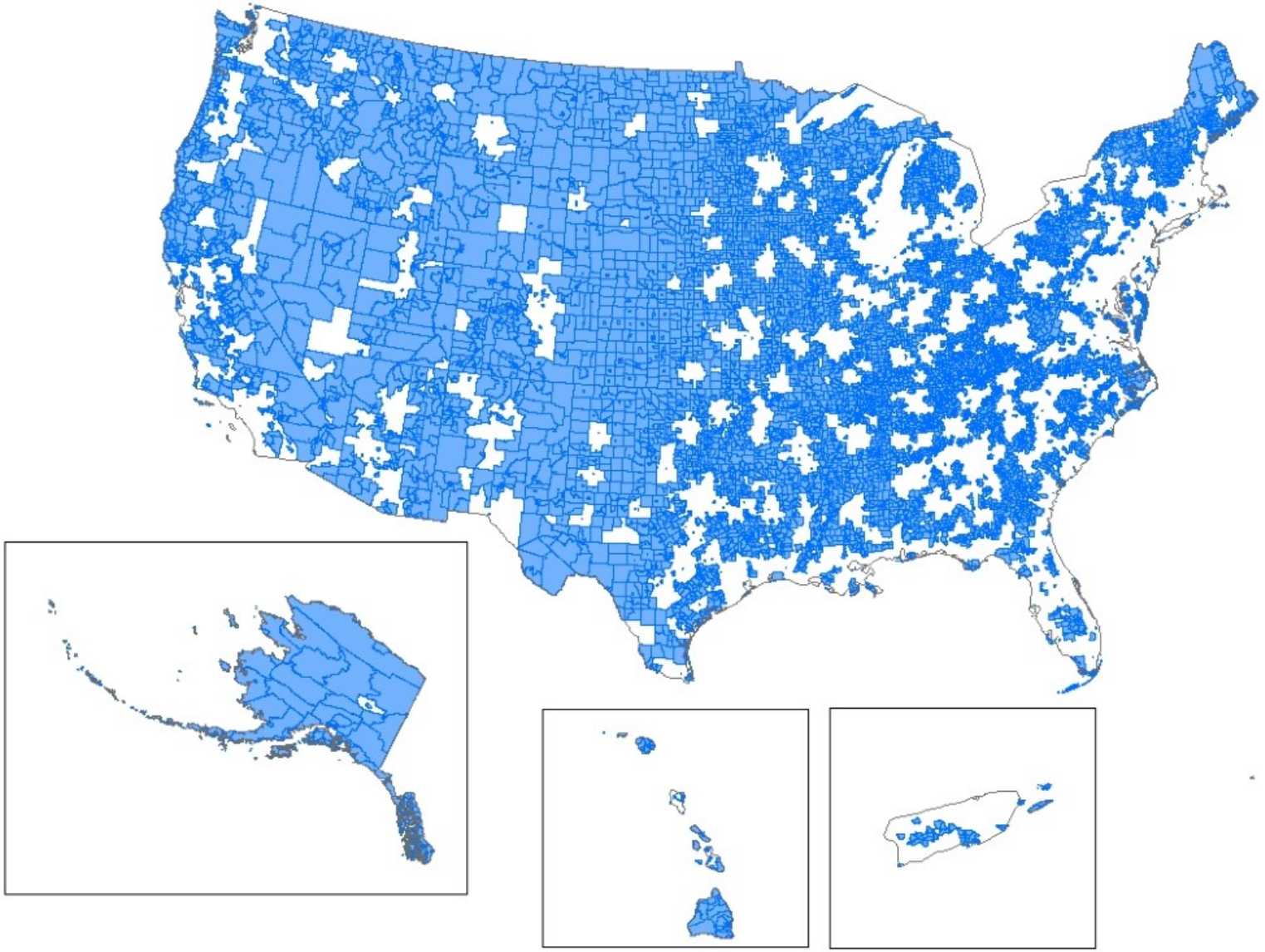
Source: Low, S. (2017) Manufacturing at a Glance, USDA

What is Rural?



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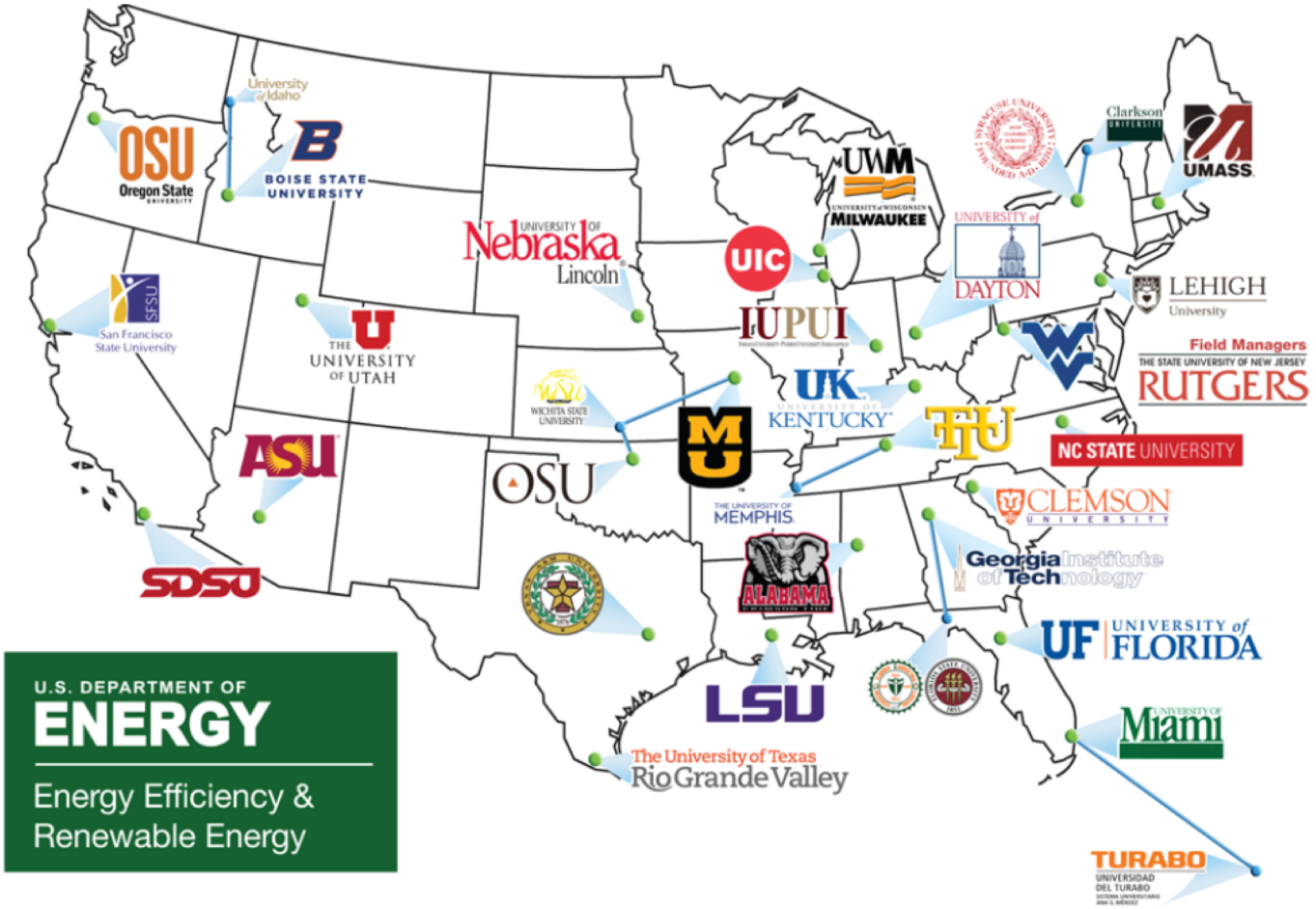
Source: Source: ACEEE (Ross,Drehobl, Stickles, 2018)

Findings



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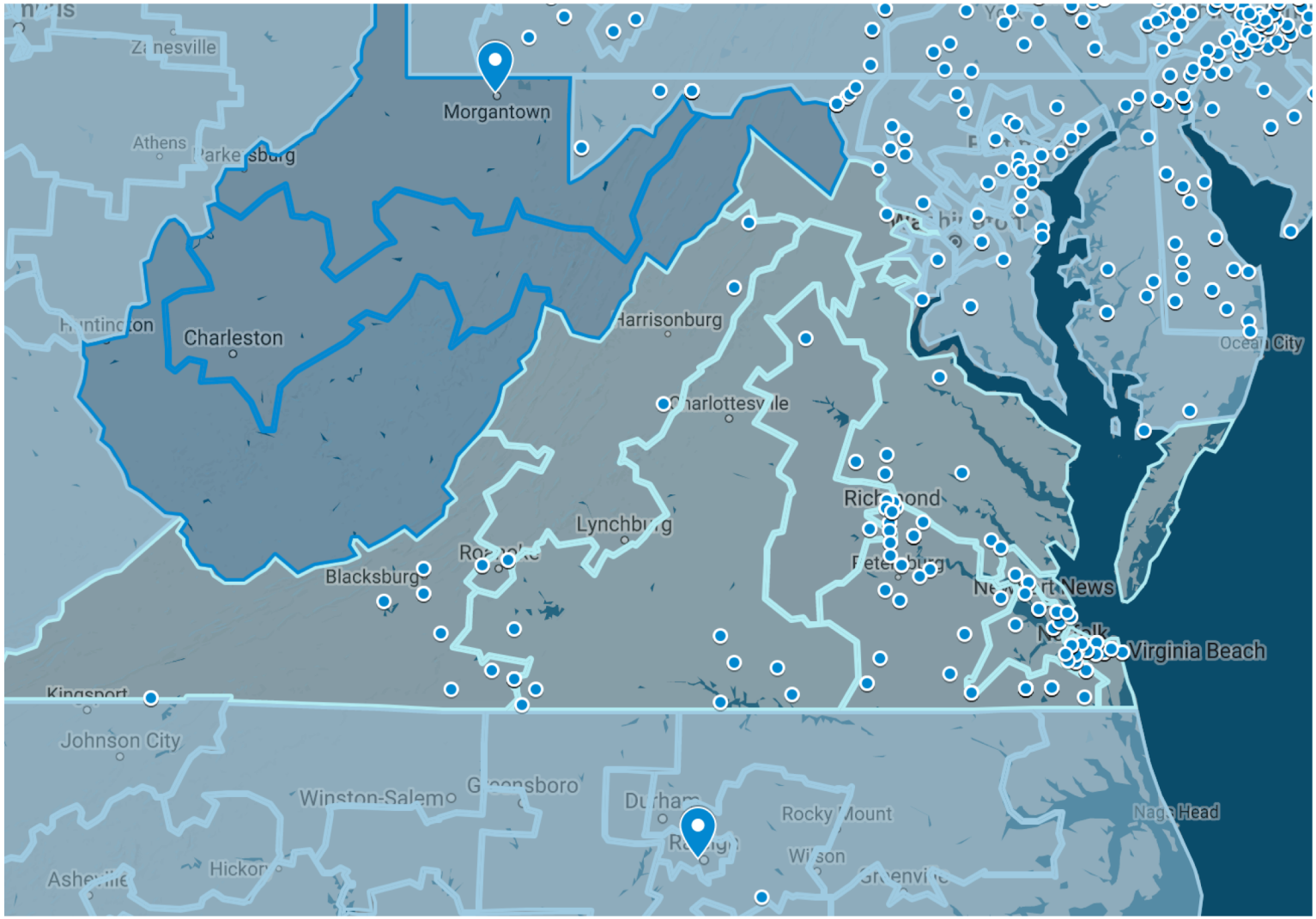
Source: https://www.nist.gov/blogs/manufacturing-innovation-blog/geography-manufacturing-case-mep-and-rural-manufacturers

Locating Rural IAC Assessments



Surprising result

35% of IAC assessments are in rural zipcodes

RUCA	IAC Assessment counts
1 - Metro	7688
2 - Micro	997
3 - Micro	35
4 - Micro	1979
5 - Fringe	293
6 - Town	1427
7 – Rural	228
8 - Remote	66
9 – Frontier	746

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Source: 2013. U.S. Census Bureau, American Housing Survey. Households outside metro areas (including micropolitan and micropolitan)

Take Aways

- The manufacturing sector is relatively more important to the health of the rural economy
- IACs have proven the efficiency potential in rural manufacturing – average annual energy savings per rural facility is $130,000
- Living lab – tech transfer and innovation rate

Next steps

- ArcGIS mapping using ORNL data for:
  - **Commuting flows**
  - **Census tract vs zip code**
- Need for more targeted approach coupled with local workforce development
  - **IACs retain some trainees but Southwest Virginia Community College's Retraining Energy Displaced Individuals program will provide 165 new local energy efficiency workers for local manufacturing plants e.g. Abbott labs**
- "Rural Energy Technology Centers" (RETCs)

Source: ARC 2017, Virginia Business 2016

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Thank you!

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Upcoming ACEEE Conferences

2018 National Convening on Utilities and Electric Vehicles	November 14	Atlanta, GA
2018 Conference on Health, Environment, and Energy	December 3	New Orleans, LA
2019 Hot Water Forum	March 11	Nashville, TN
2019 Summer Study on Energy Efficiency in Industry	August 12	Portland, OR

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