U.S. DEPARTMENT OF ENERGY

Office of
ENERGY EFFICIENCY & RENEWABLE ENERGY

Low-Income Energy Affordability Data (LEAD) Tool

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Overview

- **Low-Income Energy Affordability Data (LEAD) Tool**
  - The purpose is to help communities do better energy policy and program planning by improving their understanding of low and moderate income household characteristics.
  - Data comes primarily from the US Census American Community Survey 2015 5-Year Public Use Microdata Samples and is calibrated to US Energy Information Agency electric utility (Survey Form-861) and natural gas utility (Survey Form-176) data.

- **Example use cases**
  - Better Building's Clean Energy for Low Income Communities Accelerator (CELICA)
  - Cities Leading through Energy Analysis and Planning (Cities-LEAP), City Energy: Data to Decisions series

LEAD Tool Screenshot
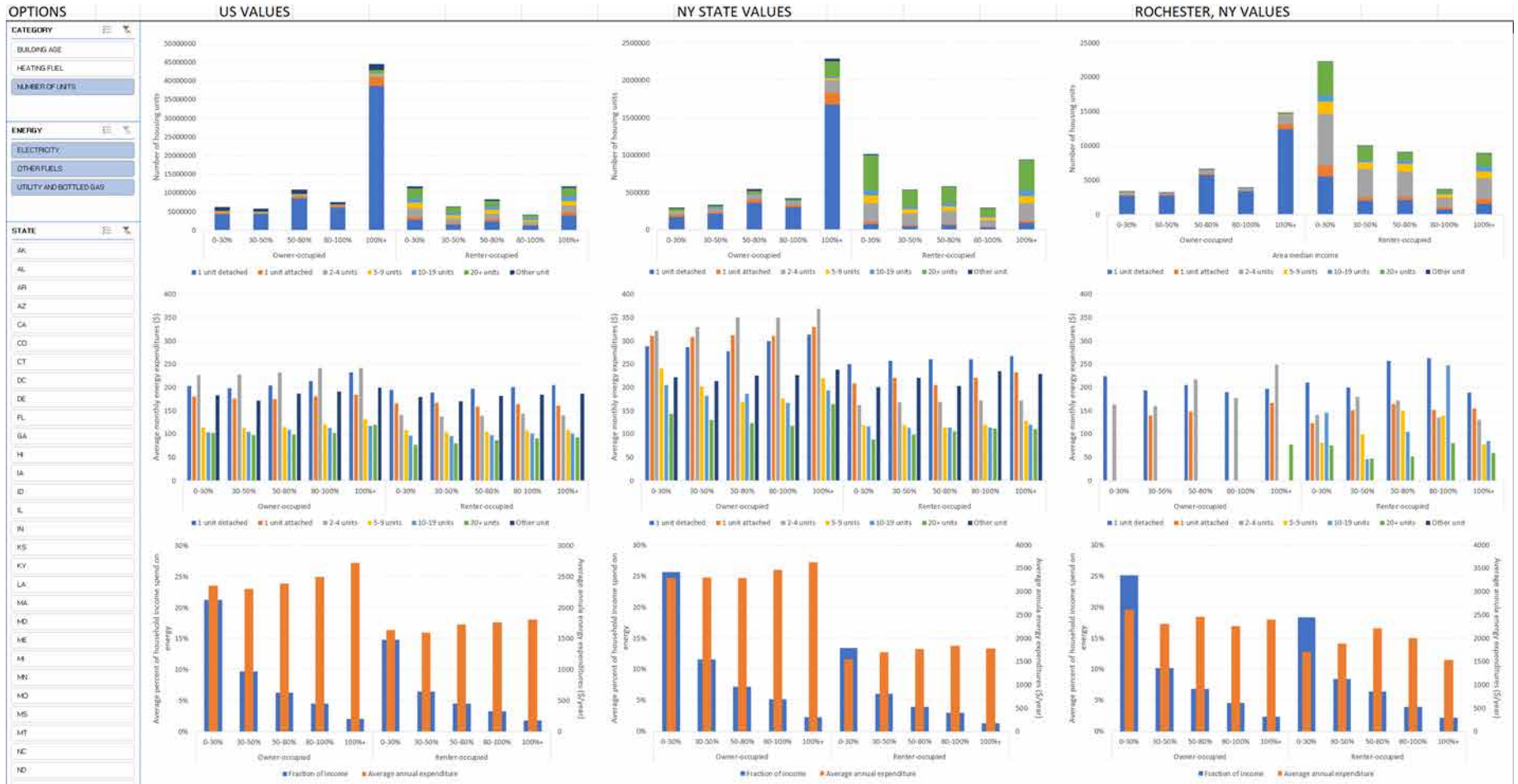
Spreadsheet-based tool accessible through OpenEI: https://openei.org/doe-opendata/dataset/celica-data
Subset of charts available on the EERE State and Local Energy Data site: https://apps1.eere.energy.gov/sled/

LEAD Tool Coverage Features

- **National, state, county, and city (underlying data is at the Census Tract-level)**
- **Households broken down by area median income limits**
  - 0-30% AMI
  - 30-50% AMI
  - 50-80% AMI
  - 80-100% AMI
  - 100+% AMI
- **Number of occupied housing units and energy expenditures by:**
  - Tenure (owner and renter),
  - Building year of first construction,
  - Number of units in the building, and
  - Housing unit primary heating fuel type.
- **Housing energy burden as the fraction of average housing energy expenditures to average household income.**

BB Clean Energy for Low Income Communities Accelerator

Selected Examples

- **Philadelphia, Pennsylvania** is implementing a new single family solar finance pilot (targeting owner occupied households).

- **California Energy Commission** is tracking SB350 Clean Energy & Pollution Reduction Act which requires various agencies to study barriers to clean energy adoption by low income households.

- **Connecticut Green Bank** is developing their low income program (targeting owner occupied households).

- **Newark, New Jersey** is conducting a baseline assessment of low income areas.

- **Clean Energy** is illuminating how Tennessee Valley Authority (TVA) fee hikes could impact high energy burden households.

- **PosiGen** is targeting where to pilot market entry in New Jersey; evaluating potential new markets like Atlanta, GA and Philadelphia, PA; and educating elected officials about energy burdens for their constituents, most recently for the New Orleans City Council and Louisiana Public Service Commissioners.

More information: https://betterbuildingsinitiative.energy.gov/accelerators/clean-energy-low-income-communities

City Energy: Data to Decisions

- **Case studies to demonstrate ways that readily available data and analysis can enable energy planning decision support for U.S. cities.**

    – Carrboro, North Carolina: Achieving Building Efficiencies for Low-Income Households

    – New Haven, Connecticut: Targeting Low-Income Household Energy Savings

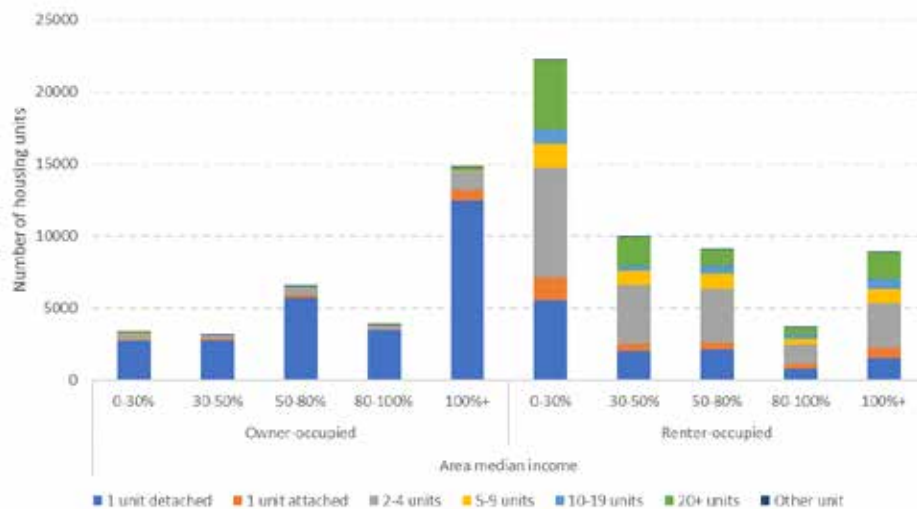   – Rochester, New York (coming soon): Reducing Energy Costs for Low-Income Households

Source: https://www.energy.gov/eere/analysis/downloads/city-energy-data-decisions

# Rochester, New York (Off-the-shelf analysis)

New York State
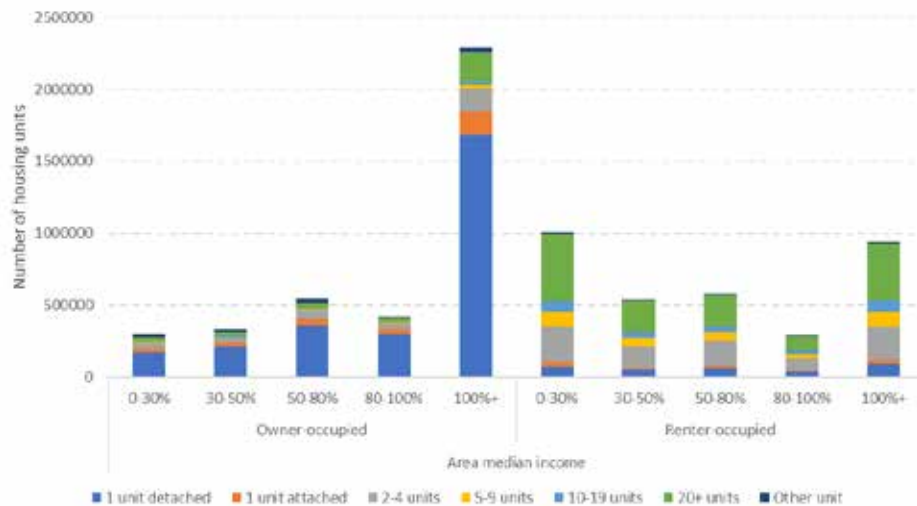
**Rochester, New York**

Selected Characteristics

- 30% of Rochester households (41% of renter-occupied units) are occupied by extremely low-income households, compared to only 18% in New York State.

- 74% of Rochester low income households live in buildings with 4 or less units (55% state-wide), making multi-family efficiency interventions with economies of scale less effective than many cities where large, multifamily is more common (35% compared with 18%).

- Rochester low income households are much more likely to heat with electricity (16%) compared to non-low income households (9%).

Rochester, New York (Additional analyses)
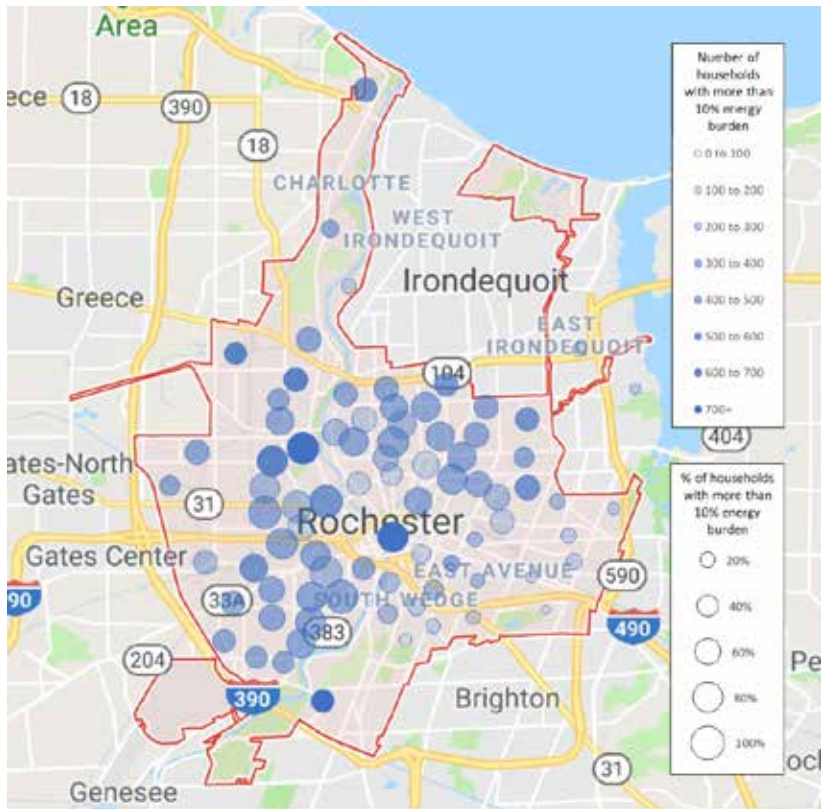
- Geographic concentrations of households with a high energy burden can inform more strategic policy decisions and targeted programming to educate residents on energy efficiency opportunities and interventions.

- Clustering interventions can facilitate efficiencies from working with similar housing types and vintages, lead to greater program participation from word of mouth publicity, and support more effective neighborhood revitalization.

- Examining statistical distributions of energy burden, rather than just averages, can reveal the extent of extreme energy poverty in communities. Estimated average energy burden of extremely low income households is 19%, but almost 5,000 households could exceed 30%.
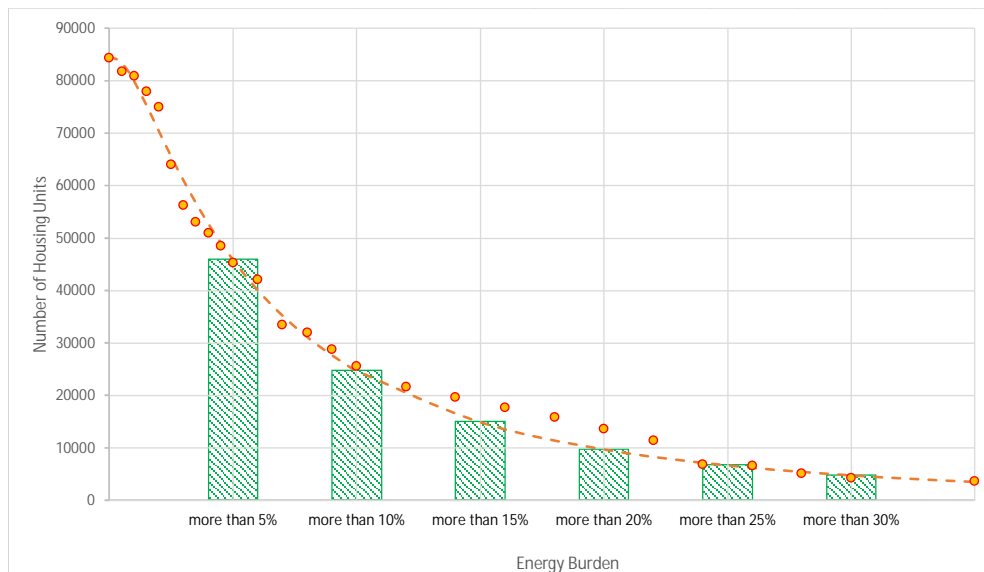
Potential Next Steps

- Additional user testing and interviews to prioritize new tool features.

- Update the LEAD Tool to reflect the most recent 2016 5-year American Community Survey Data.

- Add approximate(!) electric utility boundaries to the geographic tool coverage.

- Provide the option to disaggregate households by percentages of the Federal Poverty Level.

- Incorporate weather normalization analysis and separate heating, cooling, and baseload energy demands.

- Integrate the data with other ongoing energy efficiency and solar PV analyses.

Contact Information

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