Part 1: Serving All Customers with Utility Energy Efficiency Programs:
Reducing the energy burden for low-income households

Efficient Cities Network Webinar
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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, utility work, international needs 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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Outline of presentation

1. Energy Burdens
2. Low-Income Efficiency Programs
3. Low-Income Program Recommendations
What is energy burden?

- The proportion of total household income that goes towards home energy bills, which includes electricity, natural gas, and other heating fuels

- All households have energy burdens

- For metropolitan households in the US, the median burden is 3.5%
28.5% of households nationally have unaffordable energy burdens.

An unaffordable energy burden is when a household spends more than 6% of income on energy bills.
Drivers of high household energy burdens

- **Physical factors**
  - E.g. inefficient HVAC systems, poor insulation, inefficient appliances, heating fuel type, weather

- **Economic factors**
  - E.g. sudden or chronic low-income, high up-front costs for efficiency upgrades

- **Policy-related factors**
  - Insufficient or inaccessible policies or programs for bill assistance, weatherization, or energy efficiency

- **Behavioral factors**
  - Lack of information about programs, lack of knowledge about efficiency, age or disability
Energy burdens in US cities

Median energy burden
- 5+%  - 4-5%
- 3-4%
- 1-3%
Low-income burdens twice average household and three times non-low-income households

National median data:
- Low-income burdens:
  - Annual income: $24,998
  - Annual bills: $1,692
  - Energy burden: 7.2%

National median data:
- Non-low-income burdens:
  - Annual income: $90,000
  - Annual bills: $2,112
  - Energy burden: 2.3%

National median data:
- Average household:
  - Annual income: $53,988
  - Annual bills: $1,932
  - Energy burden: 3.5%
Median energy burden of low-income households compared to the overall median for each city
Range of energy burden quartiles for low-income households
Communities of color experience higher energy burdens

Latino households

National median data:
Annual income: $39,994
Annual bills: $1,704
Energy burden: 4.1%

African-American households

National median data:
Annual income: $34,494
Annual bills: $1,920
Energy burden: 5.4%

White households

National median data:
Annual income: $58,000
Annual bills: $1,956
Energy burden: 2.3%
Many live in less efficient homes, as seen by higher cost per sq. ft.

Low-income
Median household pays $1.41 sq ft.

African-American
Median household pays $1.49 sq ft.

Renters
Median household pays $1.40 sq ft.

Latino
Median household pays $1.42 sq ft.

VS.

Average household
Median household pays $1.23 sq ft.
# Programs that address high energy burdens

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<td>Other low-income bill assistance programs</td>
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<td>Modified rate design, rate discounts or waivers, and modified billing methods</td>
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<td>Energy efficiency</td>
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Best practices in comprehensive low-income efficiency programs

1. Offer a range of eligible measures, tailored to regional building stock and energy use characteristics
2. Leverage existing relationships with low-income households for program delivery
3. Have a plan to address outstanding health, safety, and durability issues
4. Offer fuel blind/dual fuel programs
5. Coordinate rate assistance and energy efficiency programs
Best Practices #1: Rage of measures
Southern California Edison

SCE’s Energy Savings Assistance Program (ESAP) targets low-income customers with a range of efficiency
Best Practices #2: Leverage relationships
Efficiency Vermont & the State of Massachusetts

Efficiency Vermont leverages the existing Weatherization Assistance Program (WAP) and other community organizations.

The Massachusetts Low-Income Energy Affordability Network (LEAN) provides a one-stop-shop for customers.
Best Practices #3: Health and Safety
Housing Resources of Western Colorado & Opportunity Council in Washington State

Work to address health and safety issues in order to help more homes qualify for weatherization

Before Housing Rehabilitation Rehabilitation

After Housing
Best Practices #4: Dual fuel programs
National Grid & Arkansas Public Service Commission (with AOG & OG&E)

National Grid MA Low-Income Retrofit Program works with state WAP services to offer weatherization to all homes regardless of fuel type.

Coordination between Arkansas utilities on weatherization programs.
Best Practices #5: Rate assistance coordination
California Alternative Rates for Energy (CARE)

Save 30%* or More on Your PG&E Bill

*Gas and electricity customers can save at least 30 percent while gas-only customers can save at least 20 percent.

Apply Now

The California Alternative Rates for Energy (CARE) rate assistance program provide energy efficiency information to those who enroll.
Recommendations to utilities for improving low-income programs

• Incorporate best practices in single and multifamily energy efficiency programs

• Include multiple benefits of low-income energy efficiency programs in cost-benefit testing (e.g. CT, CA, NH, CO)

• Provide financing options to households and multifamily building owners with strong consumer protections

* ACEEE plans to continue research into low-income state policies and local utility programs
What can cities do?

• Encourage utilities to collect, track, and report demographic data on program participation
• Set policy directives to support utility energy efficiency programs, with separate goals for delivery of low-income programs
• Advocate to the Public Utility Commission for strong low-income savings targets and programs
• Set policies to require energy usage reporting and benchmarking for multifamily buildings
ACEEE Low-Income Resources

Recent Low-Income Reports:

• *Lifting the High Energy Burden in America’s Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities*:
  aceee.org/research-report/u1602

• *Building Better Energy Efficiency Programs for Low-Income Households*:
  aceee.org/research-report/a1601

• *Lending for Energy Efficiency Upgrades in Low- to Moderate-Income Communities: Bank of America’s Energy Efficiency Finance Program*:
  aceee.org/research-report/f1601

• *Low-Income Energy Efficiency Programs: Best Practices and Clean Power Plan Compliance*:
  aceee.org/white-paper/cpp-low-income

Other Resources:

• Low-Income Utility Working Group
• Technical assistance on low-income issues
• Low-Income Baseline Project, Q1 2017
Q&A and Discussion

Upcoming ACEEE Conferences

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Presentation Focus

• What is a utility multifamily energy efficiency program?

• What are the challenges these programs face?

• How can local municipalities help in this effort?
Multifamily Energy Savings Project

- Multi-year project (5+) to improve the energy efficiency of multifamily housing nationwide
- GOAL: Expand the number of utilities offering multifamily energy efficiency programs to increase spending and savings for these programs, serving more households.
- Focus on building partnerships among the housing community, utilities, and state and local governments

www.aceee.org/multifamily-project

- Major funding from the MacArthur Foundation

Source: ACEEE & NHT, 2013
Multifamily Program Models

- Direct install
- Equipment and product rebates
- Comprehensive energy retrofits for existing building retrofits
- Comprehensive energy measures for new construction
The Multifamily Efficiency Opportunity

At scale, comprehensive programs can save 30% of natural gas use and 15% of electricity use.

Collectively, building owners and tenants spent almost $22 billion on energy in 2009, an average of $1,141 per household.

The nationwide potential savings from multifamily energy efficiency are huge.

- $3.4 billion per year in savings.

Multifamily Housing: Underserved Market Within Utility Energy Efficiency Program Portfolios

- 21% of US population and 26% of U.S households live in multifamily buildings
- Multifamily share of past energy efficiency program funding well below this for a variety of reasons:
  - Residential programs focus on single-family homeowners.
  - While two-thirds of households renting apartments make less than $50,000 yearly, most low-income EE programs target single-family home weatherization.
  - Commercial programs focus on offices, institutions and businesses.
  - Unique needs of MF customers require targeted programs.

Addressing Multifamily Owners’ Needs

Challenges

• Often don’t pay for all utility costs
• Difficulty prioritizing efficiency upgrades
• Unpredictable payoff
• Financing needed
• Alignment with capital improvement timelines
• Need guidance to apply
### Addressing Multifamily Owners’ Needs

#### Challenges

- Often don’t pay for all utility costs
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#### Solutions

- No or low cost efficiency upgrades
- Performance-based incentive structure
- Provide building use data
- Low interest financing
- Target specific multifamily market sectors
- One-stop shop for applicants
Connect Utilities with Multifamily Customers
Roles for Cities in Multifamily Energy Efficiency

- Local municipalities can connect developers and owners with efficiency program managers.
- Use community planning efforts to connect multifamily and utility stakeholders.
- Align economic development incentives to complement utility-provided incentives.

Source: City of Portland, 2013
Promote Energy Benchmarking
Roles for Cities in Multifamily Energy Efficiency

- California and 12 cities have passed mandatory energy benchmarking ordinances for multifamily buildings.
- Several other municipalities have encouraged voluntary benchmarking with incentives and technical assistance.
- Benchmarking only shows how much energy a building uses, but you can’t fix what you don’t measure!

Source: Institute for Market Transformation, 2016
Roles for Cities in Multifamily Energy Efficiency

- Public housing authorities can take advantage of utility program incentives.

- The Sacramento Housing and Redevelopment Authority used over $1 million in local utility incentives to reduce energy consumption up to 30%.

- The Boston Housing Authority used a combination of HUD, local utility, and internal capital funds to achieve 31.5% energy savings.

Source: Rocky Mountain Institute, “Affordable Housing with Unaffordable Energy Bills” (2013).
Retrofit Chicago Residential Partnership
Elevate Energy (Chicago, IL)

Roles for Cities in Multifamily Energy Efficiency: Example

- One-stop-shop approach
- Free energy assessment and report
- Guidance in securing incentives and low-interest financing
- Construction support and oversight
- Ongoing engagement and training for building operators
- Involves Partnerships with:
  - City of Chicago
  - Community Investment Corporation
  - ComEd
  - Peoples Gas
  - Chicago Metro Agency for Planning

City of Chicago, “Mayor Emmanuel Announces 50th Building to Join Retrofit Chicago” (2014).
Power Saver Multifamily Program (Austin, TX)

Roles for Cities in Multifamily Energy Efficiency: Example

- Prescriptive rebates and whole-building retrofits
- Program designed to complement Austin’s Energy Conservation Audit and Disclosure (ECAD) ordinance
- Ordinance requires high energy users to make energy efficiency improvements
- Programs coordinate marketing and outreach

Conclusion

- What is a utility multifamily energy efficiency program?
- What are the challenges of increasing energy efficiency in multifamily buildings?
- How can local municipalities help in this effort?
Additional Information

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For a complete list of ACEEE research on multifamily energy efficiency please visit: The Multifamily Energy Savings Project
Big Opportunities for Small Business: Successful Practices of Utility Small Commercial Energy Efficiency Programs

Cities and Transformation of the Electric Utility Industry
Webinar #4:
Serving All Customers with Utility Energy Efficiency Programs

December 6, 2016
Key points

Diversity of small business sector makes it hard to reach

Utilities provide streamlined programs, almost all lighting measures

Many opportunities remain to expand participation and savings

Six successful practices of leading programs are customer-centered and customized, not one-size-fits-all
Small business program design is like the video game Tetris:

getting multiple, moving differently shaped puzzle pieces to fit into varying arrangements. . . which keep changing as the game proceeds
Why hard to reach?
Barriers to customer participation

- Small organization size. No energy staff.
- Time and money constraints
- Lack of awareness
- Split incentives. “landlord-tenant problem”
- Relatively small energy bills, and relatively small dollar saving potential.
- Perceived business disruption potential.
Why hard to reach?
Numerous challenges to design programs to address diversity

• Diverse customer segment. Not only small commercial, but really “small non-residential” – includes small industrial, non-profits, schools, churches
• Diverse energy demand, use patterns
• Geographically dispersed premises
Less than 10% of small businesses participate

How have utilities responded?

**Efficient lighting measures.**
- Some small biz programs **ONLY** lighting.
- Even among programs with other measures, **90% savings from lighting**

**Streamlined programs.**
- Fast, simple, convenient, with set incentives or **free installation**
- Often “**direct install**” (energy assessment and measure installation in one visit.)
Successful practices for broader participation and deeper savings

1. Segment the market.
2. Offer a wide set of eligible measures.
3. Tailor and target marketing and communications to customer needs.
4. Provide dedicated project process managers.
5. Establish partnerships
6. Offer zero-interest or low-interest financing.
Segment the market.

Consumers Energy Michigan 2014

Segmented market by geography, fuel type, organization type, and industry and created initiatives for each

*Example:* Thermostat initiative segmented by fuel and geography (gas-only and combination gas-electric service areas). Programmable thermostats and other measures installed by implementation contractor teams along specified routes.

*Results:* Installed 16,181 lighting measures and 10,728 non-lighting measures. Cost effective both gas and electric.

Image from Franklin Energy http://expert.franklinenergy.com/smallbusienssssegmentation
Offer a wide set of eligible measures.

Refrigeration measures

- efficient walk-in coolers
- door heaters
- refrigeration lights (LED display case lights)
- evaporator fan controls
- anti-sweat controls
- night covers
- strip curtains
- door gaskets
- door closers
Tailor and target marketing and communications to customer needs.

“Neighborhood blitz” approaches have succeeded using door-to-door and word-of-mouth efforts.

**Example:** Puget Sound Energy

- 677 businesses surveyed
- 622 projects completed
- 84% conversion rate
Provide dedicated project process managers.

Small business usually do not have facility managers with energy expertise on staff – don’t know what they’re missing

Example: Your Energy Manager (YEM) program, an initiative of East Bay Energy Watch, a partnership between Pacific Gas and Electric and Alameda and Contra Costa Counties in the San Francisco Bay Area

- Provided energy end use analysis with benchmarking using Energy Star Portfolio Manager
- Trained energy champions at the business to ensure continued improvement in energy savings
Establish partnerships.

Ann Arbor, Michigan, Downtown Energy Saving Grant Program, Ann Arbor Downtown Development Authority (DDA).

- Free energy audits and rebates for energy efficiency upgrades.
- 100% of participants participated in DTE Energy rebate programs
Offer financing to encourage comprehensive retrofits and deeper savings.

Address the up-front cost barrier and provide needed project funds by offering loans to program participants.
Resources

For more information, examples, and references, see the report that this presentation was from on the ACEEE website:

**Big Opportunities for Small Business: Successful Practices of Utility Small Commercial Energy Efficiency Programs**

[http://aceee.org/research-report/u1607](http://aceee.org/research-report/u1607)
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