cepc | Center for Energy Poverty and Climate

National Cooling Standards Initiative

Webinar Series Session 3 – Tuesday, March 5, 2024

Advancing the Energy Transition – Best Practices for Utility-Sponsored Rebate & Energy Efficiency Programs to Address the Need for Weatherization and Efficient Cooling Systems

Project Introduction

The Center for Energy Poverty and Climate (CEPC) was founded on the belief that achieving the goal of net zero climate emissions in the residential sector will require coordination from the public, private, and nonprofit sectors. The current patchwork of state and federal programs and incentives is confusing, disjointed, and difficult to navigate. Many of them are targeted at market-rate solutions and do not address the needs of families who cannot afford to make expensive home upgrades on their own. CEPC is creating a platform for policymakers to engage directly with one another to share best practices and lessons learned, brainstorm solutions to difficult problems, and find innovative ways to braid funds and leverage programs to achieve net zero.

CEPC is working with the ClimateWorks Foundation on the **National Cooling Standards Initiative** to bring together leaders in residential energy efficiency to improve access to cooling for millions of households.

CEPC Website: https://energyprograms.org/
ClimateWorks Clean Cooling Collaborative Website: https://www.cleancoolingcollaborative.org/

Webinar Series

- Session 1: Feb. 13 - State Strategies to Address the Need for Utility Disconnection Moratoriums to Address Rising Temperatures
- Session 2: Preventing Shutoff, Feb. 20 – Emerging State Models to Create Affordable Rate Structures

Slides: https://energyprograms.org/coolingproject/

- **Session 3: Advancing the Energy Transition – Best Practices for Utility-Sponsored Rebate & Energy Efficiency Programs to Address the Need for Weatherization and Efficient Cooling Systems**

  Presenters: Olivia Wein, Staff Attorney, NCLC
  Michael DiRamio, Assistant Director, Energy and Climate Equity, NYSERDA
  Mark Kresowik, Senior Policy Director, ACEEE

- Session 4: Feb 12, 1:00 pm – 2:30 p.m. Protecting Vulnerable Populations from Extreme Heat

  Presenters: Dr. Peter Kahn, Yale University
  Grace Wickerson, Health Equity Policy Manager, Federation of American Scientists

Contact

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Braiding Programs that Leverage Federal Energy Rebates with Existing Energy Programs

Olivia Wein,
Senior Attorney

Presentation to Center for Energy Poverty and Climate

March 5, 2024

National Consumer Law Center

Fighting Together for Economic Justice

About NCLC

- Since 1969, the nonprofit National Consumer Law Center® (NCLC) has used its expertise in consumer law and energy policy to work for consumer justice and economic security for low-income and other disadvantaged people, including older adults, in the U.S.

- NCLC's expertise includes policy analysis and advocacy; consumer law and energy publications; litigation; expert witness services, and training and advice for advocates. NCLC works with nonprofit and legal services organizations, private attorneys, policymakers, and federal and state government and courts across the nation to stop exploitative practices, help financially stressed families build and retain wealth, and advance economic fairness.

Roadmap

- Summary of IRA Rebate Programs
- Facilitating Braiding, Stacking and Sequencing of IRA Home Energy Rebates With Existing Low-Income Energy Programs

IRA Rebate Programs

- On Aug. 16, 2022, President Biden signed the landmark Inflation Reduction Act, which provides nearly $400 billion to support clean energy and address climate change, including $8.8 billion for the Home Owner Managing Energy Savings (HOMES) Rebates Program or Home Efficiency Rebates Program (IRA Sec. 50121), and the High-Efficiency Electric Home Rebates or Home Electrification and Appliance Rebates (HEEHRA or HEAR) Program (IRA Sec. 50122).

- The U.S. DOE estimates these rebates will save households up to $1 billion annually on energy bills and support over 50,000 U.S. jobs.

- The rebate programs run through 2031.

HOMES or Home Efficiency Rebates Program

- The HOMES or Home Efficiency Rebates Program is an energy performance-based, whole-house rebates program that provide rebates for:
  - Energy efficiency retrofits from $2,000-$4,000 for individual households and up to $400,000 for multifamily buildings.
  - Up to $2,000 for retrofits reducing energy use by 20 percent or more, and up to $4,000 for retrofits saving 35% or more ($4,000 and $8,000 for low-income households (below 80% AMI)).
  - States can increase maximum rebates for low-income households up to 100% of project costs.

HEEHRA or HEAR Program

- **High Efficiency Electric Home Rebate Act (HEEHRA) or Home Electrification and Appliance Rebates (HEAR),** includes $4.5 billion in direct rebates for low- and moderate-income households.
- For low-income households, HEEHRA/HEAR covers new, efficient electric appliances, providing low income households rebates of up to $14,000, covering:
  - Energy Star electric heat pump installation for space heating and cooling, up to a cap of $8,000;
  - Energy Star electric heat pump water heater, up to $1,750;
  - Energy Star electric stove, cooktop, range or oven or Energy Star electric heat pump clothes dryer, up to $840, and
  - Up to $4,000 for an upgraded breaker box, $2,500 for upgraded electrical wiring, and $1,600 for insulation, ventilation and sealing.
- For moderate income households, the same rebates are available to cover 50% of the costs.
- DOE estimates the program will allow roughly one million low- and moderate-income households to go electric.

Home Energy Training Grants

- State-Based Home Energy Efficiency Contractor Training Grants makes $200 million available to state energy offices to train, test, and certify residential energy efficiency and electrification contractors.

- States can partner with nonprofit organizations to develop and implement these programs that will prepare contractors and their employees to bring clean energy technologies into homes.

- States can put contractors to work who are trained through this program by connecting them with projects funded by the Department of Energy's **Home Energy Rebates Programs (HOMES and HEEHRA)**, which provide rebates to eligible residents for retrofits and appliance upgrades that reduce energy use.

State Allocations

- The HOMES and HEAR state allocations are based on the allocation formula for the State Energy Program in effect on January 1, 2022.
- The DOE Home Energy Rebate Programs Guidance has a chart of minimum set asides for low-income households and low-income multifamily housing for each state.

SCEP
STATE & COMMUNITY ENERGY PROGRAMS

7.0 Appendix A: Required Allocations

Table 13. Home Energy Performance-Based, Whole-House Rebate Allocations (50121)

State/ Territory	Home Energy Performance-Based, Whole-House Rebate Allocations	Max 20% Ceiling for Program Administration for Efficiency Rebates	% of Low-Income Households (<80% AMI) in the State[71]	Min Allocations for Low-Income HHs	Min 10% Low-Income Multifamily Allocation	Max Open Efficiency Rebate Allocation
Alabama	$73,032,210	$14,606,442	41.0%	$23,931,475	$5,842,577	$28,651,716
Alaska	$37,368,480	$7,473,696	39.1%	$11,694,134	$2,989,478	$15,211,172
Arizona	$76,868,720	$15,373,744	39.7%	$24,405,961	$6,149,498	$30,939,518
Arkansas	$52,739,720	$10,547,944	40.5%	$17,090,700	$4,219,178	$20,881,898
California	$291,951,040	$58,390,208	40.7%	$94,964,033	$23,356,083	$115,240,716
Colorado	$70,395,350	$14,079,070	39.6%	$22,305,143	$5,631,628	$28,379,509

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Critical Issues

- What best practices should states follow to ensure efficient, zero-cost delivery of weatherization and electrification measures to low-income customers in particular?
- What consumer protections are needed to ensure utility customers aren't left to navigate rebate opportunities on their own?

Definition of Low- and Moderate-Income Households

DOE IRA Rebates Guidance Defines

- a low-income household as a household with an income below 80% AMI;
- a moderate-income household as a household between 80% - 150% AMI;
- a low-income multifamily building as a building with at least 50% of households with income less than 80% AMI, and
- a moderate-income multifamily building as a building with at least 50% of households with income less than 150% AMI.

Key Features in the Rebate Programs

- HEAR rebate has a Point of Sale feature that functions as an immediate discount through the contractor or retailer.
- States can structure HOMES rebate to result in a purchase price reduction.
- Programs include a contractor incentive ($200) for work in disadvantaged communities.
- Statute prohibits combining rebates with other federal grants/rebates for the same measure/upgrade.
- Solar is not included in the IRA rebates programs.
- IRA rebates are not treated as income.

Program Design Recommendations

- **<u>Braid and stack HOMES AND HEAR/HEEHRA rebate opportunities with existing state weatherization and utility ratepayer-funded energy efficiency programs.</u>**
  - Maximize investment in low-income homes so that families are not asked to finance measures
  - Sequencing matters. Ensure electrification measures are right-sized by investing in weatherization measures first.
  - Ensure communication and data sharing among parties and partners.

DOE Guidance on Leveraging

Guidelines for Leveraging Other Funding Sources with Home Energy Rebates

Sources of Funding	Allowance	Requirements to Leverage Funding within Same Household	Examples
Other Federal Grants (e.g., funding from the Weatherization Assistance Program (WAP), Low Income Home Energy Assistance Program (LIHEAP))	**Can Braid** 	Must "braid" and use other federal grants to fund distinct and separable measures from the "single upgrades" or "qualified electrification projects" (QEPs) funded by a Home Energy Rebate.	Energy efficiency (EE) measures from WAP (insulation and air sealing), appliance measures from rebate (heat pump, heat pump water heater, and associated wiring)
Federal Loans or Loan Guarantees (e.g., loan from DOE Revolving Loan Fund (RLF))	**Can Co-Fund** 	Can co-fund any remaining costs for the same "single upgrade" or "QEP" above the value of the Home Energy Rebate.	Loan from a state's DOE RLF covers remaining upgrade costs after rebate has been applied
Non-Federal Funding (e.g., EE utility $, state/local $)	**Can Co-Fund** 	Can co-fund any remaining costs for the same "single upgrade" or "QEP" above the value of the Home Energy Rebate.	Utility incentive provides additional funding toward remaining upgrade costs after rebate has been applied
Tax Credits (e.g., federal/state/local tax credits, may vary based on state/local law)*	**See IRS or Tax Authority guidance**	Refer to IRS guidance on the energy efficiency home improvement tax credit, available at https://www.irs.gov/credits-deductions/home-energy-tax-credits	

U. S. DEPARTMENT OF ENERGY | OFFICE OF STATE AND COMMUNITY ENERGY PROGRAMS

**DOE does not provide tax advice; please refer to IRS guidance or relevant state guidance for relevant tax laws and requirements for tax credits.*

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Areas to Coordinate Implementation

- Coordinated outreach and materials for eligible populations
- One-Stop-Shop/Navigators: trusted entities to help with enrollment into energy assistance programs and case management
- Coordination with enrollment and use of categorical eligibility
- Data sharing
- Open lines of communication between program implementers

Resources

- DOE State and Community Energy Programs (SCEP) is building out resources on the IRA Home Energy Rebates Programs.
- NASEO has an IRA Resources Hub.
- NCLC and NHLP has a IRA Home Energy Rebates Resource for Advocates that will be available this month.

Questions?

- Olivia Wein: owein@nclc.org

NCLC National Consumer Law Center

Since 1969, the nonprofit **National Consumer Law Center® (NCLC®)** has worked for consumer justice and economic security for low-income and other disadvantaged people in the U.S. through its expertise in policy analysis and advocacy, publications, litigation, expert witness services, and training. **www.nclc.org**

Best Practices for Utility-Sponsored Rebate & Energy Efficiency Programs

Tuesday, March 5th

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Smart Energy. Clean Planet. Better Lives.

About ACEEE:

The American Council for an Energy-Efficient Economy (ACEEE), is a nonprofit research organization that develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.

Learn more at aceee.org

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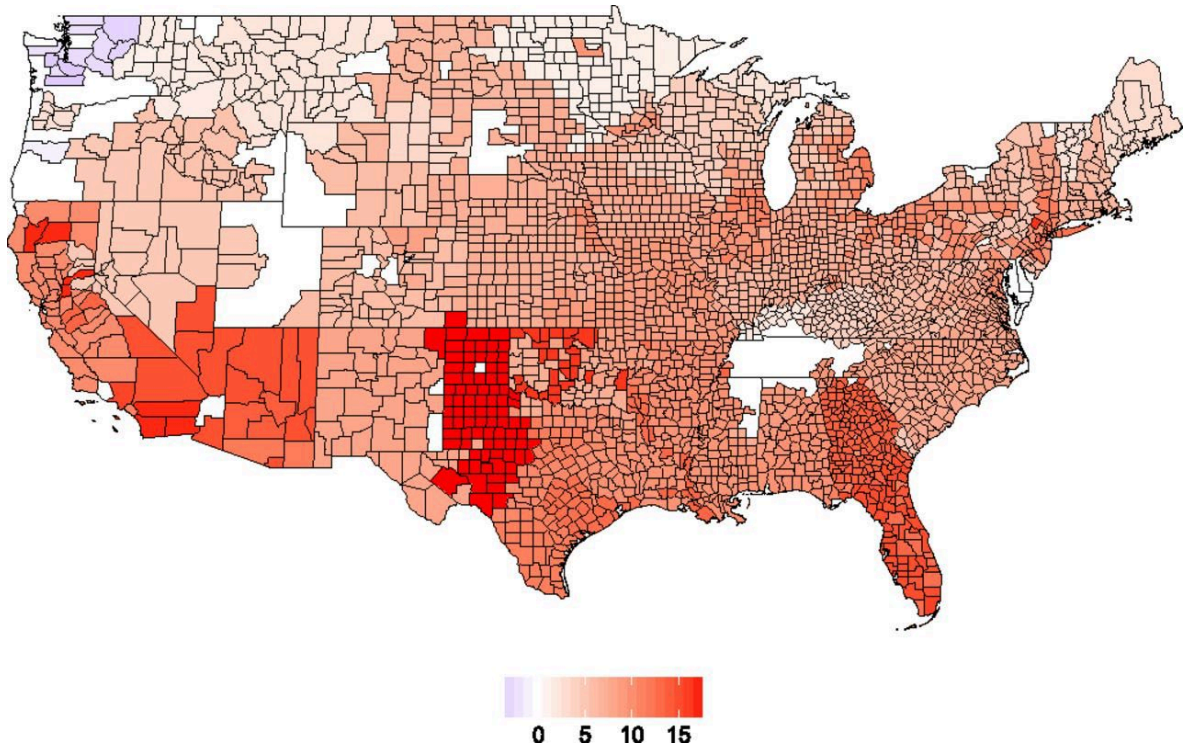
Extreme Heat and Weather is the Problem



Projected change in intensity of peak load (RCP8.5). The projected change in intensity of peak load under RCP8.5 varies geographically, with the largest increases in the South and West. **Coloring reflects projected percentage increases in the daily peak load due to temperature rise by end of century.**

https://doi.org/10.1073/pnas.1613193114

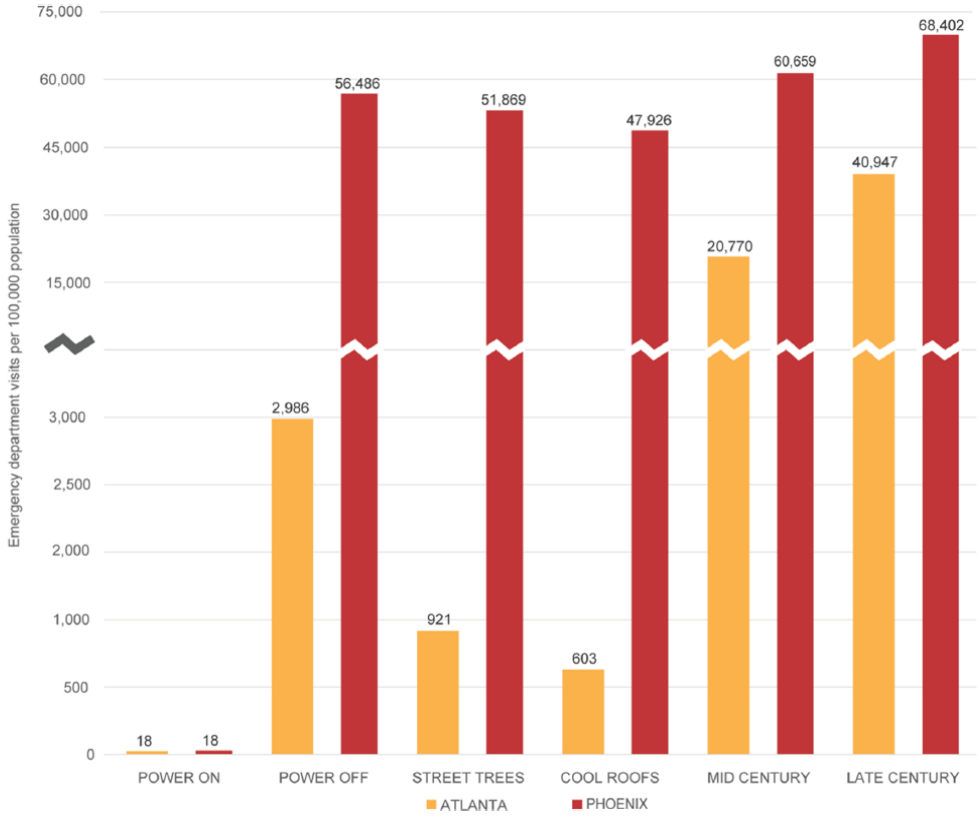
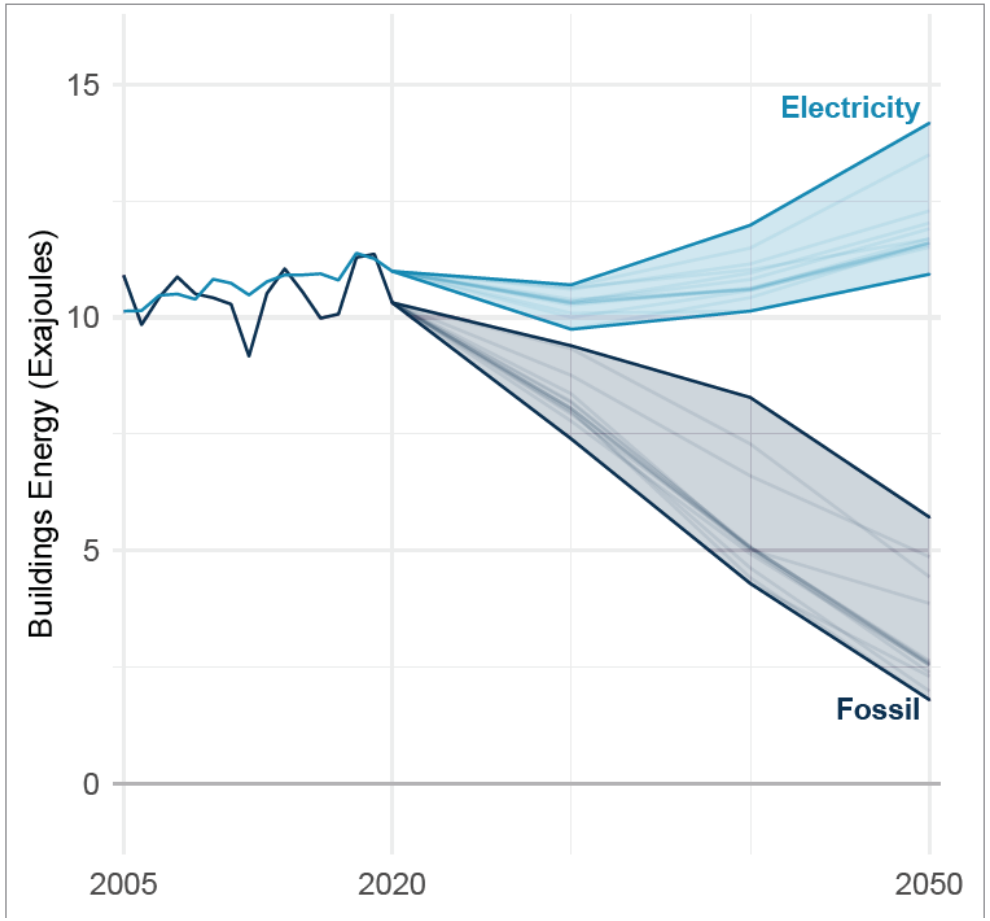


Figure 4. Emergency department visits per 100,000 population during concurrent 5 day heat wave and blackout events in Atlanta and Phoenix by scenario. The Street Trees, Cool Roofs, Mid Century, and Late Century scenarios reflect blackout conditions. No published exposure-response function for emergency department visits is available for Detroit.

https://doi.org/10.1021/acs.est.2c09588

Efficient Electrification is the Solution



The Long-Term Strategy of the United States, Buildings https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf

Table ES 1. Impact of Improved Efficiency on Resilience for Existing Single-Family Buildings

Data for the median building in the population sample for a 7-day analysis period.

Location (Climate Zone)	Event	SET Degree Hours*			Habitability					Mortality†			
					Days of Safety			Improvement†		Lives Saved (per Event)		Improvement	
		Existing Stock	Current Code IECC 2021	Beyond Code PHIUS	Existing Stock	Current Code IECC 2021	Beyond Code PHIUS	Current Code IECC 2021	Beyond Code PHIUS	Current Code IECC 2021	Beyond Code PHIUS	Current Code IECC 2021	Beyond Code PHIUS
Houston, TX (2A)	Cold	749	222	-	3.8	6.9	7.0	82%	85%	20.0	43.2	32%	69%
	Heat	600	141	-	4.0	7.0	7.0	75%	75%	42.1	50.2	80%	96%
Atlanta, GA (3A)	Cold	2,558	1,610	200	1.4	2.3	7.0	64%	409%	3.6	8.7	21%	52%
	Heat	438	59	-	2.9	7.0	7.0	140%	140%	0.9	5.9	14%	93%
Los Angeles, CA (3B)	Cold	87	-	-	7.0	7.0	7.0	0%	0%	5.2	5.4	25%	25%
	Heat	100	-	-	7.0	7.0	7.0	0%	0%	126.9	202.8	53%	84%
Portland, OR (4C)	Cold	2,963	1,849	237	1.1	2.4	6.8	123%	523%	3.2	8.6	22%	58%
	Heat	371	319	-	4.7	5.5	7.0	16%	49%	-2.6	24.5	-8%	71%
Detroit, MI (5A)	Cold	4,248	3,020	1,778	0.9	1.7	2.4	82%	159%	5.1	10.8	14%	30%
	Heat	223	53	0.3	6.8	7.0	7.0	2%	2%	6.9	26.0	9%	35%
Minneapolis/ St. Paul, MN (6A)	Cold	5,397	3,699	2,190	0.6	1.2	1.8	100%	214%	7.3	14.0	19%	36%
	Heat	215	66	5	7.0	7.0	7.0	0%	0%	4.4	14.7	8%	27%

* Cooling hours > 86°F, Heating hours < 54°F

† Changes relative to Existing Stock

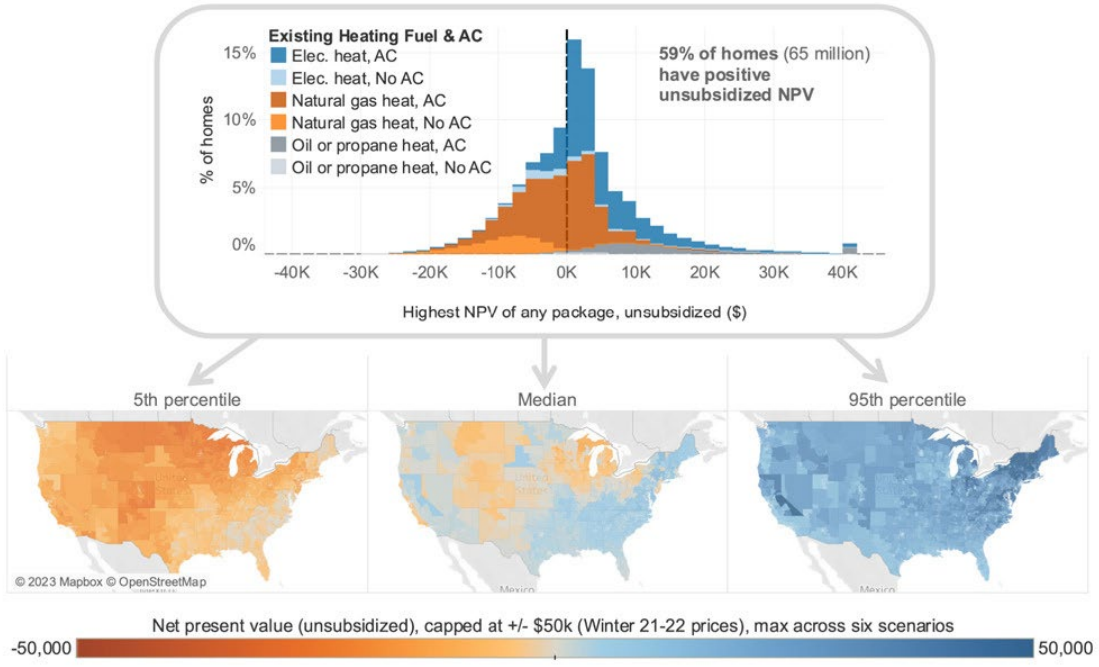
https://www.energycodes.gov/sites/default/files/2023-07/Efficiency_for_Building_Resilience_PNNL-32727_Rev1.pdf

Efficient Electrification will lower most bills

"**<u>These results show the significance that presence of AC and primary heating fuel type have on energy bill savings.</u>** Providing cooling to homes that previously did not will likely have substantial co-benefits in the form of avoided mortality and morbidity due to extreme heat."

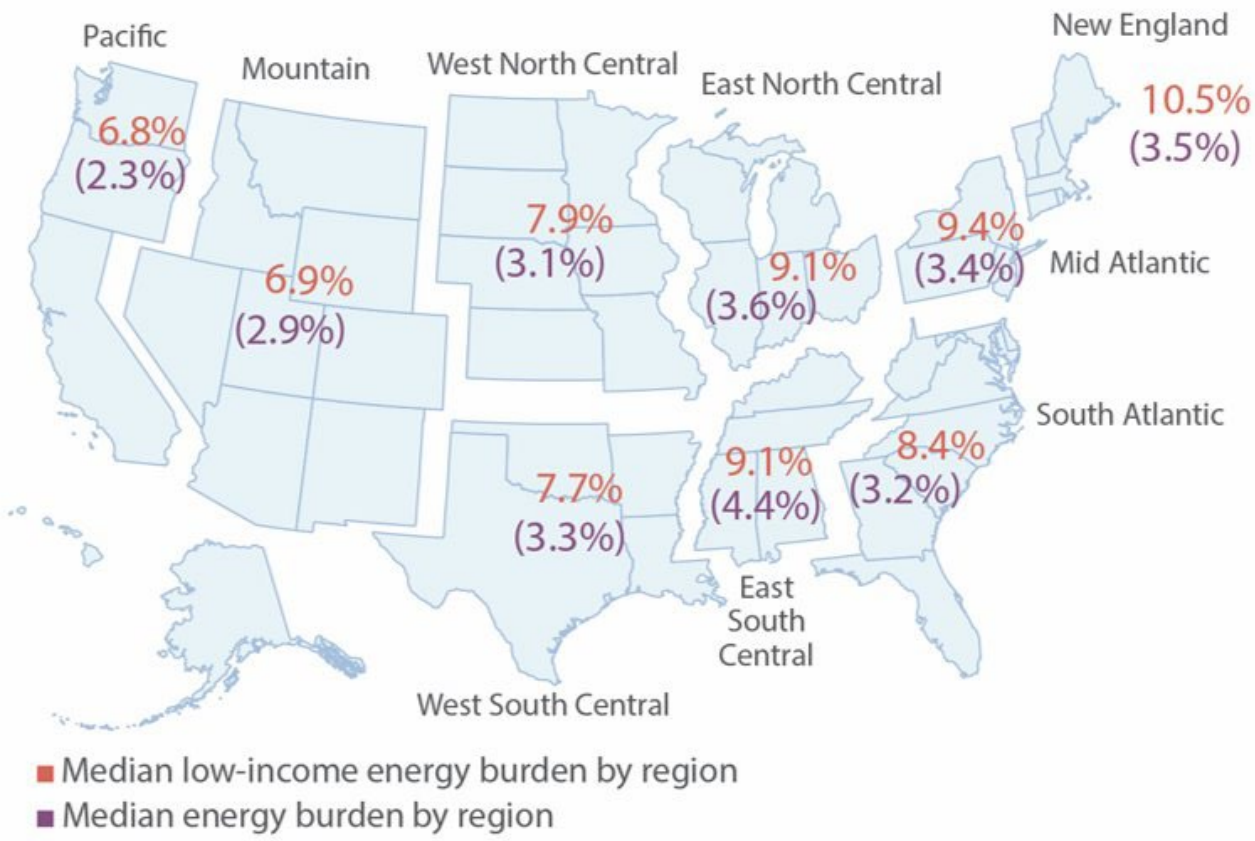
"However, efficiency is key: whereas minimum-efficiency equipment could increase energy bills in 39% of households, **this fraction is only 19% when also upgrading insulation or 5% when using higher-efficiency equipment**"

Heat Pumps for All? Distributions of the costs and benefits of residential air-source heat pumps in the United States, Wilson et al, Joule 8, February 12, 2024 https://doi.org/10.1016/j.joule.2024.01.022



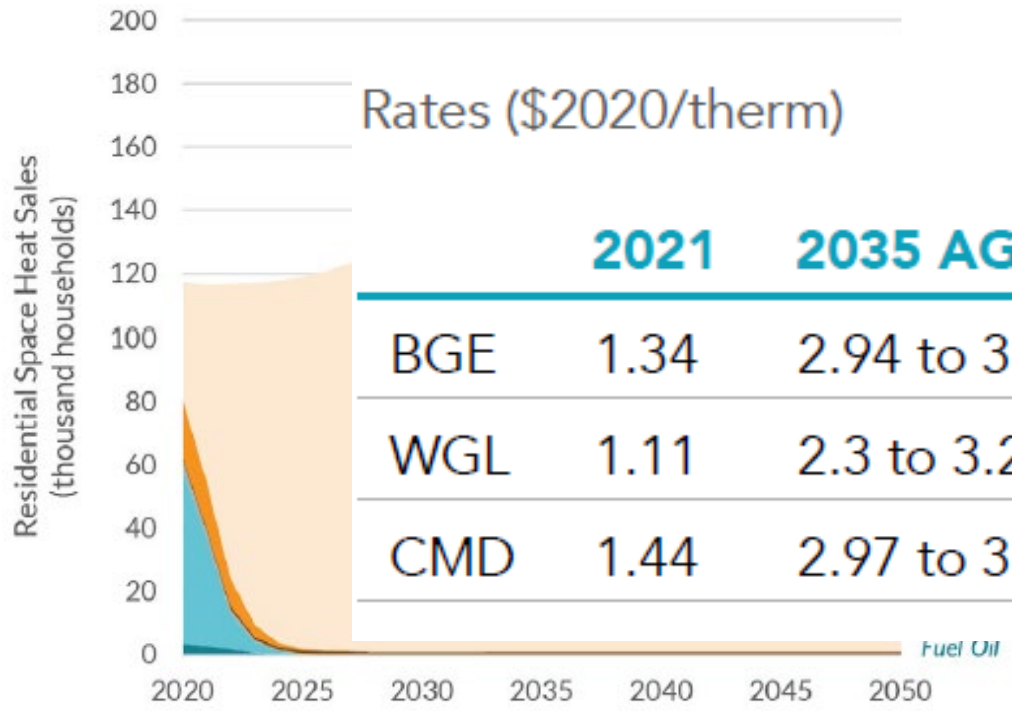
Centering Equity in the Transition

There are more than 26 million households in the U.S. below 80% AMI that are burning fossil fuels inside their homes. **On average they pay more than 9% of their income on energy for their home.** The other approximately 95 million households pay less than 4% of their income for the same purpose



Transitioning economy off fossil fuels

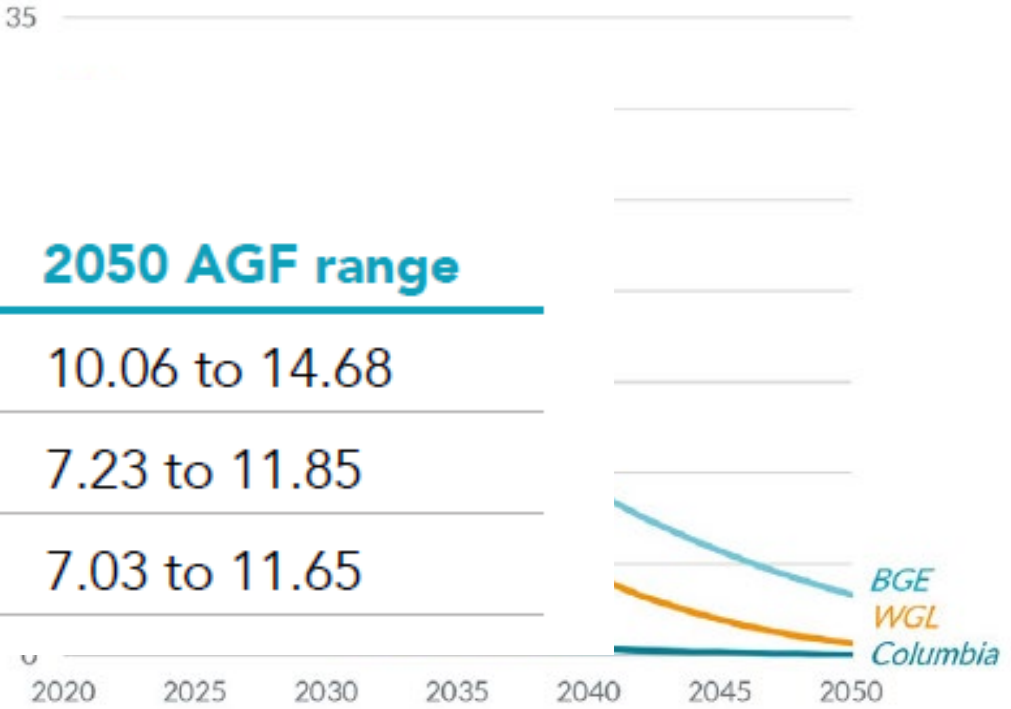
Figure 6. Residential space heating equipment sales[34]



Rates ($2020/therm)

	2021	2035 AGF range	2050 AGF range
BGE	1.34	2.94 to 3.90	10.06 to 14.68
WGL	1.11	2.3 to 3.26	7.23 to 11.85
CMD	1.44	2.97 to 3.93	7.03 to 11.65

Figure 8. Residential gas sales by utility



"Climate Policy for Maryland's Gas Utilities", MD Office of People's Counsel, November 2022. https://opc.maryland.gov/Gas-Rates-Climate-Report

*AGF, or Alternative Gaseous Fuels, e.g. biogas or hydrogen

Affordability Programs and Electrification Rates

- Percentage of Income Payment Plans
- Increasing Tiered Discounts
- Electrification Rates
- Ending Utility Shutoffs

https://www.aceee.org/blog-post/2024/02/heat- pump-programs-cant-keep-leaving-low-income-households-behind

https://www.aceee.org/white-paper/2023/09/equity-and-electrification-driven-rate-policy-options

Braiding and stacking funding and financing for comprehensive retrofits

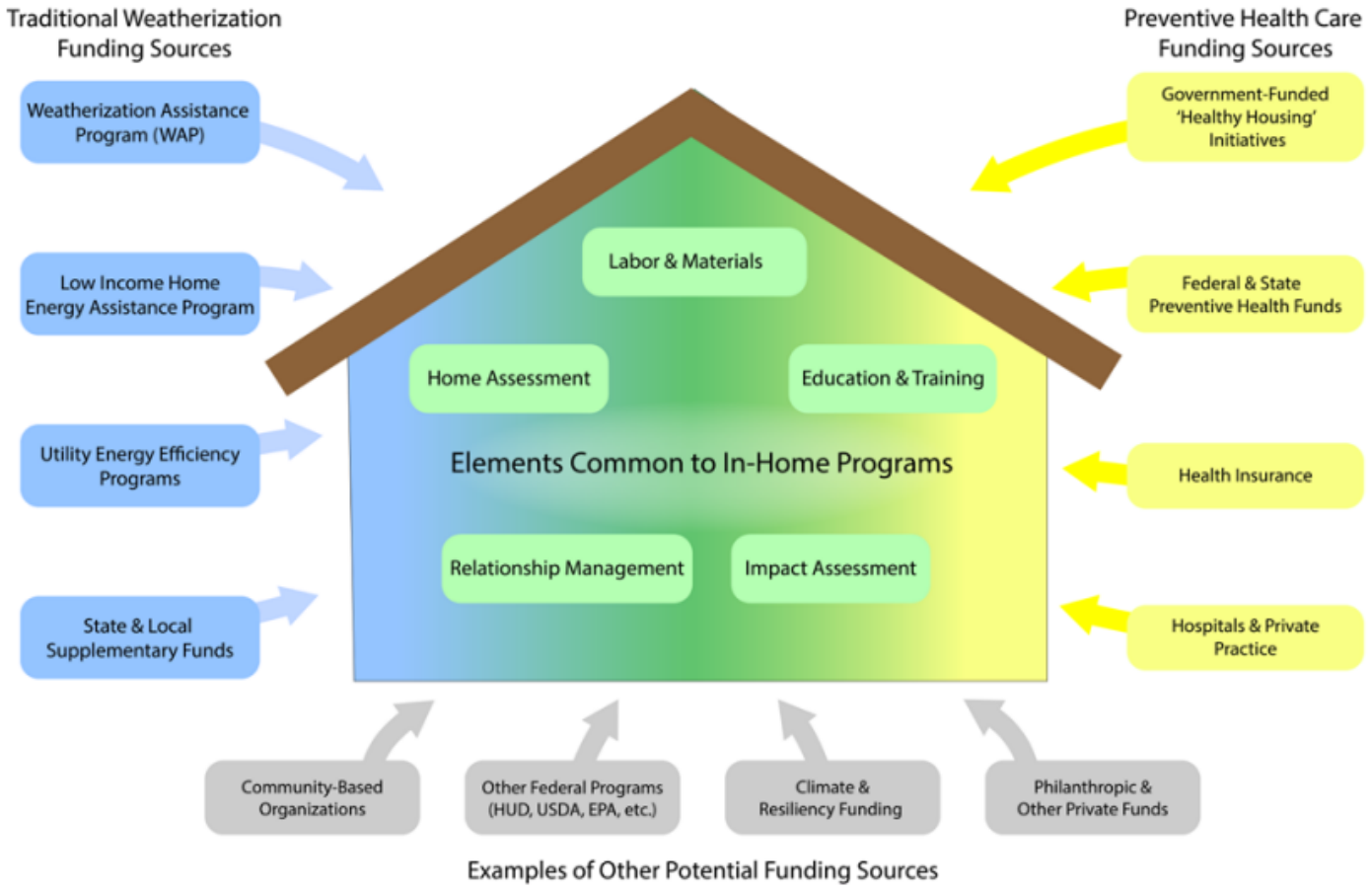


Figure ES-1. Energy efficiency and health sector funding sources that might be braided together to support program elements common to the work of both.

Federal Rebate Attribution Frameworks

Northeast Energy Efficiency Partnerships

No Attribution	Partial Attribution, Proportional Model:	Partial Attribution, Negotiated Model:	Full Attribution

• Only savings tied to utility programs is counted for utilities.
• Any projects that are braided must have funds and measures separated out for savings and evaluation purposes.
 	
• Could deter braiding of funds
	• Proportional savings relative to incentive levels from rate-payer funded programs versus federal funding
	
	• Example
	  • $8,000 weatherization project. Utility offers incentives of $2,000 with federal incentives of $6,000. Utility receives one-quarter of the energy savings.
		• Attribution will depend on what coordination and other requirements are prioritized by the state.
		  • Portion of spending
		  • Marketing
		  • Access to data
		
		• Amount of attributable savings scales between proportional and full depending on initiatives pursued by utility
			• Utility receives full credit for all savings from projects when funding is braided provided they meet any requirements decided by the PUC
			  • Coordination of funds
			  • Leveraging of marketing and customer engagement resources
			  • Programs that prioritize building decarbonization
			
			• Examples: TECH Clean CA and Illinois WAP Program Settlement

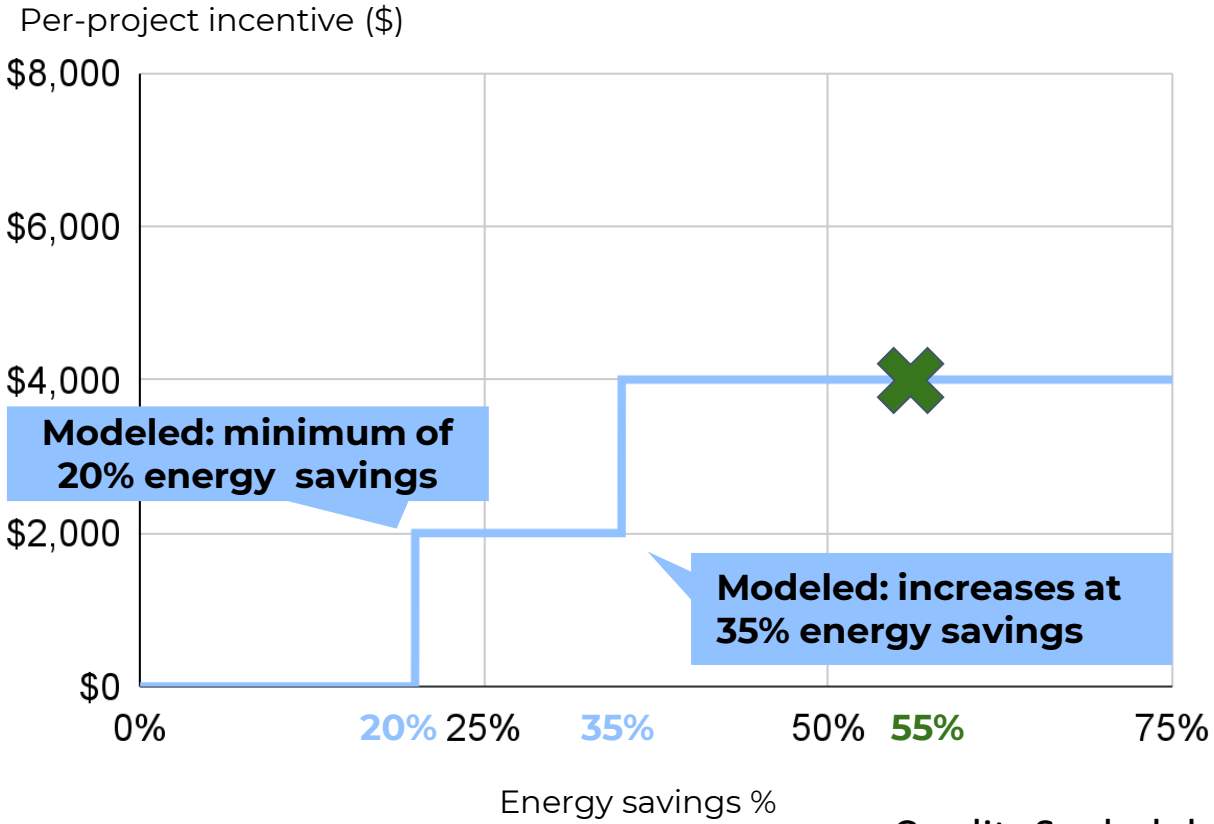
Credit: NEEP, https://neep.org

Evolve programs to pay for performance

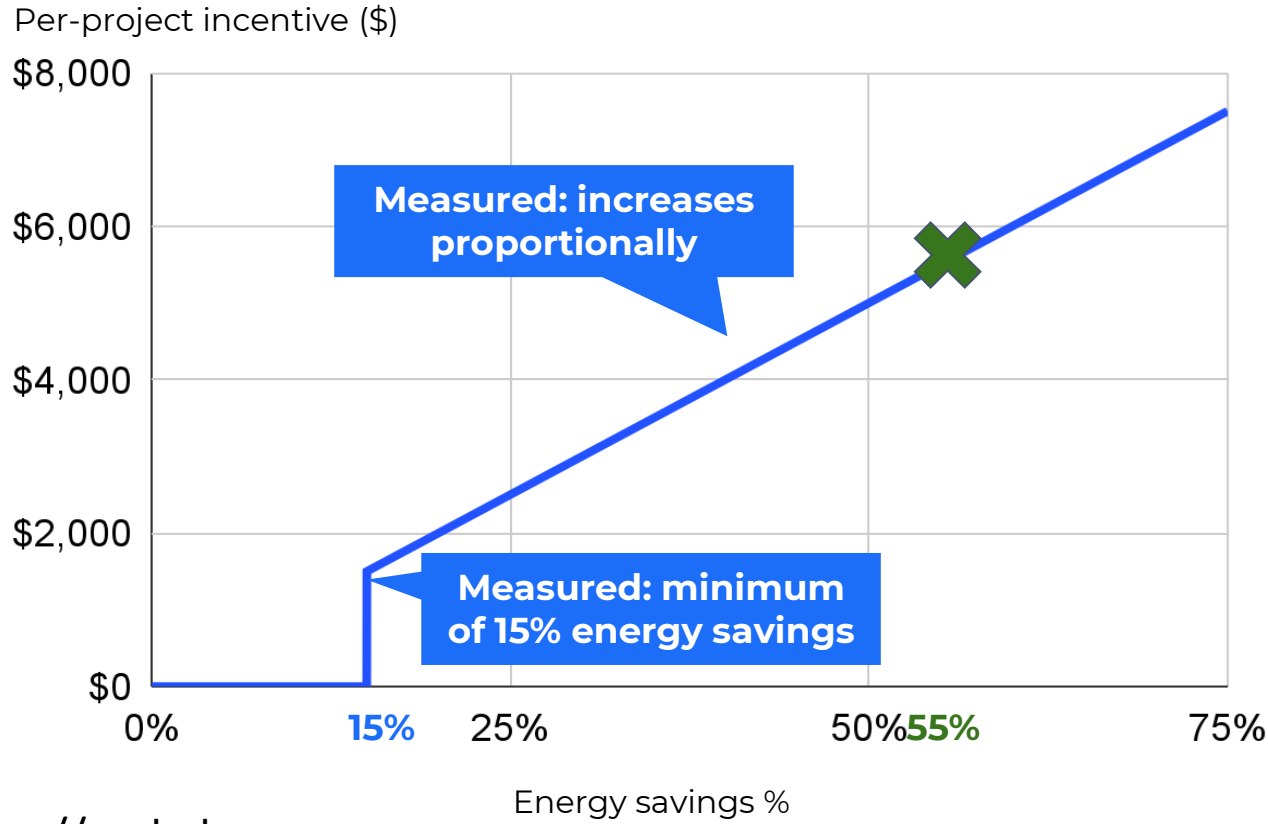
Example project

Starting point: NY home using natural gas heating and with median household income
Work done on house: heat pump HVAC installed that saves 55% of annual energy usage

Modeled pathway



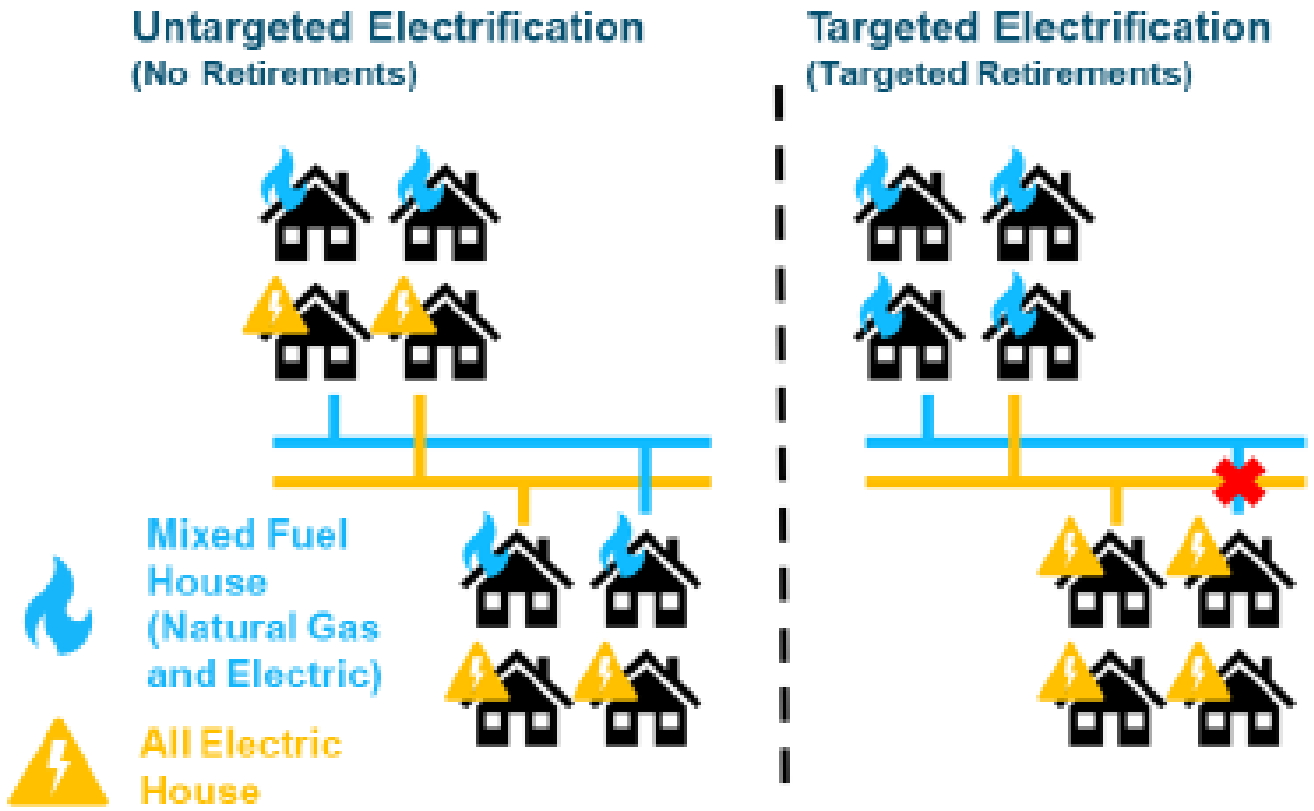
Measured pathway



Credit: Sealed, https://sealed.com

Biggest benefits come from strategic electrification

Figure ES-2: Two Gas System Futures With and Without Targeted Electrification



"The Challenge of Retail Gas in California's Low-Carbon Future", Energy and Environmental Economics, April 2020. https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf

Recent ACEEE Bibliography

1. Heat Pump Programs Can't Keep Leaving Low-Income Households Behind | ACEEE
2. Adapting Energy Efficiency Programs to Reach Underserved Residents | ACEEE
3. Strengthening Equity in Energy Efficiency Programs: Case Studies of Two Utilities | ACEEE
4. Toward Affordable Energy Access: Approaches to Reducing Energy Unaffordability, Arrearages, and Shutoffs | ACEEE
5. Equity and Electrification-Driven Rate Policy Options | ACEEE
6. How Utility Energy Efficiency Programs Can Use New Federal Funding | ACEEE
7. Empowering Electrification through Building Envelope Improvements | ACEEE
8. Impact of Electrification and Decarbonization on Gas Distribution Costs | ACEEE
9. Toward More Equitable Energy Efficiency Programs for Underserved Households | ACEEE
10. Building Electrification: Programs and Best Practices | ACEEE

UPCOMING ACEEE EVENTS

2024	**Hot Air and Hot Water Forums**	Atlanta, GA	March 12–14
	Summer Study on Energy Efficiency in Buildings	Pacific Grove, CA	August 4–9
	Energy Efficiency Policy Forum	Washington, DC	December 3
2025	**Hot Air and Hot Water Forums**	Portland, OR	March 3–5
	Summer Study on Energy Efficiency in Industry	Charlotte, NC	July 16–18
	Energy Efficiency as a Resource Conference	Denver, CO	October 7–9

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