



Addressing Health & Equity through Electrification

Get AMPED Forum
March 16th - 12:00-12:45 pm

Agenda

- Introductions & webinar goals
- AMPED campaign overview
- Climate Justice
- RENEW: Local Case Studies on Electrification & Health
- Equitable Rate Design
- Q&A
- Resources

Presenters



Valerie Lou, MD, MPH
Assistant Professor of
Emergency Medicine
*University of Rochester Medical
Center, Climate Solutions
Accelerator*



Elizabeth McDade
RENEW Program Director
*Rochester Area Community
Foundation Initiatives, Inc.*



Mike Hennen
Principal, Carbon-Free Buildings
RMI

Webinar Goals

- Understand the connection between fossil fuels, air quality, and public health
- Hear about tangible health outcomes driven by electrification projects in our community
- Learn how systems designed to support the most disadvantaged are key to improving everyone's health



Mitigating the impacts of climate change by reducing carbon pollution caused by fossil fuels through the promotion of beneficial electrification in the Genesee/Finger Lakes region.

Funders



Climate Solutions Accelerator

of the Genesee-Finger Lakes Region



Steering Committee Members

Causewave Community Partners
Center for Community Health &
Prevention

Common Ground Health

Dutton Properties

EMCOR Betlem

Empire State Development

Gallina Development

Genesee/Finger Lakes Regional
Planning Council

Genesee Transportation Council

Greater Rochester Chamber of
Commerce

Monroe County

PathStone Corporation

Piekunka Systems Inc.

Rochester Gas and Electric
Corporation

Rochester Institute of Technology

Rochester Housing Authority

Rochester Regional Health

Regional Transit Service

SWBR

University of Rochester



The background of the slide is a dark purple color with a repeating pattern of white lightning bolts. The bolts are arranged in a grid, pointing towards the bottom right.

Valerie Lou, MD, MPH –

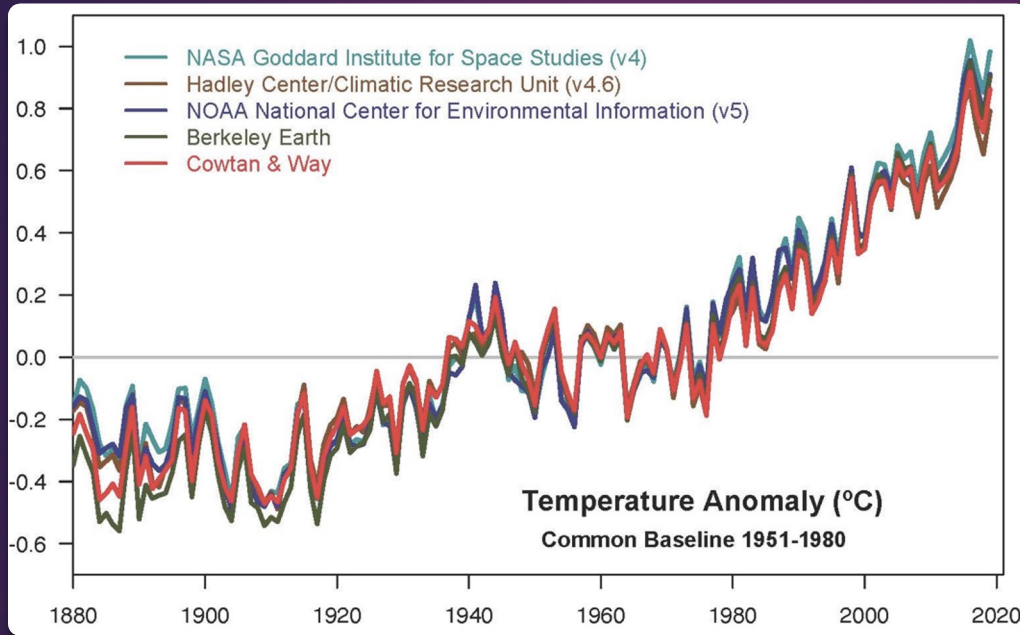
Climate Justice



Climate Crisis to Climate Justice :

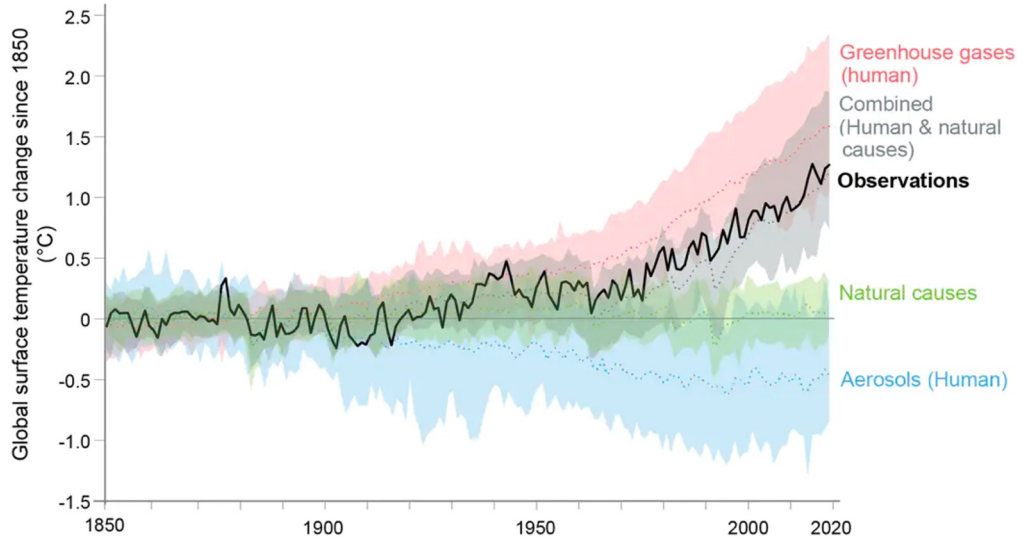
A global problem with
local solutions

VALERIE LOU MD MPH



2020 2nd
warmest
year on
record

How do we know humans are causing climate change?



Anthropogenic Climate Change





KEY
MESSAGE

1

CLIMATE CHANGE AFFECTS THE HEALTH OF ALL AMERICANS



The health and well-being of Americans are already affected by climate change, with the adverse health consequences projected to worsen with additional climate change. Climate change affects human health by altering exposures to heat waves, floods, droughts, and other extreme events; vector-, food- and waterborne infectious diseases; changes in the quality and safety of air, food, and water; and stresses to mental health and well-being.

WELCOME
ROCHESTER
CENTER CITY



THE RICHARD ROSS THEATRE

30

30

City of Rochester
CITY SPEED LIMIT
30
No Through CV
Routes to Park













COMMUNITIES OF COLOR

Some communities of color living in risk-prone areas face cumulative exposure to multiple pollutants.

Adaptation plans that consider these communities and improve access to healthcare help address social inequities.

OLDER ADULTS

Older adults are vulnerable to extreme events that cause power outages or require evacuation.

Checking on elderly neighbors and proper emergency communication can save lives.

CHILDREN

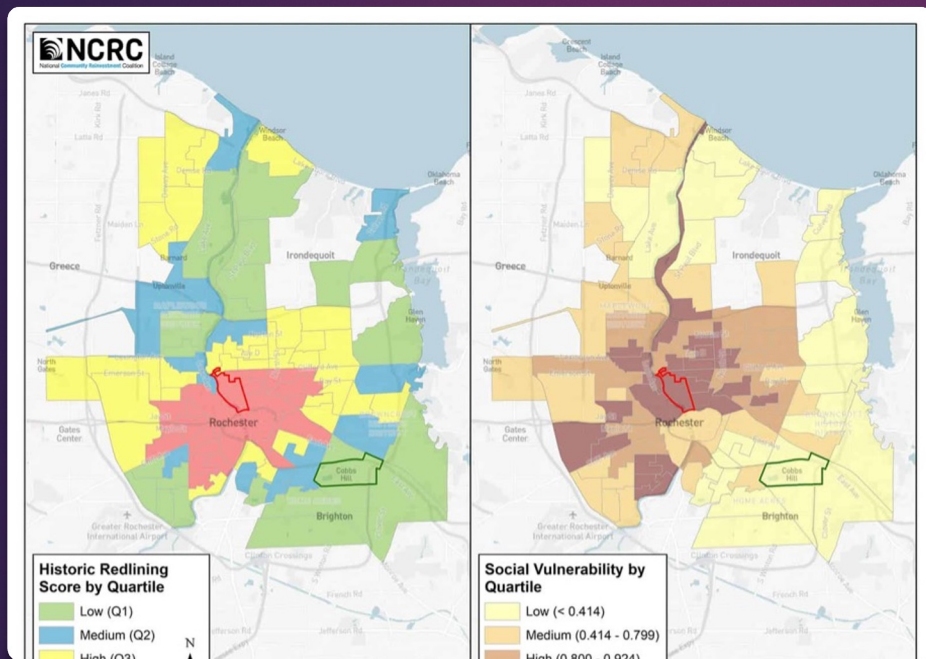
Children have higher risk of heat stroke and illness than adults.

LOW INCOME COMMUNITIES

Low income families are at risk of physical and mental illnesses during flooding and in crowded shelter conditions.



Social Vulnerability in Rochester



Rochester Best/Worst Neighborhoods for Health

| ROCHESTER | Census Tract 92.00 | Census Tract 78.02 |
|--------------------------|--------------------|--------------------|
| TRACT POPULATION | 1146 | 1497 |
| MINORITY % | 64.22 | 11.62 |
| POVERTY % | 57.07 | 3.54 |
| SOCIAL VULNERABILITY | 0.9941 | 0.0751 |
| LIFE EXPECTANCY AT BIRTH | 70.8 | 81.2 |
| ASTHMA % | 13.2 | 8.9 |
| HIGH CHOLESTEROL % | 8.7 | 4.9 |
| COPD % | 10.6 | 4.4 |
| DIABETES % | 21.1 | 8 |
| HYPERTENSION % | 41 | 28.5 |
| KIDNEY DISEASE % | 5.4 | 2.5 |
| MENTAL HEALTH % | 22.3 | 9 |
| OBESITY % | 46.7 | 24.4 |
| STROKE % | 5.7 | 2.2 |



Shifting from Crisis to Justice

- ▶ Climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations



Shifting from Crisis to Justice

- ▶ People deserve the **same degree of protection** from environmental and health hazards, and
- ▶ **Equal access** to the decision-making process to have a healthy environment in which to live, learn, and work.





What do
we need
to do?

The Trifecta

- 1) Improve Social Vulnerability
- 2) Climate mitigation
- 3) Improve Health





Beneficial electrification's positive health and environmental impacts are particularly important for improving health disparities of overburdened and underserved communities and communities of color.

1 Disparities in Health Outcomes



2 Heightened Location-Based Exposure to Pollutants and Climate Risks

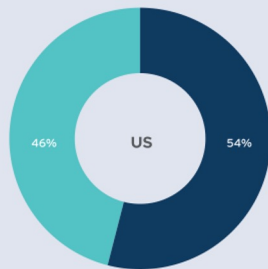


3 Heightened In-Home Exposures to Pollutants and Allergens

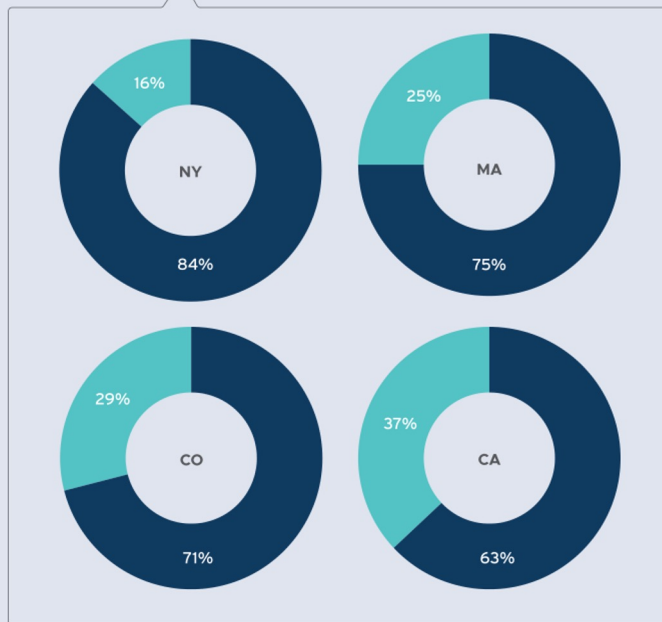


4 Heightened Vulnerability: The "Heat or Eat" Dilemma





- Percent of homes using fossil fuel heat
- Percent of homes using electric and other heat





100%
clean
renewable
energy

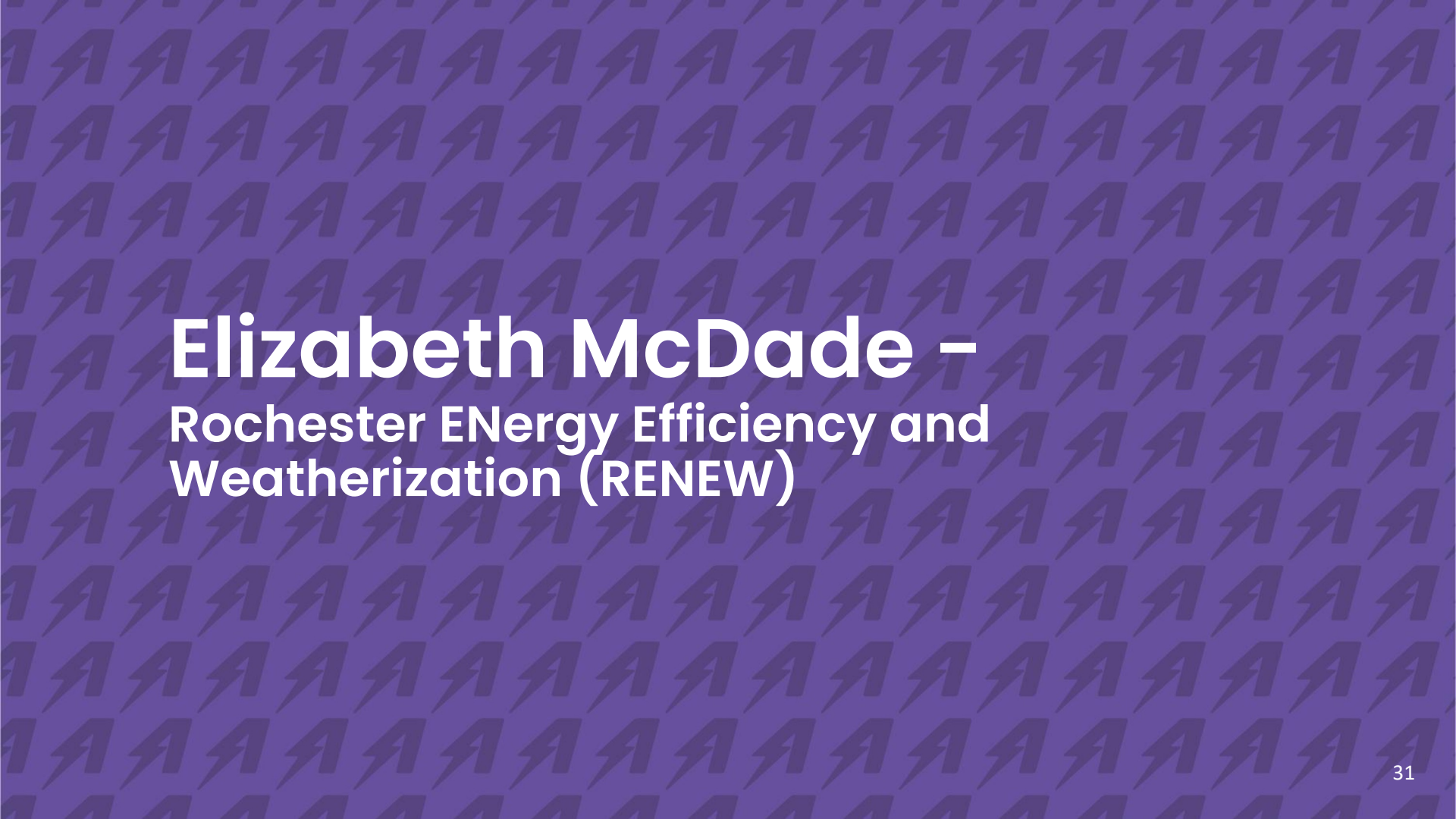
PROTECT OUR WATER & PUBLIC HEALTH
**NO PILGRIM
OIL
PIPELINES**
StopPilgrimPipeline.com

PROTECT OUR WATER & PUBLIC HEALTH
**NO PILG
OIL
PIP**

Pre
TH
UN

WE HAVE SOLUTIONS THE



The background of the slide is a dark purple color with a repeating pattern of white lightning bolts. The bolts are arranged in a grid-like fashion, pointing towards the top right.

Elizabeth McDade – Rochester ENERGY Efficiency and Weatherization (RENEW)

Who and what is RENEW?

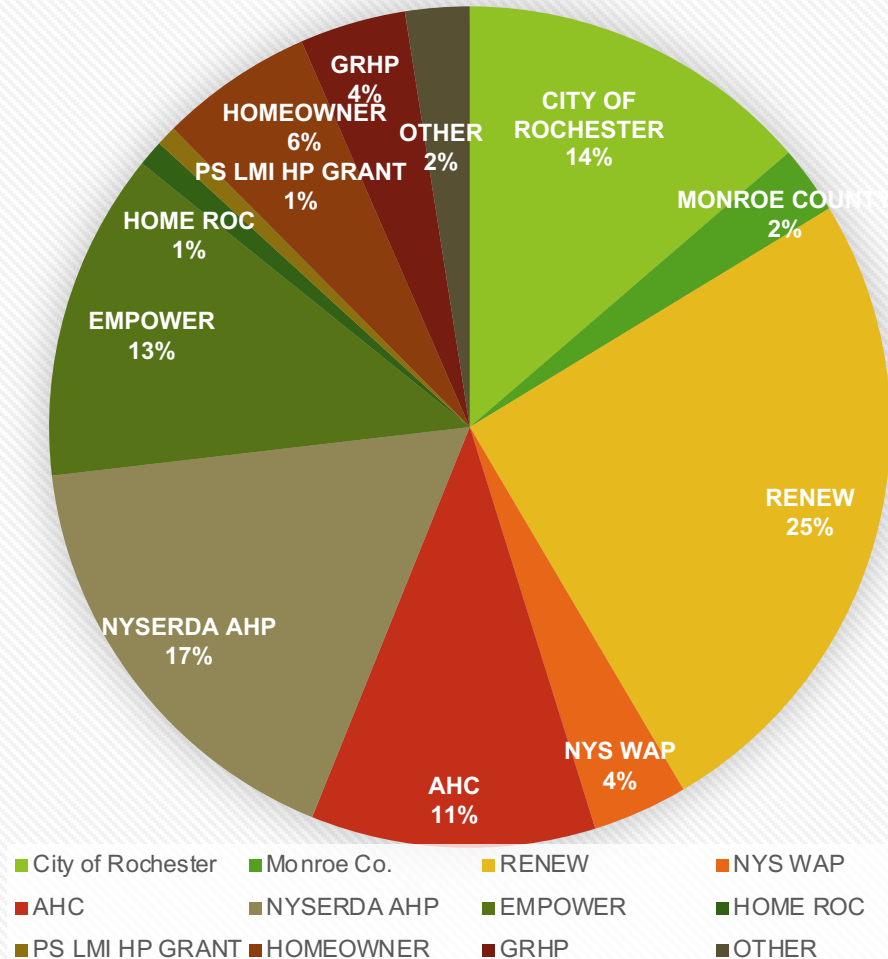
- ▶ Rochester ENergy Efficiency and Weatherization (RENEW)
- ▶ Multi-year collective impact program.
- ▶ Seeded with \$1.0M in NYS Attorney General settlement funds; work continues through grants from ESL Charitable Foundation, Rochester Area Community Foundation, John and Margaret Sinclair Foundation, NYS Senate Legislative Initiatives, Monroe County ARPA, Congressional Community Project Funding, and individual donations.
- ▶ AG funding originally targeted City of Rochester residents only
- ▶ Housed at Rochester Area Community Foundation
- ▶ RENEW Partners include:

Action for a Better Community
City of Rochester
Coalition to Prevent Lead Poisoning
Climate Solutions Accelerator
Common Ground Health
Greater ROC Habitat for Humanity
Ibero American Development Corp.

Monroe Co. Dept. of Public Health
Monroe County Office on Aging
NeighborWorks Community Partners
PathStone Corporation
Rochester Housing Dvlpt Fund Corp.
Rochester Inst. Of Technology
Town of Greece



Partner Contributions via multiple Funding Streams



What has RENEW done?

- ▶ RENEW and community partners have invested **\$7.06M** into the homes of **470+** income-eligible homeowners making them more energy-efficiency, healthier, and safer.
- ▶ Majority of RENEW clients are women of color, head of household, with children, who earn an average of \$27,800 a year.
 - ▶ Clients experience a **20% average savings on fuel costs.**
 - ▶ Clients experience better physical and mental health outcomes. **100% with self-reported pre-existing respiratory conditions report reduced symptoms.**
- ▶ Estimates show that as of Feb 2023, RENEW's work will keep **6,628 tons of greenhouse gas from entering the atmosphere.**

RENEW decision making process

Criteria:

- ▶ Homeowners must be working with a RENEW partner (a 501c3) and meet partner eligibility criteria.
- ▶ RENEW funds energy efficiency, weatherization, and health and safety interventions—
 - ▶ OR, the removal of barriers that render the homeowner ineligible for energy-efficiency work including sewer line or electrical panel replacement, mold remediation, etc.
- ▶ RENEW is not a primary funder. Project proposals must be braided with partner funds and contain *at least* a 50% match.

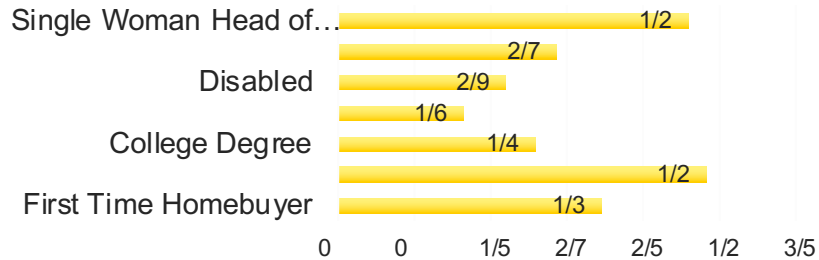
Priorities:

- ▶ No heat/hot water
- ▶ Homeowner is ineligible for HEAP or EARP
- ▶ Sewage in the basement

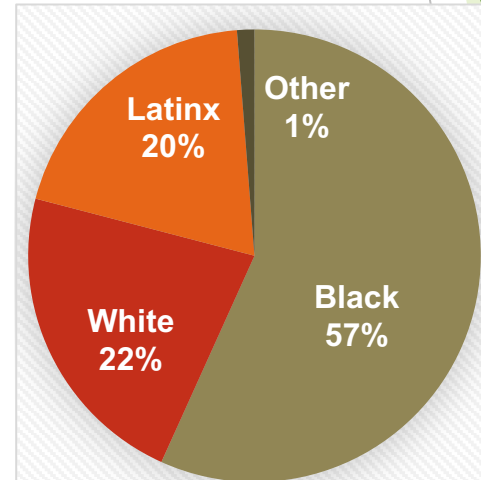


RENEW partners meet monthly to decide how to efficiently allocate grant funds to help LMI homeowners.

Who do we serve?

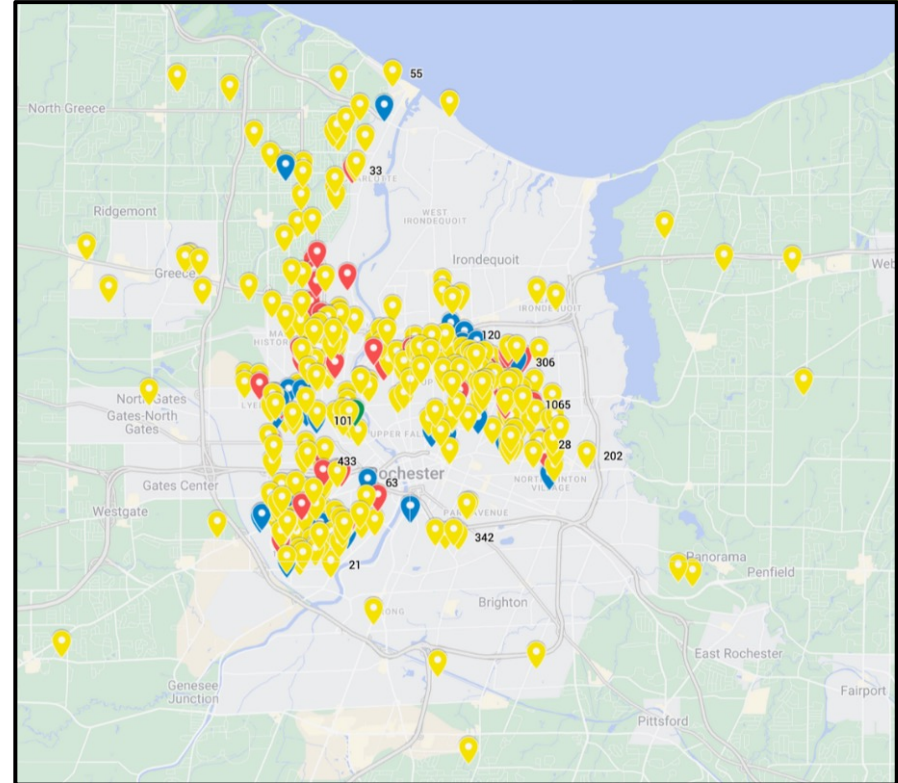


- RENEW projects to address unmet need can be found in every City of Rochester zip code, Brighton, Brockport, East Rochester, Gates, Greece, Henrietta, Irondequoit, Penfield, Pittsford, Spencerport, and Webster.



Progress as of Feb. 2023

- ▶ 470+ projects
- ▶ RENEW grants: **\$1,918,705.68**
- ▶ Partner dollars: **\$5,154,462.06**
- ▶ Average RENEW grant: **\$4,073.00**
- ▶ Total dollars invested in energy efficiency, weatherization, and health & safety: **\$7.06 million.**



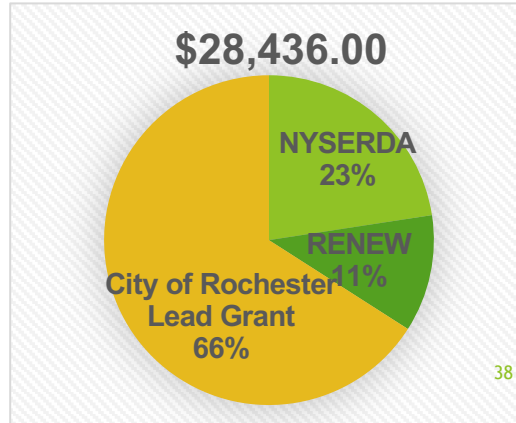
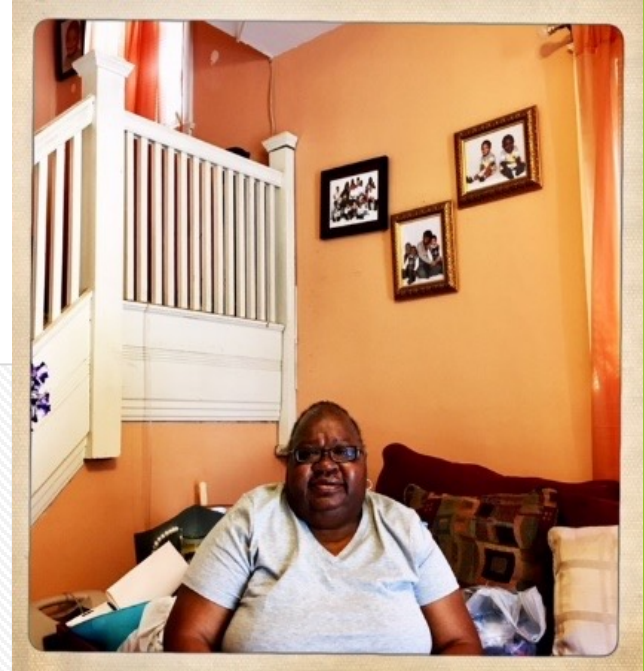
Inez lives in NE Rochester with her 4-year-old granddaughter. She is being treated for BOOP (bronchiolitis obliterans organizing pneumonia).

Mold in the home was identified as exacerbating her illness, but the cost to remediate was prohibitive. Her doctor at URMCC referred her to Finger Lakes Occupational Health Services and they in turn connected Inez to PathStone.

She qualified for a City Lead grant, received insulation, windows, a hot water heater, a dehumidifier, and mold remediation.

Most importantly, ***Inez's BOOP has stabilized.***

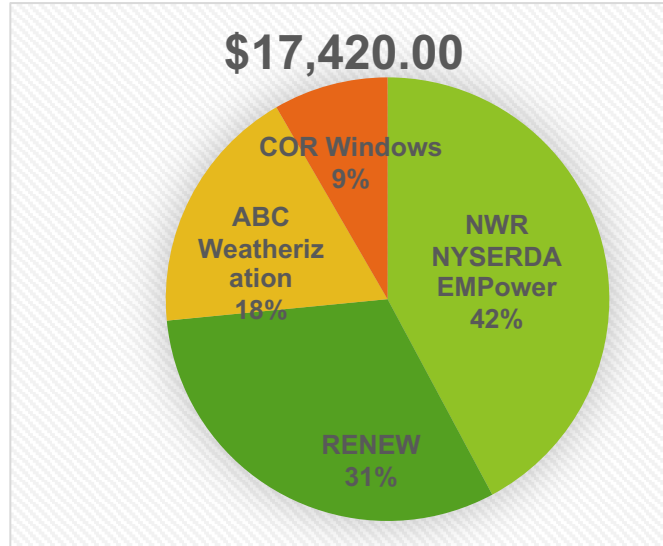
18.5% fuel cost decrease;
42.16 tons of carbon eliminated



Joyce called NeighborWorks Rochester because her sewer line was broken. *"We couldn't flush the toilet or take a shower. You can't go to work if you don't take a shower."* NeighborWorks couldn't do weatherization work without getting the sewer line replaced, but their funding did not cover that scope of work.

Joyce slept on the couch in the living room because the downstairs windows were not secure. *"If someone came in the house through one of those windows, I wouldn't have heard them upstairs in my room...and I have two daughters!"*

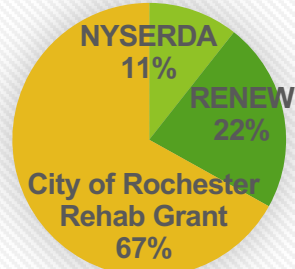
Joyce and her family received a new sewer line, insulation, high efficiency furnace, air sealing, new door, AND eight new windows that close and lock. For the first time in years, Joyce is sleeping in her own bed.



30% fuel costs decrease; 60.12 tons of carbon eliminated



\$37,685.00



21% fuel costs decrease; 33.89 tons of carbon eliminated

Bill is a 62-year-old veteran living in SE Rochester.

He told us he lives alone and struggles with depression. He was so ***motivated by all of the improvements that he decided to make his own changes not covered by the grants.***

Bill talked about ***how much better he felt after talking to the crew, getting help, and seeing how much nicer his home looked after all the work was completed.***



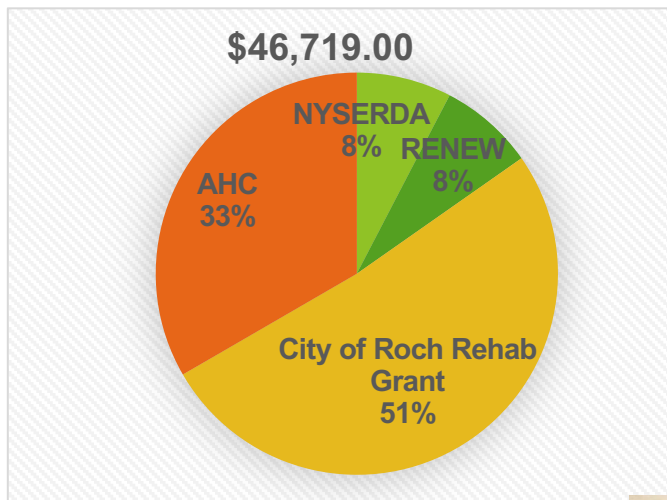
Three generations live under the roof of this home in the Holy Rosary Neighborhood.

Their home was always hard to keep warm. At one point, they did not have a working furnace.

Diagnosed with adult-onset asthma, Pamela woke up coughing every night.

Now they have a new roof, hot water heater, furnace, and windows.

With the new furnace, Pamela sleeps through the night. Her husband is also sleeping better because she used to wake him with her coughing.



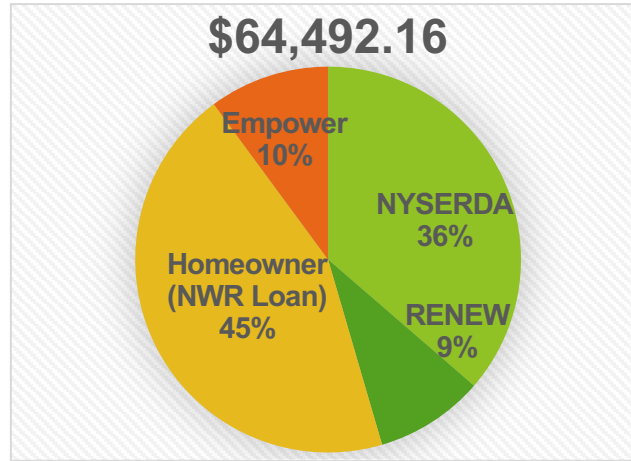
19% fuel costs decrease; 23.8 tons of carbon eliminated



Joanne, her husband, two children and four grandchildren live in Marketview Heights.

Joanne went to NeighborWorks Rochester (NWR) looking for a loan for a new roof. When Al from NWR met with Joanne and told her she could qualify for some significant home improvements, Joanne was skeptical. *“When Al started saying we could get a new furnace, a hot water heater, siding, windows, and insulation I was like ‘am I dreaming?’ and thought ‘I’ll believe it when I see it.’”*

Now the home is warmer in the winter and since they live on a busy street, Joanne has noticed that is it quieter.



Joanne says, “Everyone is feeling much more comfortable and confident about our home. Especially the younger ones, they see that change is possible.”

Joanne’s daughter and granddaughter made regular trips to the ED for asthma-related issues. They have not gone once since work was completed.

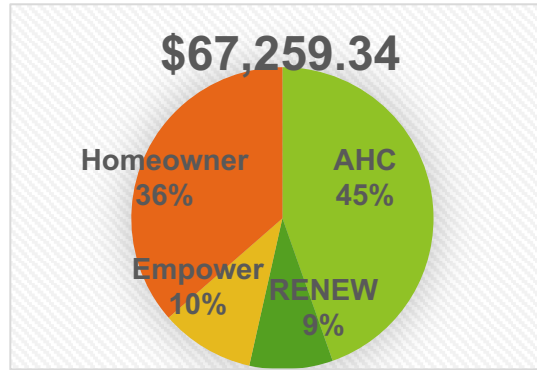


Patty grew up in Rochester. She lives with her husband, takes care of her grandchildren, and has Lupus.

Two years ago, they bought a foreclosed property in the northeast part of the city. Patty said, *"We needed a home. We were getting older and did not want to live in debt."*

The house had no plumbing, bathroom, electricity, or floors. She received a home improvement loan through her credit union and made many repairs.

In May 2019, the family moved in. Shortly afterwards a pipe burst in the wall in the kitchen. They replaced the pipes from the second floor to the basement. Six months later the sewer line stopped functioning. After the investment already made in the home, replacing the sewer line was an impossible expense. They did not have the resources. Mold and mildew appeared and the basement sink would not drain.



"You would take a shower and see toilet paper floating up through the drain...it was really bad. If your sewer doesn't work, you don't have a home." They put dryer sheets in the heat vents and burned candles to mask the overwhelming stench of sewage. Patty said, ***"I was desperate. I was in the hospital with severe respiratory problems. I could not breathe."***

RENEW worked with PathStone and Ibero and **now the family has a safe and healthy home with a fully functioning sewer line.**

16.23% fuel costs decrease; 40.57 tons of carbon eliminated



55 Heat Pump Hot Water Heaters

43.81% decrease
in energy costs;
33.38 tons of
carbon
eliminated;
\$467.49 saved



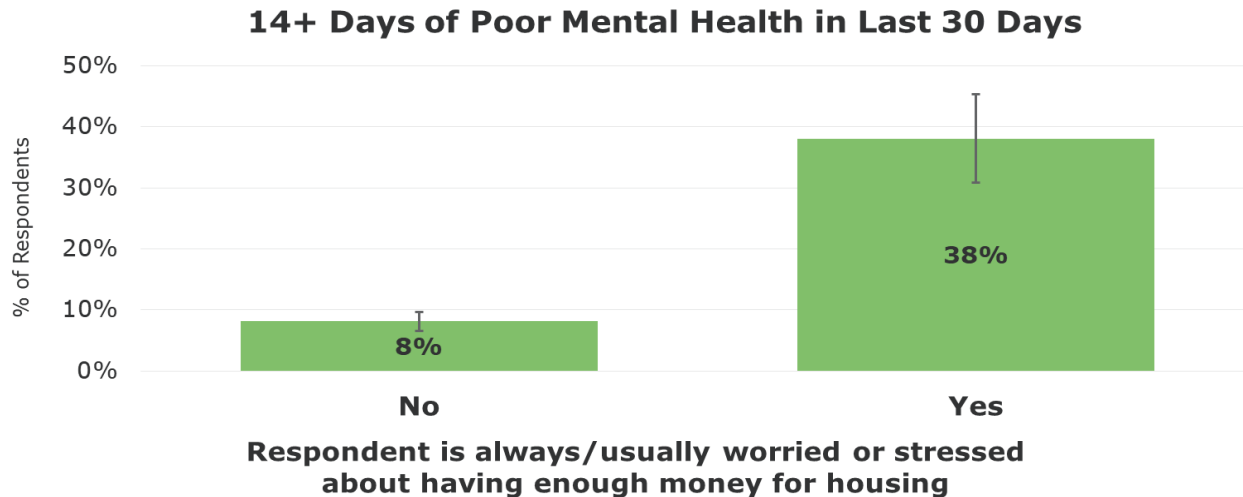
36.46% decrease
in energy costs;
51.75 tons of
carbon eliminated;
\$576.35 saved



RENEW considers how energy efficiency work impacts the **health & wealth** of a family

- ▶ Water infiltration can create permanent damage that not only weakens the structure of the home, and possibly creates fire hazards from damage to electrical wiring, but also creates health hazards.
- ▶ Cold or inconsistent temperatures, dampness and moisture, mold and mildew *can trigger asthma attacks and other respiratory conditions.*
- ▶ Heating/cooling system upgrades, improved indoor temperatures, improved ventilation, lead paint remediation, health & safety work, etc. *can reduce health hazards in the home.*
- ▶ *100% of RENEW clients with pre-existing self-reported respiratory conditions **report significantly reduced symptoms.***

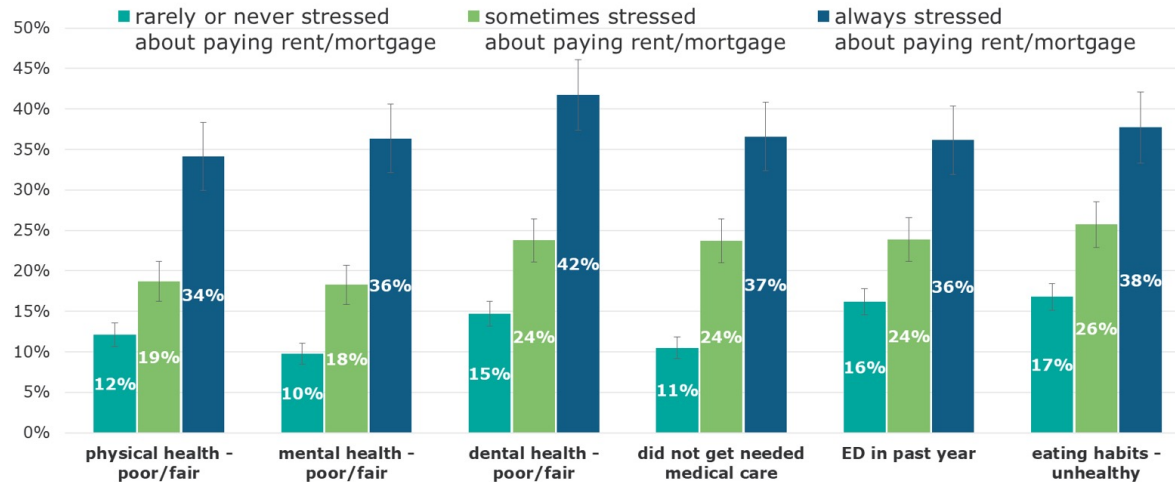
“People who reported **significant concerns about having enough money for housing were much more likely to experience persistent poor mental health**. Numbers below reflect respondents who said they were **always or usually worried** about having enough money to pay rent/mortgage. Not surprisingly, the prevalence of housing insecurity is much higher in **low-income populations**. Data suggests that such insecurity is **especially a problem in urban areas**.”



Source: NYSDOH Expanded Behavioral Risk Factor Surveillance System (BRFSS) 2016; analysis of Finger Lakes nine county region by Common Ground Health (responder data weighted to estimate actual population composition); shown with 95% confidence intervals (^ indicates highly variable rate with confidence interval half-width greater than 10%)

“Financial stability is related to a broad range of health indicators. People who are always stressed about affording rent or mortgage payments report much higher rates of poor health status and outcomes.”

Health indicators by financial stress (Finger Lakes region)



Source: My Health Story survey 2018. Analysis by Common Ground Health incorporates weighting to reflect demographics of each county and the region. Data shown with 95% confidence intervals.

Health & Climate Benefits of Reducing Carbon/GHG emissions

- ▶ Reduced air pollution
- ▶ Reduced “heat island” effects
- ▶ Reduced healthcare costs
- ▶ Neighborhood stabilization
- ▶ Monetized benefits 5-10 times larger than mitigation costs
- ▶ By implementing effective climate solutions, we can address many social and economic justice issues.

RENEW's collective impact design serves as an exemplar for the significance, and widespread economic and healthful impact, climate smart initiatives have the potential to achieve:

- improved community health status
- transformed neighborhoods
- increased generational wealth
- foreclosure prevention & retained homeownership
- improved community-wide economic stability

Thank you!

ELIZABETH MCDADE
RENEW Program Director

emcdade@racf.org
O: (585) 341-4362
racf.org/fund/renew-climate-fund/

FB: [@RENEWClimateFund](https://www.facebook.com/RENEWClimateFund)

IG: [@renewclimate](https://www.instagram.com/renewclimate)





Mike Henchen –

Equitable Rate Design



Equitable Rate Design

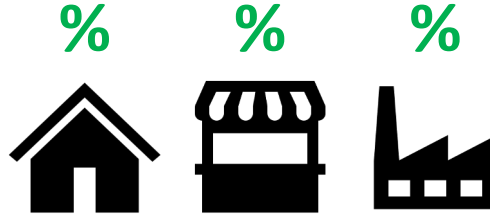
March 16, 2023

What's the process for setting rates (roughly)?



How much can the utility spend,
on what?
How much profit can they earn?

Revenue requirement



How should that be divided
among customer classes?

Cost allocation

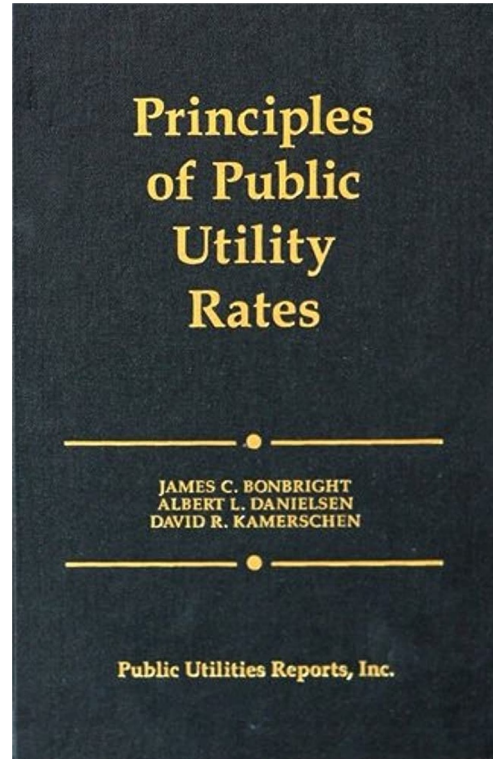


How are individual bills
calculated?

Rate design

Traditional rate principles (paraphrased)

- 1 Rates are sufficient to recover approved utility costs
- 2 Rates are fairly allocated and avoid discrimination
- 3 Rates provide efficient price signals and discourage waste
- 4 Rates are acceptable to customers: stable, predictable, and easy to understand



Rate principles: what's different now?

- Growing awareness of energy burden and utility shutoffs
- Electric rates may discourage electrification, even when we need it for climate action
- Opportunity for technology to shift & optimize how we use electricity
- Gas rates: how to manage expected decline on a system with fixed costs?

Some tensions

Utilities need to invest in reliable systems



Avoid excessive spending, keep rates affordable

Economically efficient price signals (e.g., time-varying)



Simple rates, easy to understand

Get people burning less gas



Recover enough funding to keep the gas system safe & reliable

Set electric rates to encourage conservation



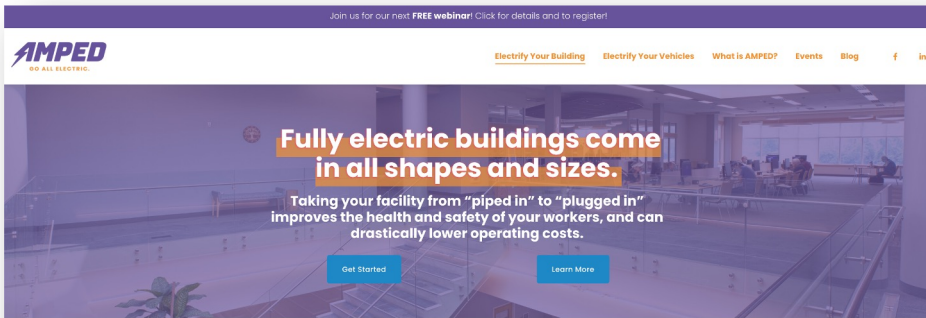
Set electric rates to encourage electrification

So, what would support an equitable energy transition?

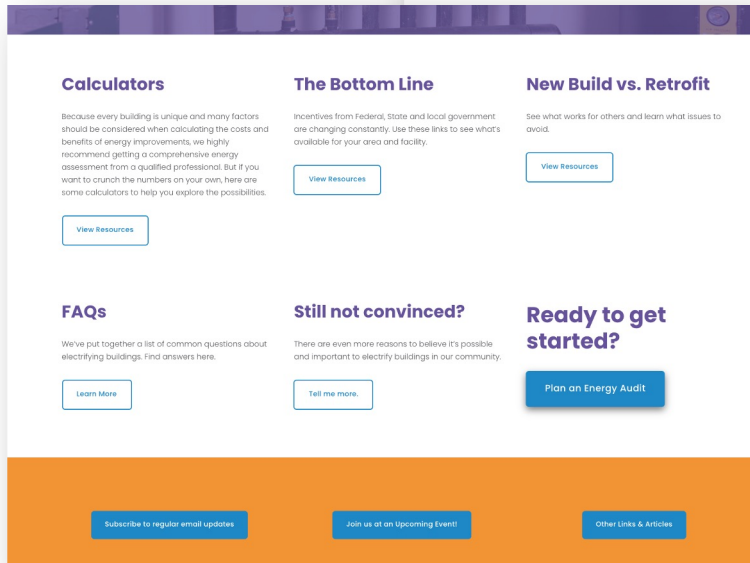
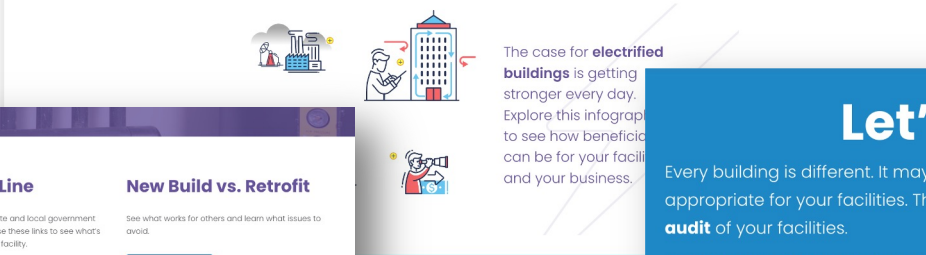
- 1 Expand protections for low- and moderate-income families
- 2 Pare back gas system capital investments; pursue non-pipe alternatives
- 3 Move toward time-varying electric rates
- 4 Pursue electrification-friendly rates (evolving space)
- 5 Maximize outside funds whenever possible (IRA, RGGI, etc.)

Q&A

AMPED Resources



Website with information and resources



Let's get started!

Every building is different. It may take some expertise to know which technologies are most appropriate for your facilities. That's why the best place to start is a **comprehensive energy audit** of your facilities.

An energy audit will identify areas of your facility and operation where energy can be saved. This process will deliver you a report filled with energy- and cost-saving recommendations ranging from lighting to large-scale capital improvements. This gives you actionable advice to make informed investment decisions.

Thankfully, there are **incentives, tax credits, and financing options** available — from New York State Energy Research and Development Authority (NYSERDA) and others — to help businesses get started! If you need help to determine which option is right for your business, contact the HeatSmart Energy Advisor!

Schedule a meeting with a HeatSmart Energy Advisor

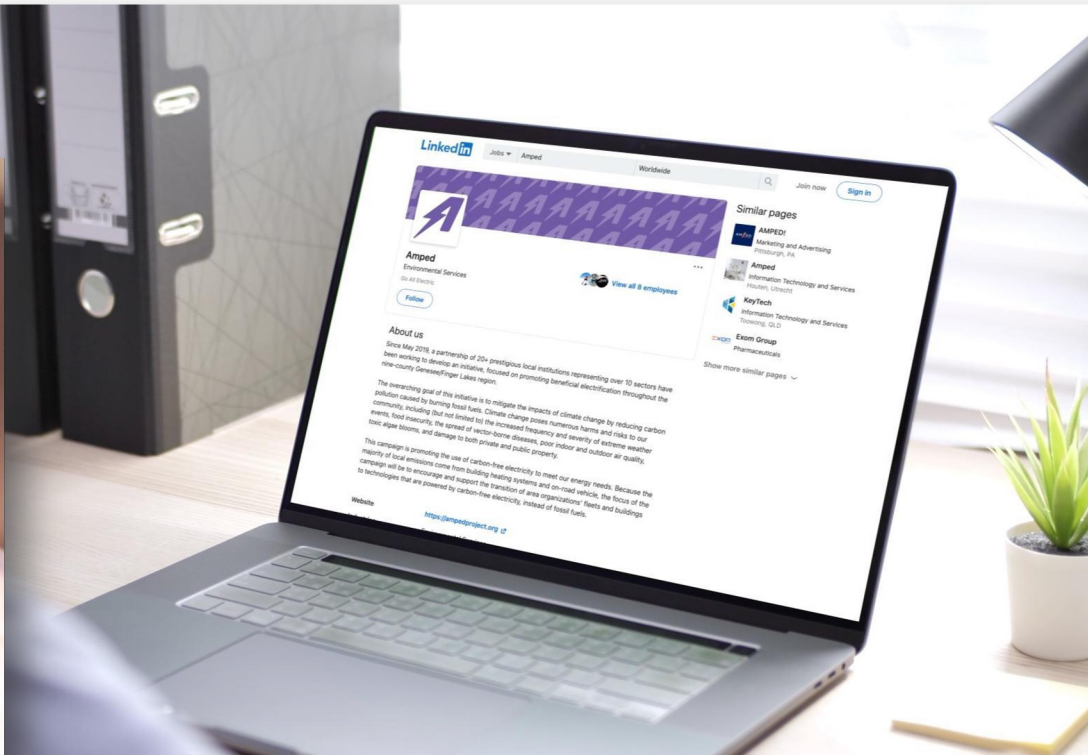
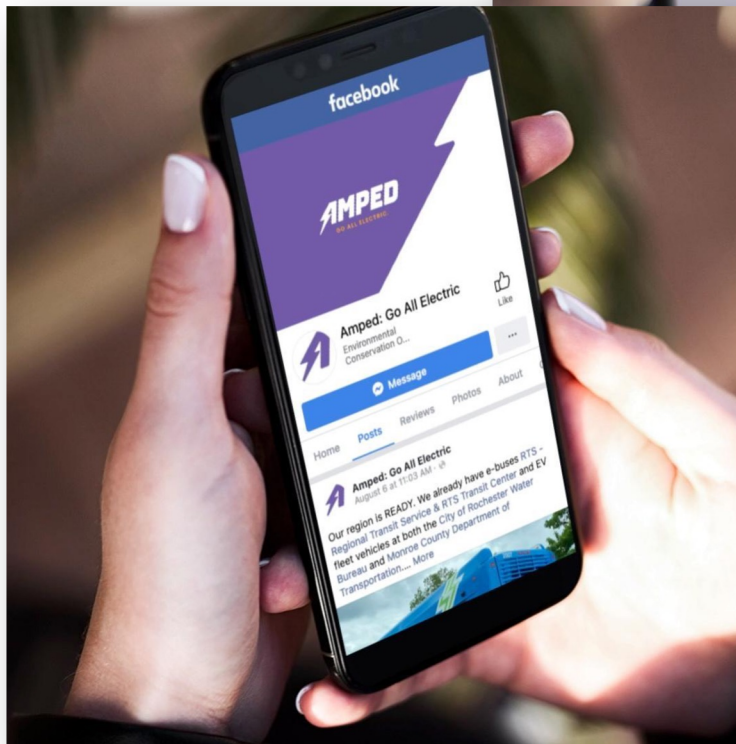
OR

Explore Energy Assessment Programs through NYSERDA

HeatSmart is a trusted partner of the AMPED Project, offering free energy assessments, unbiased expert advice, vetted installers, and timely information on local, state, and federal incentives.



Social Media



Next Steps

1. [Subscribe](#) to AMPED for electrification tools and resources delivered to your inbox
2. [Donate](#) to the RENEW Climate Fund to clean the air we ALL breathe. Carbon offset donations allow individuals, businesses, institutions, and municipalities to reduce carbon footprints associated with everyday activities.
3. As an organization, consider the ways you can invest your funds to help or harm public health. Talk to a consultant about electrifying your [building](#) or [fleet](#).
4. Check out [organizational opportunities](#) for climate action through the Climate Solutions Accelerator of the Genesee-Finger Lakes Region.
5. Send a letter to the Public Service Commission to share your thoughts about rate increases.