Energy Waste Reduction Low Income Workgroup






April 10, 2023

MPSC
MICHIGAN PUBLIC SERVICE COMMISSION

Agenda

1:00 pm	Welcome	Brad Banks Energy Waste Reduction Section, MPSC
1:10 pm	Opening Remarks	Carla Walker-Miller, Walker-Miller Energy Services
1:20 pm	Overview	Briana Parker Associate Director, Policy, Diversity & Inclusion Elevate Alexis Blizman, Legislative & Policy Director- Ecology Center
1:30 pm	Small Group Networking Breakout & Introductions	
1:45 pm	Workforce Development Committee: Weatherization Training Barriers as Opportunities	Maddy Kamalay Weatherization Specialist, Bureau of Community Action & Economic Opportunity MDHHS
2:30 pm	Health and Safety Committee: Monetize and Measure Non-Energy Benefits	Carina Gronlund, PhD, MPH Research Assistant Professor, University of Michigan Institute for Social Research Bruce Tonn, PhD Executive Director, ThreeCubed
3:50 pm	Next Steps & Closing	Brad Banks Energy Waste Reduction Section, MPSC

BUILDING ENGAGEMENT WITH THE WEATHERIZATION ASSISTANCE PROGRAM

BUREAU
Community Action and Economic Opportunity

Weatherization Works

MiTEC
Michigan Training & Education Center

WEATHERIZATION ASSISTANCE PROGRAM

Weatherization Assistance Program's primary purpose established by law is

"…to increase the energy efficiency of dwellings owned or occupied by low-income persons, reduce their total residential energy expenditures, and improve their health and safety, especially for low-income persons who are particularly vulnerable such as the elderly, the handicapped, and children."

WEATHERIZATION ASSISTANCE PROGRAM

The U.S. Department of Energy (DOE)

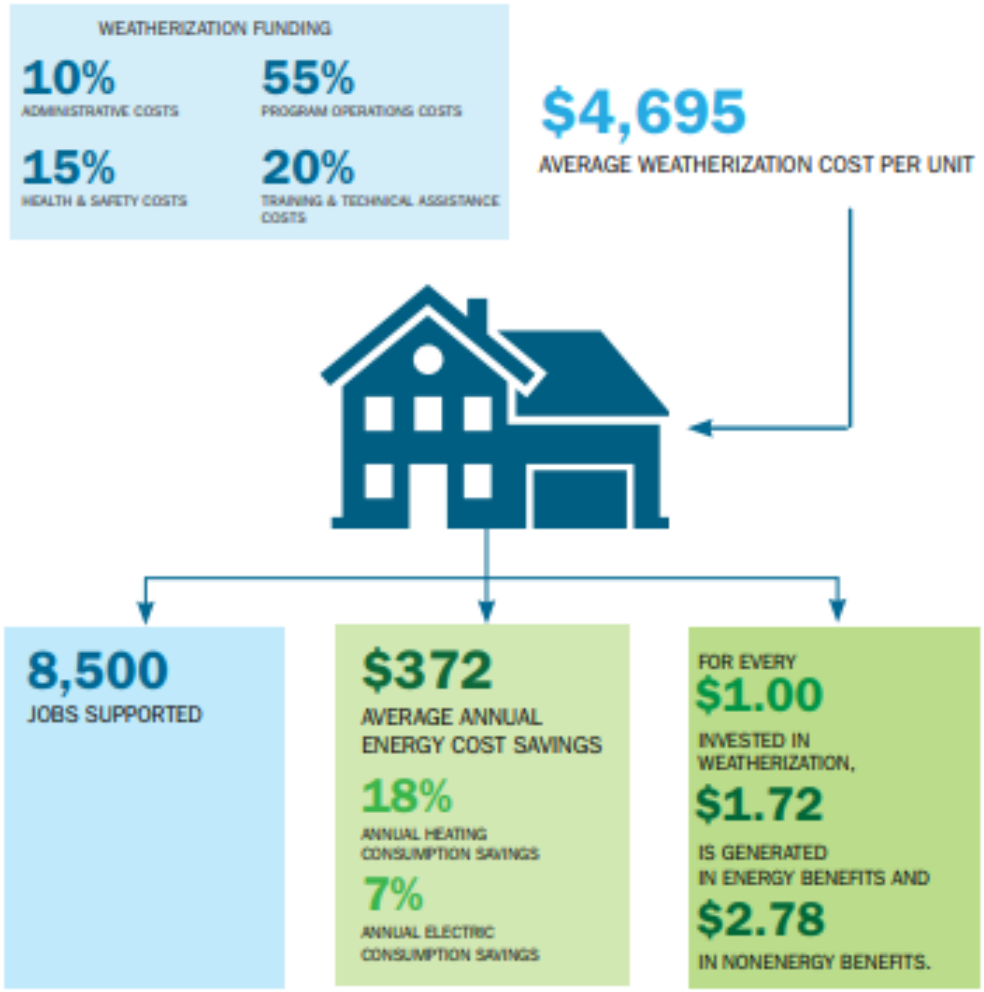
Weatherization Assistance Program (WAP)

reduces energy costs for low-income households by increasing the **energy efficiency of their homes,**

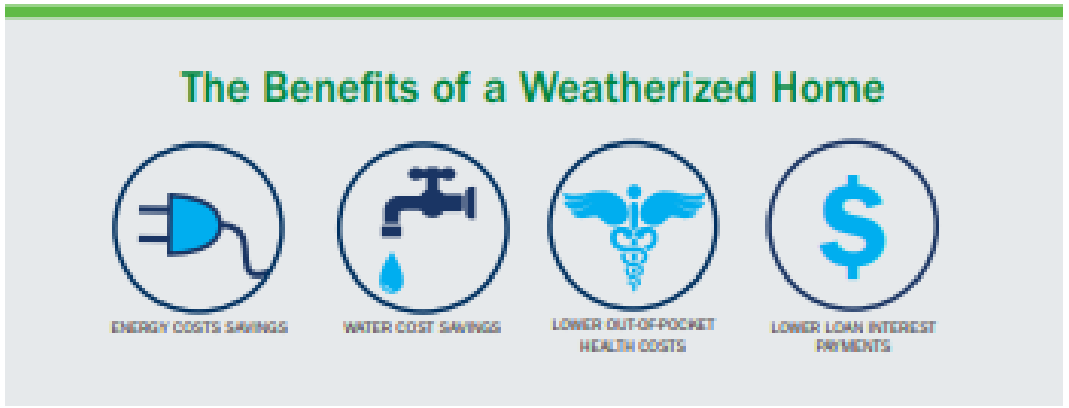
while ensuring their health and safety.

The program supports **8,500 jobs** and

provides weatherization services to approximately **35,000 homes every year** using DOE funds.



WEATHERIZATION ASSISTANCE PROGRAM

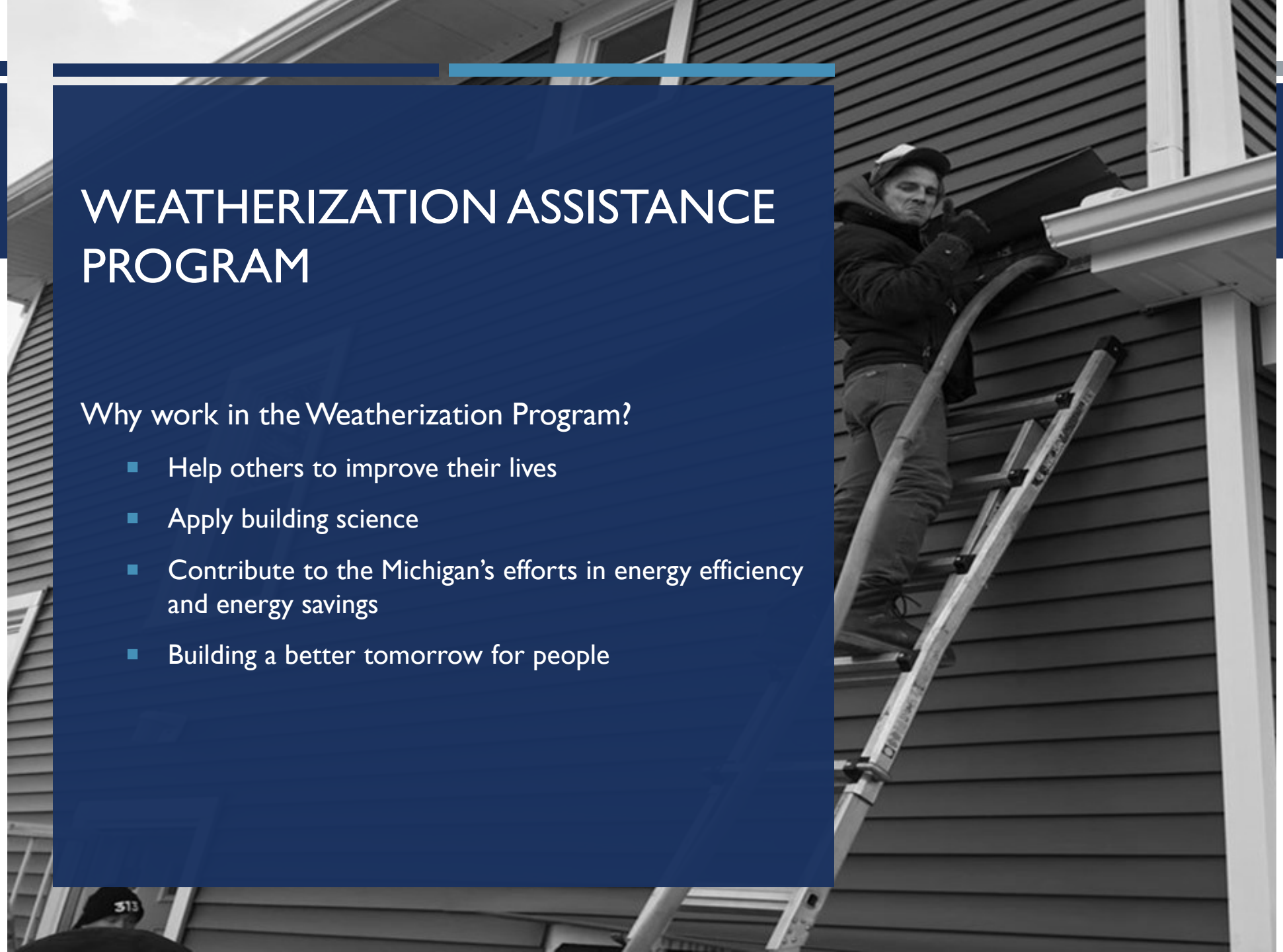


Through weatherization improvements and upgrades, these households save on average **$372 or more every year** according to a national evaluation of the program (expressed in 2022 dollars). Since the program began in 1976, WAP has helped improve the lives of more than 7 million families through weatherization services.

WEATHERIZATION ASSISTANCE PROGRAM

Why work in the Weatherization Program?

- Help others to improve their lives
- Apply building science
- Contribute to the Michigan's efforts in energy efficiency and energy savings
- Building a better tomorrow for people



WEATHERIZATION ASSISTANCE PROGRAM

MECHANICAL MEASURES

- Clean, tune, repair, or replace heating and/or cooling systems.
- Install duct and heating pipe insulation.
- Install programmable thermostats and other HVAC controls.
- Repair/replace water heaters.
- Install water heater tank insulation.
- Insulate water heating pipes.
- Install solar water heating systems.
- Install waste heat recovery devices.

HEALTH & SAFETY MEASURES

- Complete combustion appliance safety testing.
- Repair/replace vent systems to ensure combustion gas draft safely outside.
- Install mechanical ventilation to ensure adequate indoor air quality.
- Assess fire hazards. Install smoke and carbon monoxide alarms when needed.
- Evaluate mold/moisture hazards.
- Perform incidental safety repairs when needed.

BUILDING SHELL MEASURES

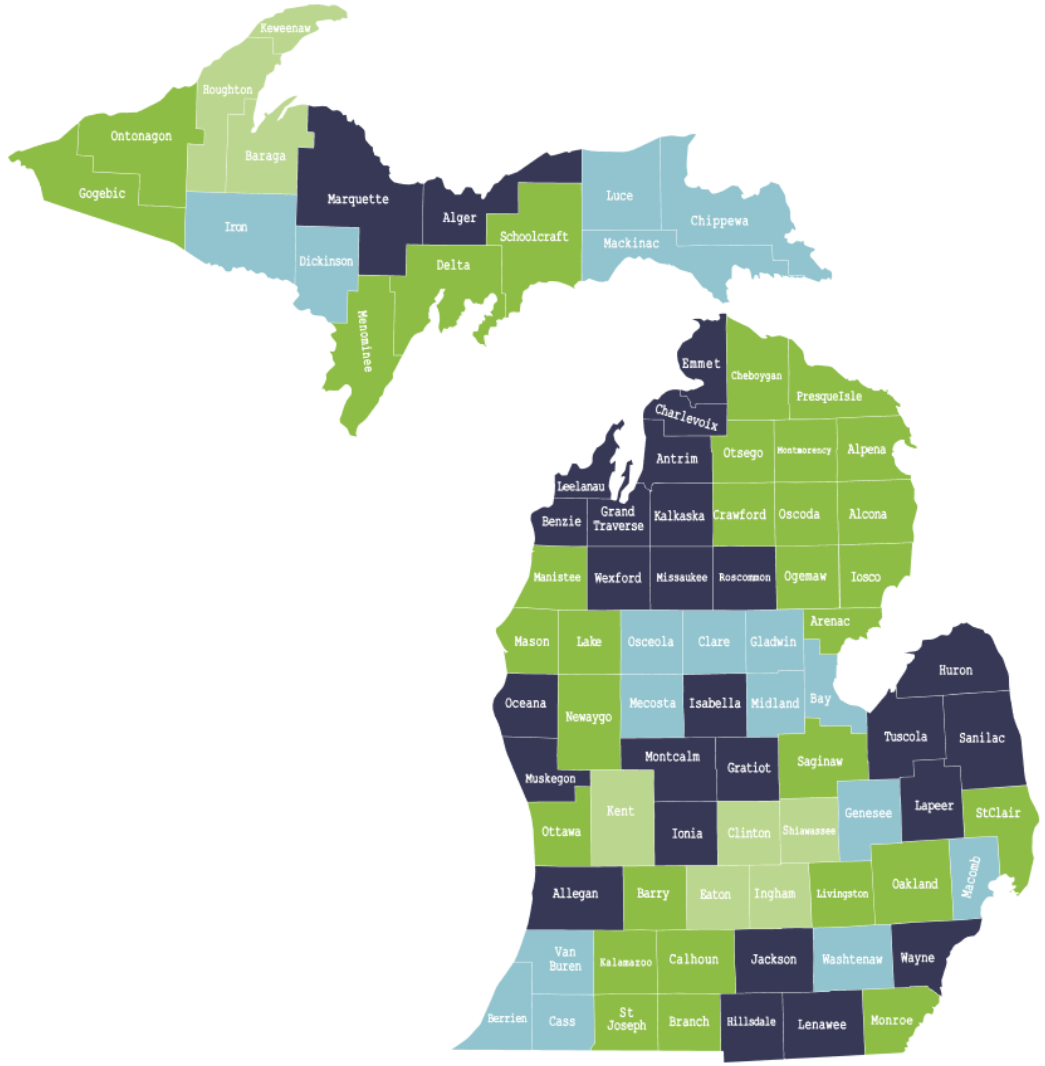
- Install wall, floor, ceiling, attic, and/or foundation insulation.
- Complete Blower Door Testing.
- Perform air sealing.
- Repair/replace primary windows/doors.
- Install storm windows/doors.
- Install window film/solar screens/window louvers and awnings.
- Repair minor roof and wall leaks prior to attic or wall insulation.

ELECTRIC BASELOAD MEASURES

- Install motor controls.
- Install efficient light sources.
- Replace refrigerators and freezers with energy efficient models.

Michigan's WAP Network

- 24 subgrantees (soon to be 25)
- CAAs (soon to add an additional entity)
- Geographically diverse
- Range from very urban to very rural



WEATHERIZATION ASSISTANCE PROGRAM

- In Michigan the WAP is administered through MDHHS-BCAEO and Community Action Agencies
- 24 agencies cover all 83 counties in Michigan
- Funded mainly with DOE funds, supplemented with LIHEAP funds (more flexible funding source)
- MDHHS-BCAEO staff are responsible for:
  - Compliance with DOE rules
  - Rule changes and policy within State discretion
  - Oversight and monitoring
  - Training and technical assistance
  - Vision and direction for statewide program

WAP EXPANSION

- The WAP enjoys bipartisan legislative support
- Formula funding has seen steady increases in recent years
  - PY22: $313M federally; ~$19M in Michigan
  - PY23: $330M federally; ~$21M in Michigan
  - PY24 and after: $350M federally
- Issue is more pressing due to stimulus through IIJA/BIL, will begin this fall and run for 5+ years
  - $3.5B federally over entire time period
  - ~$183M coming to MI
- We anticipate rapid expansion and many new contractors, energy auditors, and quality control inspectors joining the Weatherization Program

BUREAU
Community Action and Economic Opportunity

MICHIGAN

TRAINING AND EDUCATION CENTER

MiTEC
Michigan Training & Education Center

BUILDING PERFORMANCE INSTITUTE INC
BPI
SM

TEST CENTER

IREC
Interstate Renewable Energy Council
ACCREDITED TRAINING PROVIDER
TM

MiTEC was established in 2018 and accredited in 2020.

MICHIGAN TRAINING EDUCATION CENTER (MITEC)

MiTEC will provide expert technical instruction and assistance to

- Weatherization technicians and professionals,
- home energy professionals,
- builders,
- contractors,
- developers, and
- others.

MICHIGAN TRAINING EDUCATION CENTER (MITEC)

MiTEC will focus on building science coursework to support the Weatherization Assistance Program's (WAP) outlined in the Quality Work Plan that establishes a benchmark for quality home energy upgrades, released by the U.S. Department of Energy (DOE) through

- **Comprehensive** technical trainings and certifications
  Comprehensive training is occupation-specific training aligned to the Job Task Analysis for each occupation in the weatherization field.
- **Specific** technical trainings
  Specific training addresses acute deficiencies in the field such as dense pack wall insulation, crawlspace insulation, air sealing techniques, the ASHRAE 62.2 ventilation standard, and other topics as needed.
- Weatherization Assistance Program Management Training
- Technical and Technical Assistance

MICHIGAN TRAINING EDUCATION CENTER (MITEC)

MiTEC Trainings will

- foster engagement,
- innovation,
- quality work practices,
- enhance performance,
- teach energy efficiency conservation measures,
- enhance energy savings,
- address health and safety techniques, and
- ensure student success

through hands-on training opportunities by high quality certified instructors and classroom innovations.

MICHIGAN TRAINING EDUCATION CENTER (MITEC)

MiTEC Trainings:

- Training locations
  - Statewide as coordinated
  - Two Training Houses
    - Highland Park – Detroit Area
    - Farwell – Middle of Michigan
  - BPI Approved Testing Houses
    - Alpena
    - Kalamazoo
    - Hamilton
    - Highland Park
    - Farwell

WAYS TO ENGAGE WITH THE WAP DURING EXPANSION

WEATHERIZATION EXPANSION

- Expansion will require growth in all aspects of the program
- All of our Subgrantees are in expansion mode, and so is MDHHS-BCAEO
- We need you, as stakeholders, to be, too!
- The following are ways for Michigan stakeholders to help support successful Weatherization expansion

REACHING J40 POPULATIONS – CLIENTS AND WORKFORCE

- The Justice40 Initiative directs 40% of the overall benefits of certain Federal investments – including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of clean water infrastructure – to flow to disadvantaged communities (DACs) that are marginalized, underserved, and overburdened by pollution.
- The Weatherization Assistance Program is a J40 program

REACHING J40 POPULATIONS – CLIENTS AND WORKFORCE

There are eight policy priorities to guide DOE's implementation of Justice40:

1. Decrease energy burden in disadvantaged communities (DACs).
2. Decrease environmental exposure and burdens for DACs
3. Increase parity in clean energy technology (e.g., solar, storage) access and adoption in DACs.
4. Increase access to low-cost capital in DACs.
5. Increase clean energy enterprise creation and contracting (MBE/DBE) in DACs.
6. Increase clean energy jobs, job pipeline, and job training for individuals from DACs.
7. Increase energy resiliency in DACs.
8. Increase energy democracy in DACs.

REACHING J40 POPULATIONS – CLIENTS AND WORKFORCE

- BCAEO is still best determining how to fully embrace and incorporate J40 into the WAP
- Focus will be on prioritizing J40 populations in the areas of client engagement and workforce development
- We know many stakeholders in this group may have strategies or input on this work
- Currently planning a workgroup to strategize the J40 approach in the WAP
- Anyone interested in being involved in this conversation/workgroup, please reach out to KamalayM@michigan.gov

WORKFORCE DEVELOPMENT – ENERGY AUDITOR AND RETROFIT INSTALLER COHORTS

- BCAEO and MiTEC are currently piloting two cohorts of Energy Auditors in conjunction with Wayne Metro Community Action Agency and Oakland Livingston Human Services Agency
  - Total of 9 Energy Auditors in training
- The cohorts consist of 10 weeks of classroom training mixed with training on actual energy audits with working energy auditors
- At the end of the 10 weeks, individuals will test to obtain their Energy Auditor certification
- A similar cohort for Retrofit Installer Technicians has been planned but not yet piloted
  - Runs for 6 weeks
- Focus is to increase the WAP workforce efficiently so that individuals can be new to the program and working relatively quickly

MEDIA CAMPAIGN AND STAKEHOLDER ENGAGEMENT

- BCAEO will be running a media/outreach campaign in the upcoming weeks
- The media/outreach campaign will consist of
  - YouTube videos from actual clients and contractors working in the program
  - Digital targeted ads online and on phone apps
- When the YouTube videos are available and when the media campaign launches, BCAEO will receive guidance from MDHHS-Communications on how external stakeholders can be involved in the campaign
- Please consider spreading the word about the WAP with the guidance on this campaign

ADDING STAFF AT BCAEO AND MITEC – INCLUDING CONSULTANTS

- Expansion is taking place at local agencies and also at BCAEO and MiTEC
- BCAEO and MiTEC have been adding various positions and plan to add more
- Positions will exist in Michigan Civil Service, MPHI Contractors and as consultants
- MiTEC is seeking additional trainers both as full time staff and as part time conusltants

ADDING SUBGRANTEES

- BCAEO recently ran an RFP for a single statewide multifamily Weatherization provider
  - Selected ICAST as the provider
  - Experienced multifamily Weatherization provider in various other states
- BCAEO plans to add additional subgrantees during the BIL stimulus
- The additional subgrantees will be typical Weatherization providers (single or multifamily)
- BCAEO will focus expansion on areas of the state that have been disproportionately underserved in recent years

ADVOCACY FOR ADDITIONAL FUNDS

- State employees may not advocate to the legislators
- Supplemental funding in the program is key to doing whole home Weatherization
  - Average Cost Per Unit: $8,250
  - SIR equal to or over 1.0
- Most states have supplemental funding at much higher levels to offset strict DOE restrictions on funding requirements

EXPANSION IN THE REALM OF MULTIFAMILY

- Welcoming ICAST to Michigan as a multifamily only provider will ensure rapid expansion in multifamily work in Michigan
- BCAEO also received approval from DOE this year to utilize a low rise multifamily priority list on many qualifying buildings
  - All subgrantees may use this option and we do not need to seek DOE approval on these projects
- BCAEO expects expansion in this are of housing in our state throughout BIL and beyond
  - Allowable audits/workorder development include: Priority list, NEAT, TREAT, REM or MulTEA
- Auditing firms may be needed for agencies to outsource this aspect of the program

CONSIDER THE WAP IN ALL OF YOUR CONVERSATIONS AROUND CLIMATE, ENERGY AND SUPPORTING INCOME ELIGIBLE CLIENTS

- Many programs in our sector are experiencing rapid growth and increased funding through the IIJA and BIL laws
- WAP is unique in our state in that it has an automatic implementation network built in
- Other programs can be paired with the WAP for more streamlined services to clients
  - Avoids client confusion, navigating multiple state departments/programs
  - Increases efficiencies in delivering services and ensuring programs meet goals
  - Avoids multiple tracking systems, reporting requirements for one entity delivering multiple programs
- Please think about how other programs can pair with the WAP and be delivered to clients in tandem
- Contact KamalayM@michigan.gov with questions and ideas

For questions and further discussion

Maddy Kamalay
KamalayM@michigan.gov

Weatherization and Health Effects Studies at UM

OVERVIEW FOR MPSC ENERGY WASTE REDUCTION GROUP

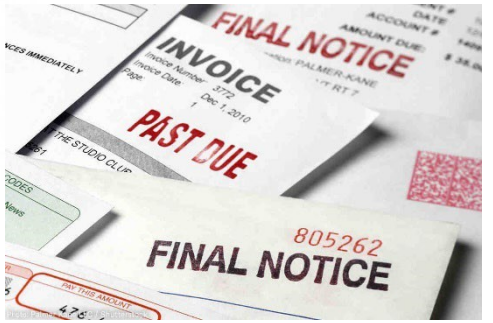
CARINA GRONLUND, PHD, MPH

UNIVERSITY OF MICHIGAN INSTITUTE FOR SOCIAL RESEARCH (PRIMARY) AND SCHOOL OF PUBLIC HEALTH (DRY)

APRIL 10, 2023

Why Do This Research?
A Public Health Perspective

- weatherization may have substantial, and some as of yet unmeasured, benefits to health
- implications for both weatherization, healthcare subsidies, and maybe even clinical practice



Understanding the Neuropsychological Benefits of Weatherization Programs: the Weatherization and Health Effects Study (WHE)

Current Partners

Tennessee: University of Tennessee/Three-Cubed, TVA

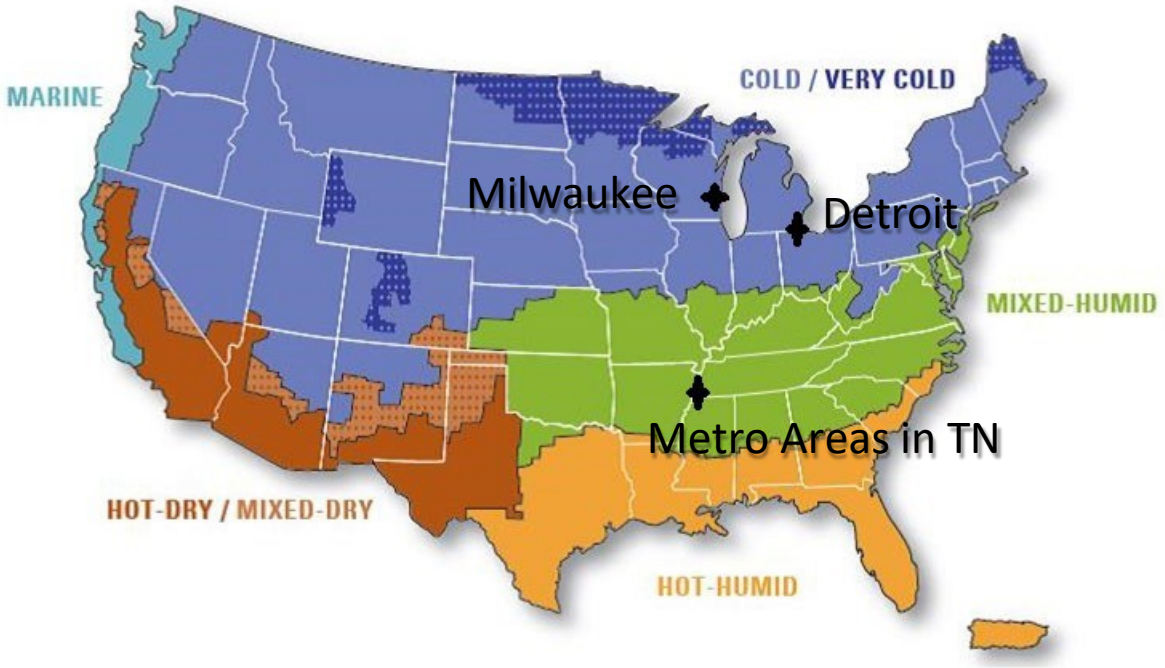
Wisconsin: Slipstream, Inc. and State of Wisconsin Weatherization Program

Michigan: MDHHS, EcoWorks, Wayne Metro, Friends of Parkside

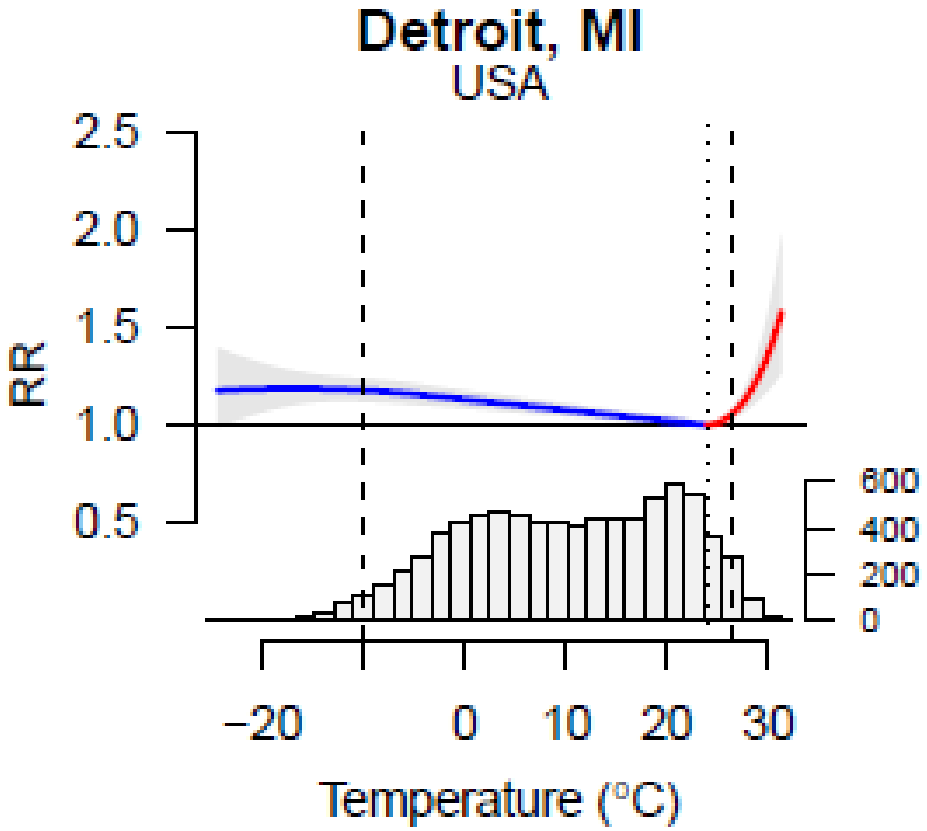
Emory University sleep specialist Dayna Johnson

Gerontologist, indoor air, psychology, and policy research experts at UM

- Philippa Clarke, Marie O'Neill, Tony Reames, Ketlyne Sol, Maggie Hicken



The burden of heat- and cold-associated morbidity and mortality is significant in the U.S.



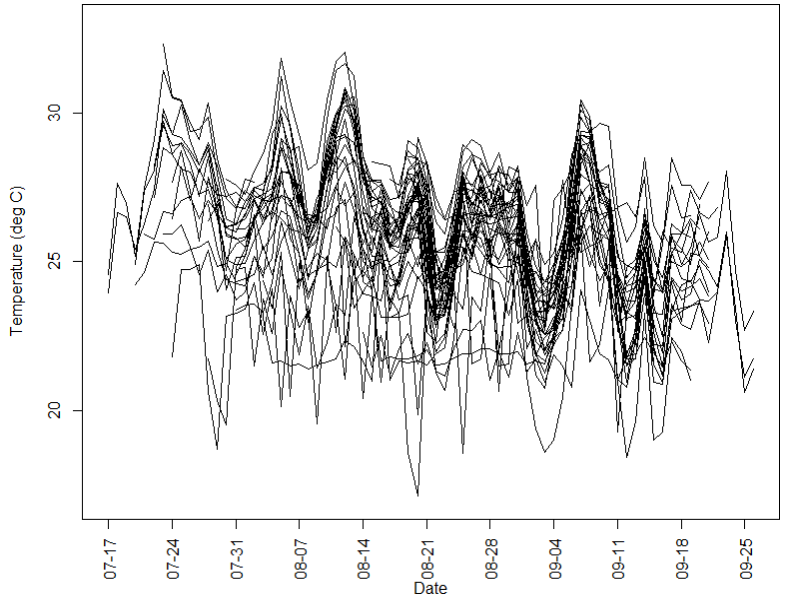
Gasparrini et al. Lancet. 2015.

Energy Burden and the Study Cities

Table 1. Characteristics of study areas.			
	Detroit, MI	Memphis, TN	Milwaukee, WI
Mean daily maximum temperature in July[1]	28.4 C	32.7 C	26.6 C
Mean daily minimum temperature in January[1]	-6.2 C	0.8 C	-8.6 C
% Black or African American alone or with other races[2]	80%	65%	41%
% Hispanic/Latino[2]	8%	7%	18%
% homes built before 1940[2]	34%	8%	38%
% below poverty level[2]	38%	26%	27%
[1]local airport 30-year annual averages, 1981-2010 (NCEI 2019). [2]American Community Survey 2017 5-year estimates (U.S. Census 2019)			

Low-income households experience high indoor summer temperatures and cold indoor winter temperatures

In summer, 2016 in 45 Detroit homes. . .



In August 2019-April 2020 in 34 Detroit homes. .

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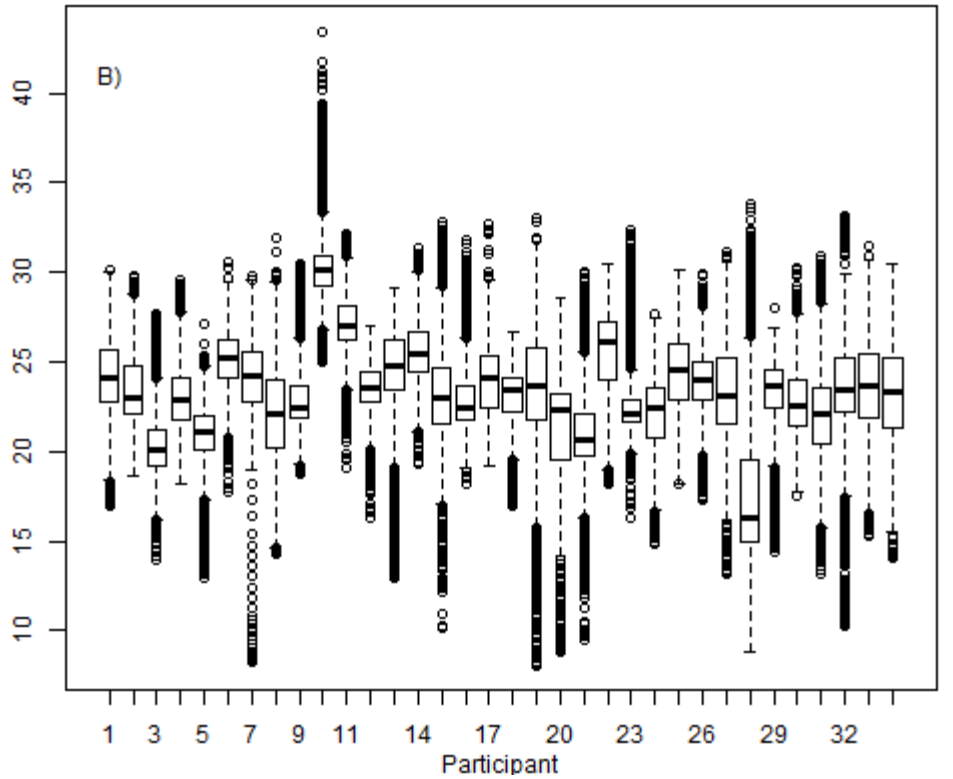
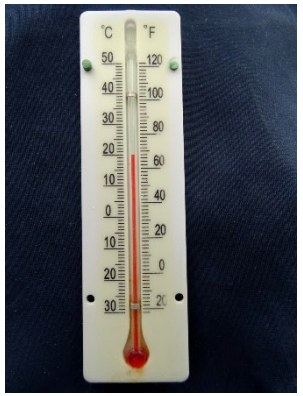
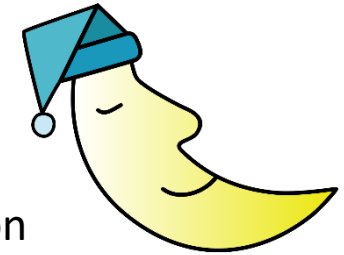


Previous Research: Short-term cognitive changes, sleep and temperature



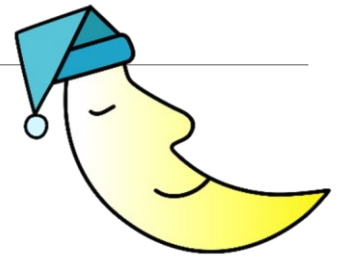
extreme ambient temperatures

decreased sleep quality/duration



short-term cognitive deficits

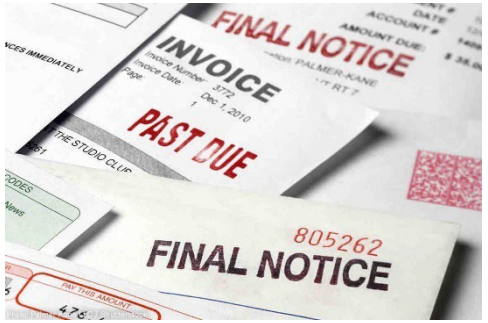
Previous Research: Chronic financial stress



decreased sleep quality/duration

extreme ambient temperatures → higher utility bills → financial worry → decreased sleep quality/duration

financial worry → short-term cognitive deficits



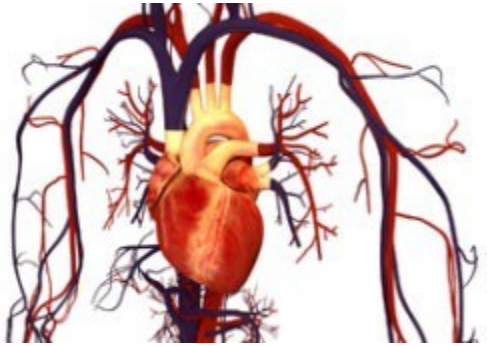
Previous Research: Sleep and Financial Stress Affect Health

poor sleep

general stress

financial worry

cardiovascular disease



Previous Research: Weatherization Health Benefits

A review of 21 studies in the U.K., Australia, Canada, and New Zealand found improvements in respiratory symptoms and symptoms of other chronic illnesses, improved mental well-being, reduced medical visits, and fewer missed work days (Milner & Wilkinson 2016).

A randomized controlled trial of a heating intervention in New Zealand showed reductions in asthma symptoms among children (Howden-Chapman et al. 2008).

In the U.S., weatherization was linked with reduced asthma or allergy symptoms and reductions in psychological distress in adults (Tonn et al. 2018, Francisco et al. 2017, Breysse et al. 2014)

Previous Research: Weatherization and Outdoor Air Pollution Reductions

Gillingham et al. The climate and health benefits from intensive building energy efficiency improvements. Science Advances, 2021.

With 20% efficiency increases on all building appliances and equipment and 40 to 60% efficiency improvements from better shell materials in new and existing buildings, 2900 deaths per year in the U.S. could be avoided, even after accounting for *increased* levels of PM2.5 in the home due to reduced air exchange.

Objectives and Hypotheses

Overall: measure indoor temperature and humidity in homes in 3 cities receiving either low-cost weatherization (EcoWorks interventions including weather stripping, window film, education, identifying utility assistance or appliance replacement programs, etc.) or high-cost weatherization (in Milwaukee and Memphis)

examine changes in indoor temperature and humidity pre- and post-weatherization

- hypotheses: indoor temperatures and humidity will improve following weatherization

examine changes in asthma and allergies pre- and post-weatherization

- hypotheses: asthma and allergy symptoms will decrease

examine cognitive, sleep, and financial worry changes (with repeated phone-based testing) as indoor temperatures change over 1 year

- hypotheses: short-term cognition, sleep quality/quantity/daytime sleepiness, and financial worry will improve at more comfortable temperatures

do health impact assessment, assigning dollar values to air pollution improvements due to reduced utility usage (if any) and health improvements using standard health cost measures

- hypothesis: community-level and individual-level estimates of health savings will be of policy significance

Measures

indoor temperature and humidity monitor

in-person first visit and health survey

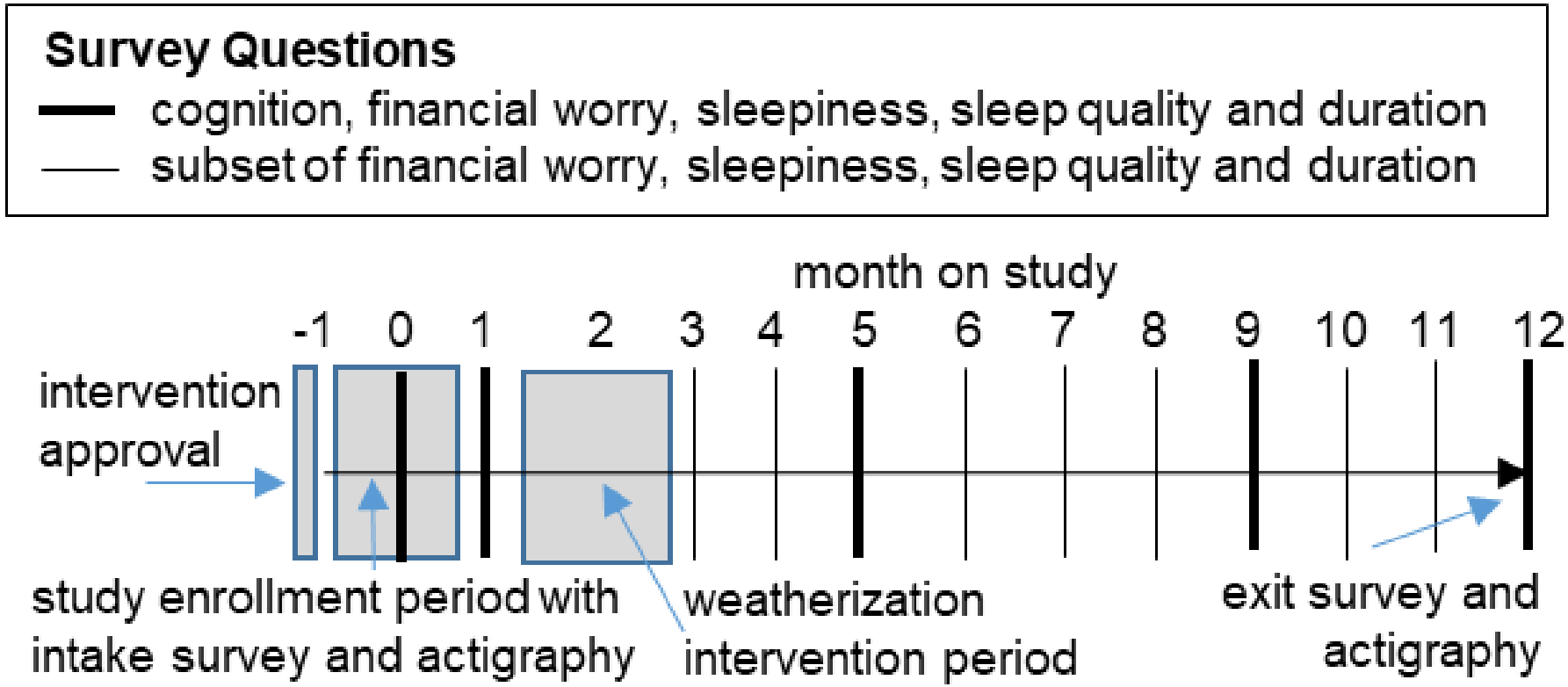
phone calls (or web-based survey) every month about health including cognition

participant mails back indoor temperature and humidity monitor at 6 months (then gets a new one) and one year

week-long sleep measures (participant wears an actigraph on wrist) pre- and post-intervention

600 individuals over 3 years (~200 from each site)

Study Schedule



Estimating and Monetizing the Health Benefits of Improving Household Energy Efficiency in Michigan

Research Aim 1 and Methods

How does emergency department visit risk for specific health outcome change following the implementation of specific home weatherization measures in low-income Michigan residents?

The MDHHS has linked weatherization records to Medicaid records among households that received and didn't receive weatherization (but were otherwise similar). In both groups, we'll look at the change in the number of emergency department visits before and after the weatherization.

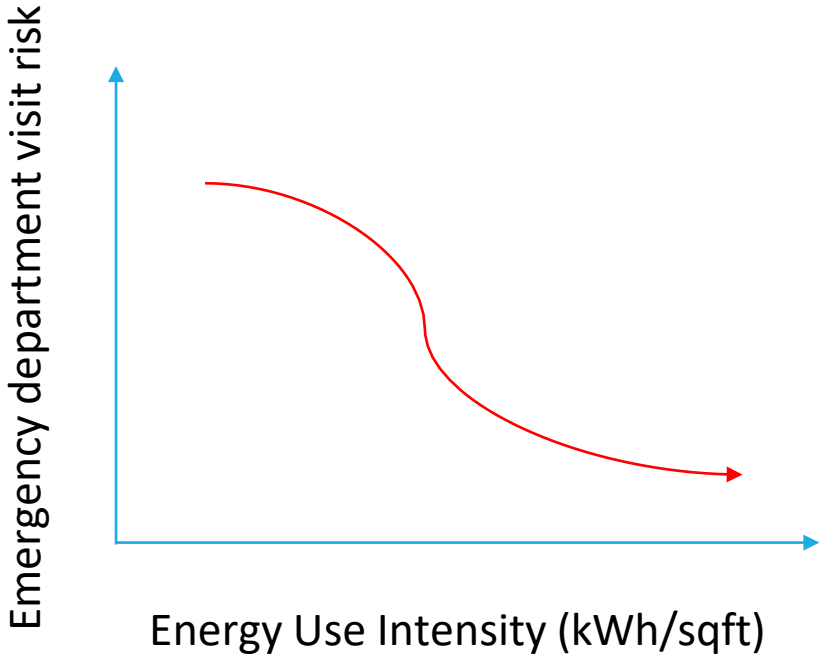
	Visits pre-weatherization	Visits post-weatherization
Received weatherization	A	B
Didn't receive weatherization	C	D

Difference-in-differences design
(A – B) – (C – D)

Research Aim 2 and Methods

How does emergency department visit risk for a specific health outcome change following a change in energy use intensity (EUI)?

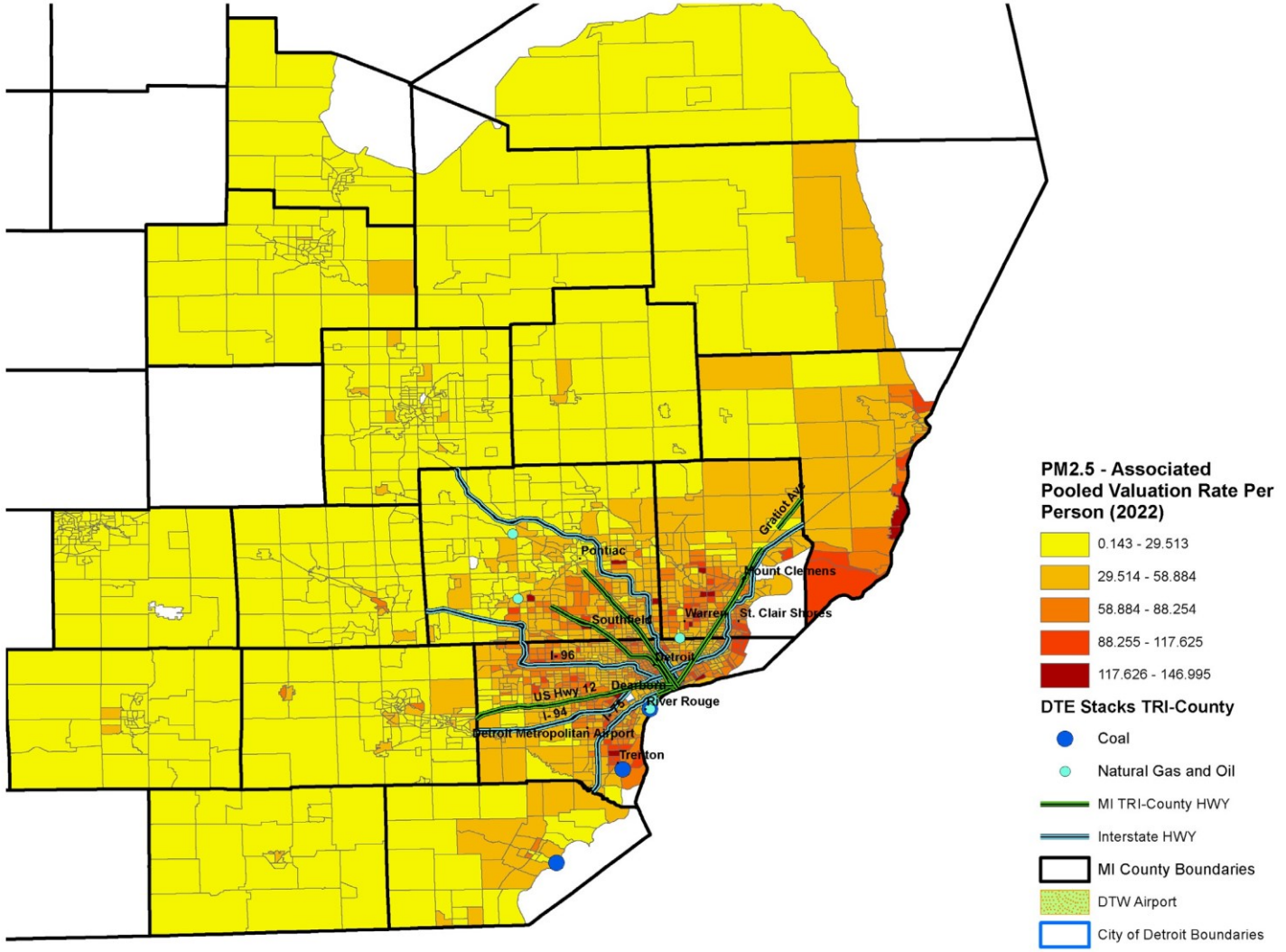
We'll model energy use intensity (kWh/sqft) using existing actual energy use intensity for the homes for which utility records are available.



Research Aim 3 and Methods

For a given set of weatherization scenarios, what are the a) carbon emissions reductions and b) monetized health benefits of weatherization and reduced EUI from questions 1-2 (if any) and the resulting improved outdoor ambient air quality?

- We'll use existing methods for modeling community-wide health savings from air pollution reductions.



Thank you! Questions?

Research is funded by a grant from the National Institute of Environmental Health Sciences R01ES032157 and a Carbon Neutrality Acceleration Program Grant from the Graham Sustainability Institute.

Close & Adjourn

Thank You!