

HELPING RESIDENTS NAVIGATE COMPLEXITY:

THE A²ZERO HOME ENERGY ADVISOR

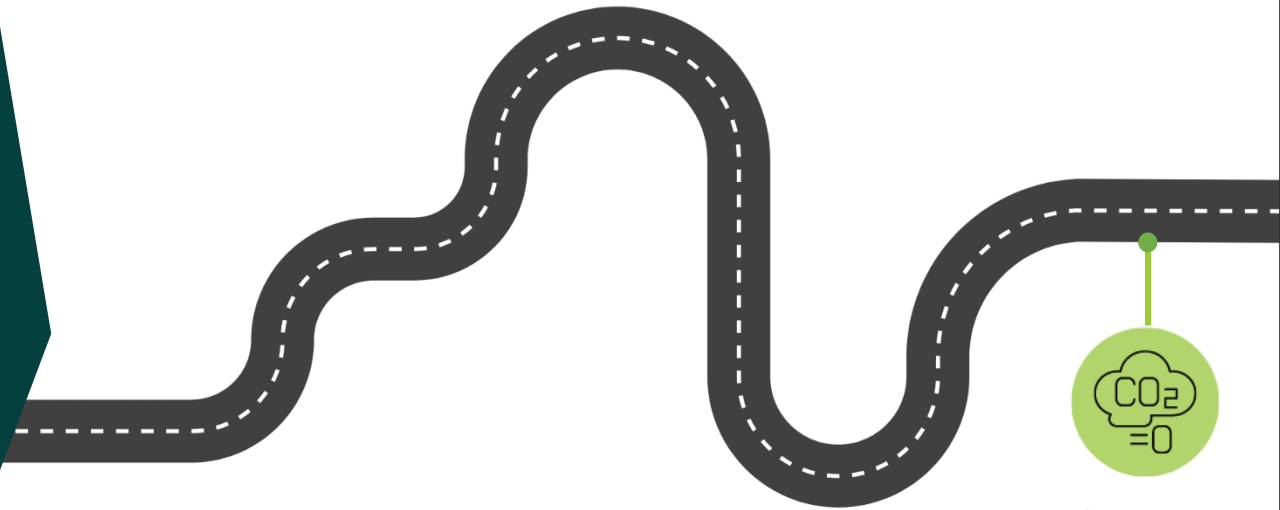
A cost-free one-stop shop for Ann Arbor residents to obtain help with projects to improve energy efficiency and decarbonize their homes.

Julie Roth, Energy Team Manager, Ann Arbor's Office of Sustainability and Innovations

Jroth@a2gov.org



EQUITABLE • SUSTAINABLE • TRANSFORMATIVE



You've reached
net zero!

A²ZERO and Residential Decarbonization

- 1.Powering our electric grid with 100% renewable energy**
- 2.Switching appliances and vehicle from fossil fuels to clean electricity**
- 3.Improving energy efficiency**
- 4.Reduce the miles we travel in our vehicles
- 5.Change the way we use, reuse, and dispose of materials
- 6.Enhance the resilience of our people and place
- 7.Other







Barriers to Residential Electrification

- Contractor network and supply chain
- Costs
- Familiarity
- Complexity



Contractor Network

- Worked with our green bank Michigan Saves to establish an [Electrification Badge Program](#) for MI Saves affiliated contractors
 - Residents can search for badged contractors
- Contractor engagement
 - Individual meetings
 - Convenings
 - Conferences
 - Expo
 - Partnering with Michigan Saves

 Residential Homes Commercial Buildings Contractor Center			
		www.trustedhvacsolution.com 13.68 miles away	
Heinanen Engineering Inc	<ul style="list-style-type: none"> • Heating, Ventilation, and Air Conditioning (HVAC) • Water Heaters • Heat Pumps/Mini-splits 	Contact Heinanen Engineering 350 S Lafayette St, Southfield, MI 48178-1814 248-486-6100 www.heinanenengineering.com 16.63 miles away	
	<ul style="list-style-type: none"> • Heating, Ventilation, and Air Conditioning (HVAC) • Solar Photovoltaic (PV) • Geothermal • Air Sealing/Weatherization • Insulation • Duct Sealing • Water Heaters • Energy Audits • Heat Pumps/Mini-splits • Electrification 	Contact Ecotelligent Homes LLC 24730 Crestview Ct, Farmington Hills, MI 48335 248-291-7815 www.EcotelligentHomes.com 25.93 miles away	 4.8 25 Reviews
	<ul style="list-style-type: none"> • Heating, Ventilation, and Air Conditioning (HVAC) • Heat Pumps/Mini-splits 	Contact Expert Heating & Cooling 24400 Northline Rd, Taylor, MI 48180-4588 734-676-4488 expertheatcool.com 29.6 miles away	 5 22 Reviews
	<ul style="list-style-type: none"> • Heating, Ventilation, and Air Conditioning (HVAC) • Water Heaters • Heat Pumps/Mini-splits 	Contact Absotemp Climate Control, Inc. 1036 Benstein Rd Suite 101, Commerce Township, MI 48390-2913 248-960-3100 absotemp.com 26.09 miles away	 4 4 Reviews



May 17, 2023
8:30 am - 4:30 pm
Location TBD
Breakfast & Lunch Provided

SAVE THE DATE: CONTRACTOR CONVENING WORKSHOP

You're invited to attend the Office of Sustainability's Contractor Convening Workshop!

The City of Ann Arbor is designing rebates for electrification, efficiency, and renewables, and as experts in your fields, your input is critical.

Join in this collaborative event to form a network of contractors interested in achieving A2Zero's goals.



More details coming soon!

Scan the QR code or go to <https://www.a2gov.org/departments/sustainability/Newsletter-Events/Pages/Contractor-Convening-Workshop.aspx> to follow the event page and sign up for updates.





Costs

- IRA tax credits and rebates
 - Rebates slow to roll out, tax credits now
- Ann Arbor Climate Millage rebates
 - Efficiency, weatherization, electrification
- MI Saves financing
 - Loan loss reserve
 - Unsecured loans
 - Bundled offerings
- Grant funding & program stacking
 - To support most energy-burdened households



Michigan Saves®
The Nation's First Nonprofit Green Bank



Familiarity



Brought to you by the
City of Ann Arbor Office of
Sustainability and Innovations

HOME ELECTRIFICATION EXPO

August 11th
5-9 pm

Ann Arbor Farmers Market
315 Detroit St., Ann Arbor

- A free public event for homeowners, renters, & building professionals
- Featuring: live music, food trucks, and industry experts
- Learn about ways to make your home cleaner, greener, and safer!



www.a2gov.org/expo

- Workshops
- Expo
- Forums
- Tabling
- Earned media
- Sticker campaign



Complexity

- Where do I start?
- Can I afford it?
- What is a heat pump?
- Who can I trust?
- What are the risks and benefits?
- Are there any incentives for me?
- Do I need insulation?
- How can I lower my energy costs?
- Can I make my home more comfortable and safe?



A²ZERO Home Energy Advisor

- Desire to provide a concierge-type service to Ann Arbor residents to help reduce complexity and ease the transition to residential decarbonization
- Worked with numerous cities, CBOs and RMI 2022-2023 in “Electrification Cohort”
 - Ann Arbor, EcoWorks, Michigan Saves
- Contracted Elevate & EcoWorks; completed program design in winter/spring 2023, and pilot in summer 2023
 - Partners Elevate and EcoWorks
- Issued RFPs fall of 2023 for full community-wide deployment
- Currently evaluating next steps



Program Services



One-on-One Advising Support

- Our advisors are here to support every step of the way
- Engagement starts with a welcome kickoff call
- Advisors are available when you need via email, zoom, or phone



Contractor Bid Reviews

- Our advisors can review your bids to ensure the scope and price align with your goals and typical market rates.



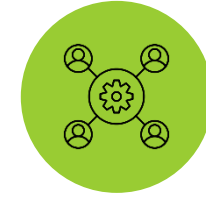
Decarbonization and Resilience Assessment

- Virtual or in-person home assessment, looking at near-term actions to consider
- Includes a report to help you understand next steps with selecting contractors and accessing available incentives and financing



Individualized “Your Path to Zero”

- Following the initial kickoff call you will be provided and individualized “Path to Zero”
- This maps out your home energy projects and helps you understand your next steps forward



Program / Service Referrals

- Based on your specific situation, we provide suggestions or direct referrals to programs and services that can help remove barriers in your way on your Path to Zero



ELEVATE



**eco
WORKS**



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A²ZERO HEA Pilot Program



A²ZERO HEA Pilot

The A²ZERO Home Energy Advisor (HEA) Pilot provided a single point of contact to households in Ann Arbor, guiding them on their path to zero carbon emissions.

EVERYONE GETS:

- Project advice
- Virtual Assessment
- Snugg Pro Report
- Path to Zero
- Bid Reviews
- Advising on Rebates, Incentives, Financing, and Program Eligibility

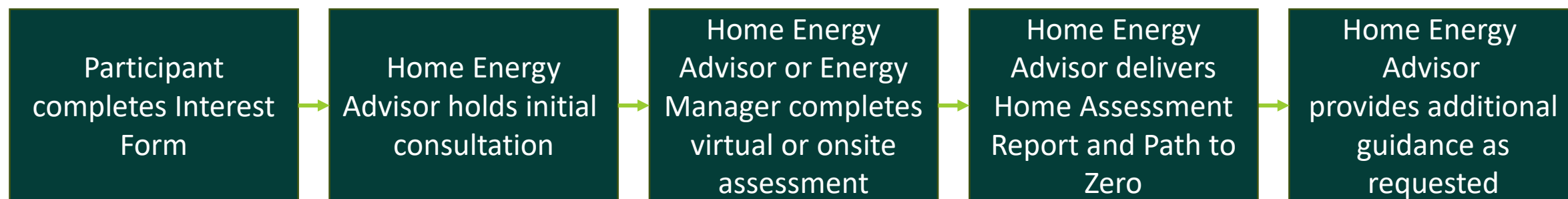
DEEPER LEVELS OF SERVICE THE HEA CAN PROVIDE:

- Walkthrough Assessment
- Blower Door Test
- Health & Safety Checks
- Direct Referrals to Support Programs (E.g., Weatherization)

CRITERIA FOR DEEPER LEVELS OF SERVICE

- Income-qualified / inability to pay for full assessment add-ons like blower door and health and safety checks
- Elderly / disabled may require a walkthrough assessment
- Digital access challenges may require a walkthrough assessment
- Language barriers may require a translation service and additional handholding throughout the process

A²ZERO HEA Pilot – Participant Journey



INDIVIDUALIZED ADDITIONAL GUIDANCE MAY INCLUDE:

- Holding a follow up call with participants to answer any question about received resources
- Providing reviews of contractor bids
- Providing information on available incentives and financing options for projects
- Connecting the household with other available assistance programs, based on eligibility
- Scheduling additional consultations with experts on specific decarbonization and resilience technologies and practices

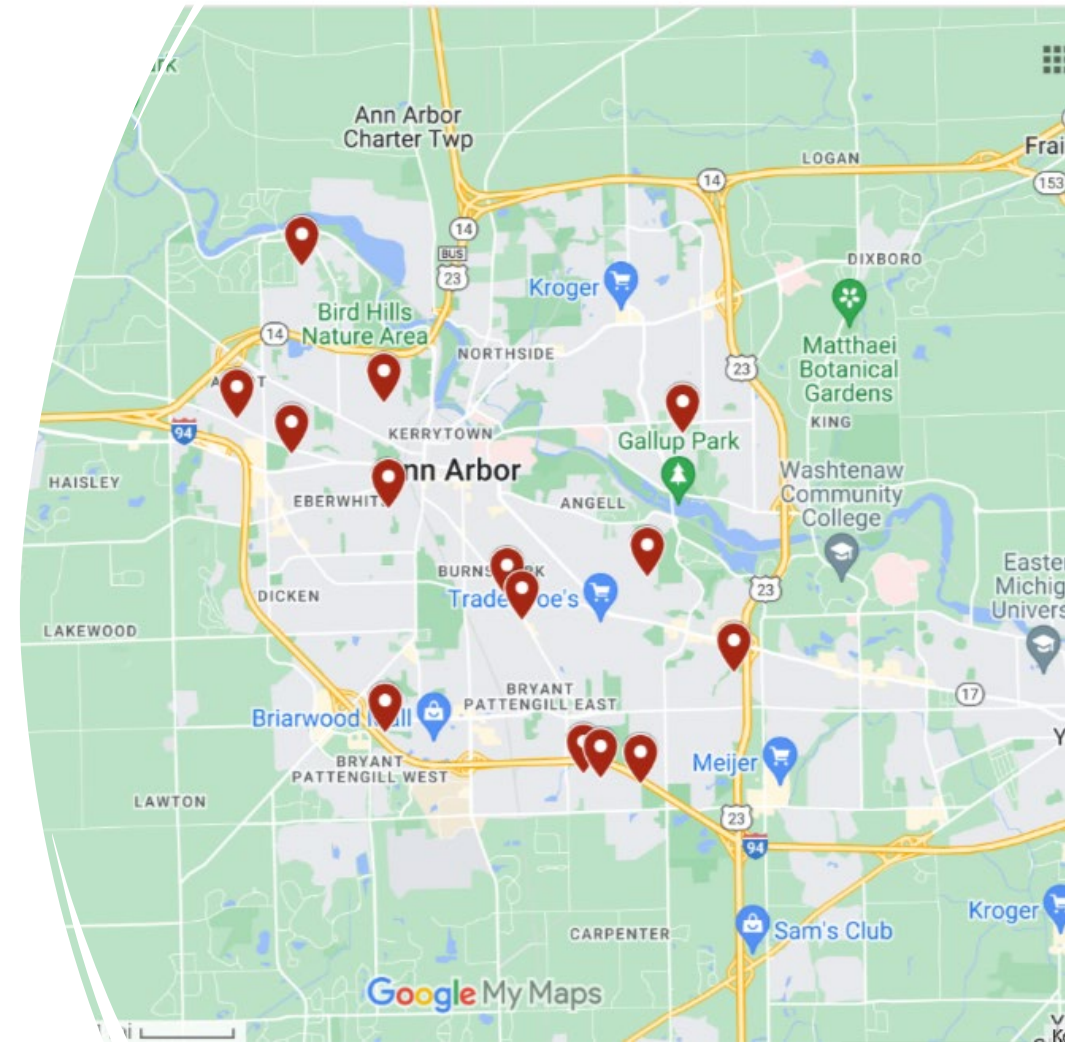
A²ZERO HEA Pilot – Participant Outreach



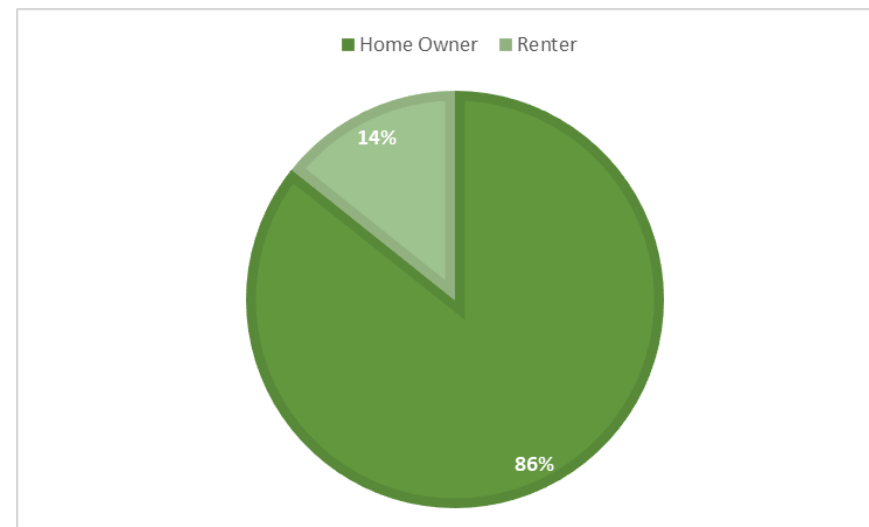
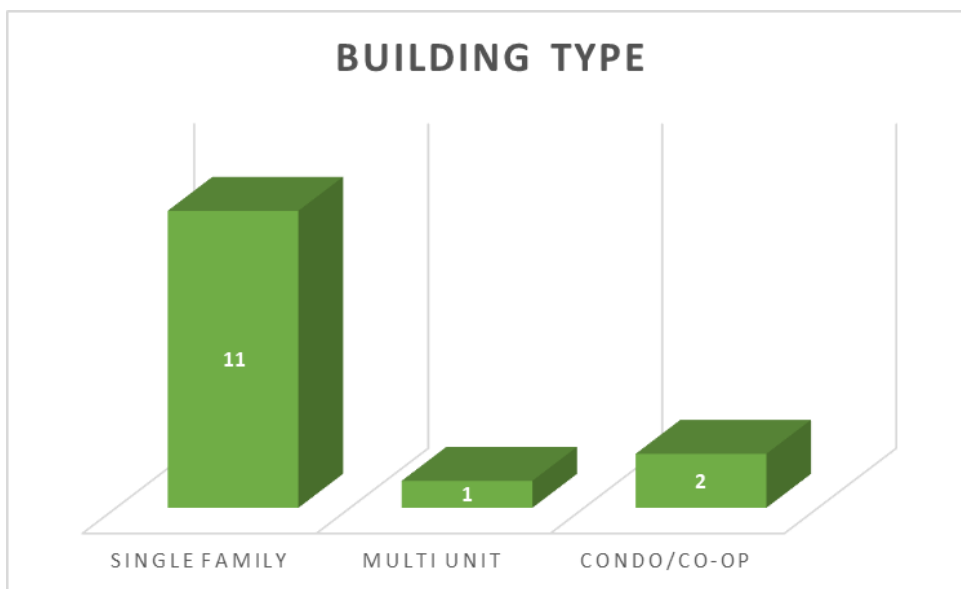
14 Ann Arbor residents participated in the pilot

The Ann Arbor Office of Sustainability and Innovation (OSI) led outreach to recruit pilot participants, including outreach to:

- Individuals who participated in Ann Arbor's Aging in Place program
- Renters who engage frequently with the OSI
- Collaborating with community partners like Community Action Network for outreach



A²ZERO HEA Pilot Participant Data



Participant-Identified Supports Needed

- Solar and utility rate structures
- Evaluating solar panels and panel efficiencies
- EV and bidirectional charging
- Battery backup (with or without solar)
- Understanding peak time
- Training on programmable thermostats
- MI Green Power
- Pros/cons of a cold climate heat-pump as compared to a geothermal heat pump
- City referrals for health and safety concerns
- Assistance with ducted versus ductless
- Link to Energy Star appliances
- Plaster contractors

A²ZERO HEA Pilot Participant Deliverable: PTZ



You've reached
net zero!



Participant Information (mock)

Participant age: 70
Relationship to home: Homeowner
Fixed income: Yes
Age of building: Built in 1970
Utilities: Gas and Electric

Participant needs: Weatherization; Electrification;
Financing

Participant concerns:

1. Cost - On fixed income.
2. The Downstairs bathroom is cold and drafty, despite being insulated.
3. Condominium Association Limitations
4. New appliances (refrigerator, stove, etc.)

Your Path to Zero

HOME REPAIR

- Fix health and safety issues such as:
 - Asbestos
 - Mold
 - Gas leak
 - Roof failure
 - Upgrade knob and tube wiring
 - Missing gutters or downspouts
 - Broken sewage line

WEATHERIZATION + ENERGY EFFICIENCY

- Insulate and air seal home
- Update with energy star appliances
- Use electric appliances at off-peak times
- Install smart thermostat and adjust temperature set points



ELECTRIFICATION

- Upgrade electrical panel
- Switch to cold climate heat pump or geothermal heat pump for space and water heating
- Switch to electric dryer
- Switch to electric stove
- Install electric vehicle car charger



RENEWABLE ENERGY

- Install roof top solar
- Enroll in community solar when available
- Green purchasing through MI Green Power



RESILIENCE

- Install house battery back-up
- Use portable solar generator
- Install stormwater drainage system



You've reached net zero!



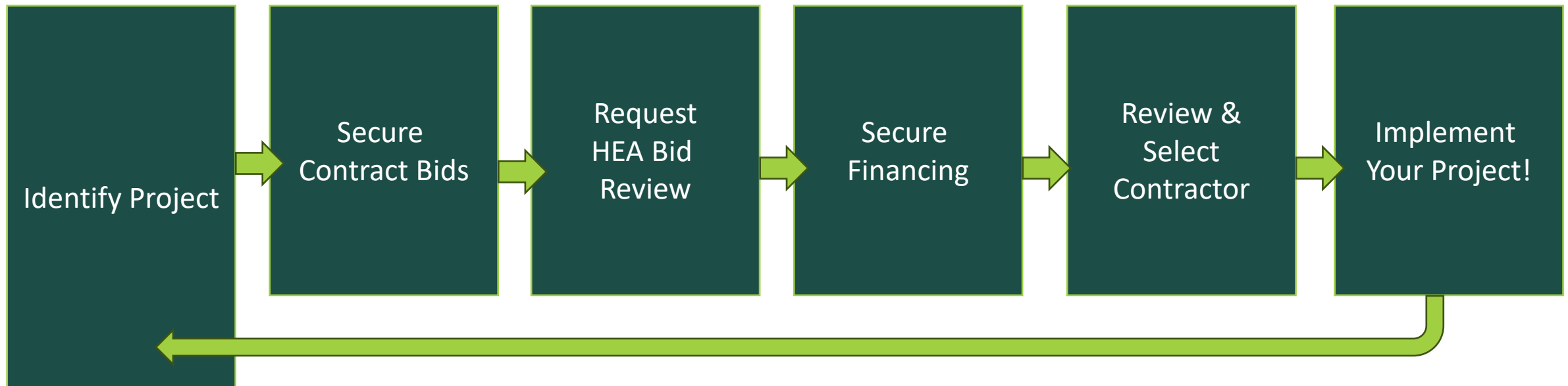
RFP Note: This Path to Zero is a generalized template that should be customized to each participant's needs to reach net zero.



Your Short-term Projects

PROJECT	SHORT TERM <i>(this year)</i>	COMMENTS / CONSIDERATIONS
<i>Thermostat Set Points</i>	X	<i>Install a programmable thermostat</i>
<i>Seal Air Leaks & Insulate Walls</i>	X	<i>Hire insulation and air sealing professional</i>
<i>Electrical Upgrade</i>	X	<i>Hire contractor to upgrade your electrical panel to better support future electrification projects</i>

Steps to Complete Your Project(s)



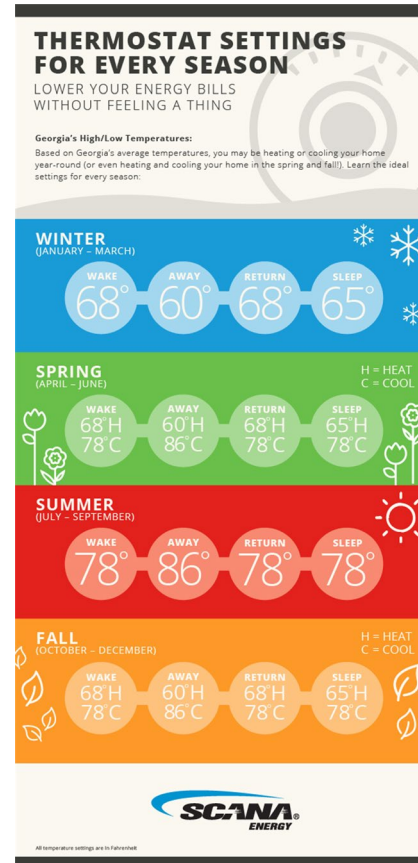
Reach out to your home energy advisor for help navigating what options are available for your next project!

Thermostat Set Points

Why it matters

Using Programmable thermostats correctly can lead to a drop in your energy bills. Just like any smart technology it has to be used in the most efficient way to provide you the best results.

[Energy STAR Smart Thermostat](#)
[Energy STAR Programmable Thermostat](#)



Rebates/Incentives:

- **ELIGIBLE PROGRAM:**
 - [Washtenaw County Home Improvement Programs](#)
- **TAX CREDIT:**
 - [Energy Efficient Home Improvement Tax Credit](#)

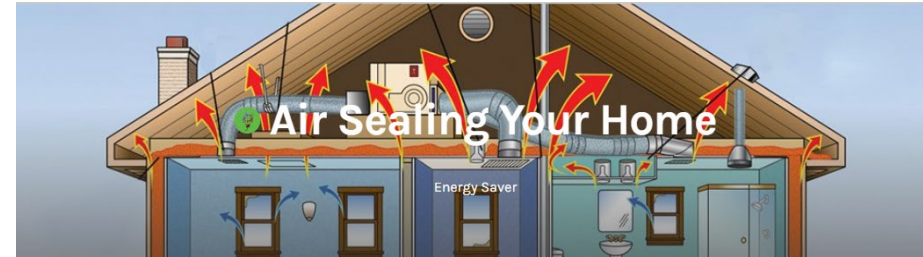
Where to buy:

- The Home Depot
- Walmart Supercenter
- Lowe's Hardware Store
- Amazon Marketplace

Annual Energy Savings
Approx. \$47

Why it matters

Air sealing is typically the most cost-effective improvement you can make to your home.



Learn how air sealing can improve your home's energy efficiency, comfort, and durability. [This fact sheet](#) from Energy Saver includes information on proper ventilation, why to air seal, how to find and seal air leaks, working with contractors to seal your home, and materials to do-it-yourself.

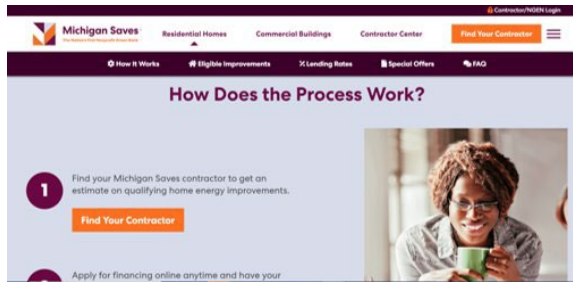
We provided a blower door test of your home and identified several areas where air sealing could make significant improvements to your home's comfort and energy savings. Contact a qualified insulation and air sealing contractor for further guidance on the costs and scope of work they would suggest.

[Energy Savers Home Comfort: Air Sealing Your Home](#)



Finding a contractor:

Step 1: Visit [Michigan Saves](#) to find an accredited contractor



Step 2: Select "Find Your Contractor" and input your address to find one in your area

Step 3: Look for *Insulation and Air Sealing/Weatherization* contractors approved by Michigan Saves. They should have the badge below on their profile.

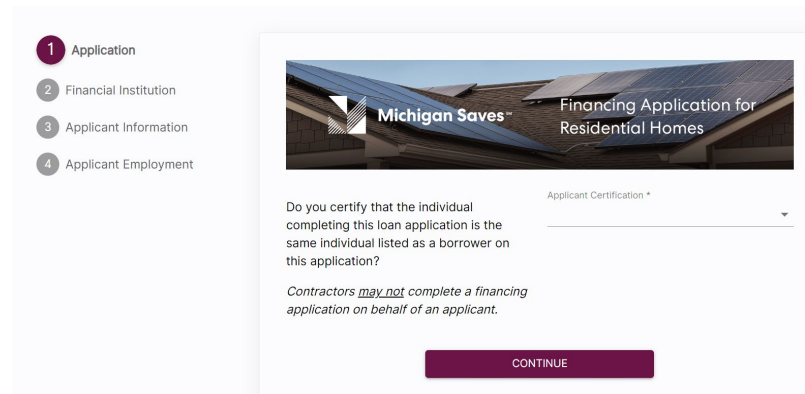


Rebates/Incentives:

- ELIGIBLE PROGRAM:
 - [Washtenaw County Home Improvement Programs](#)
- TAX CREDIT:
 - [Energy Efficient Home Improvement Tax Credit](#)
- REBATE:
 - [DTE Insulation and Window Rebate](#)

Financing Option:

Michigan Saves offers online applications for [eligible home improvements](#), including insulation and air sealing.





Solar PV

Annual Energy Savings

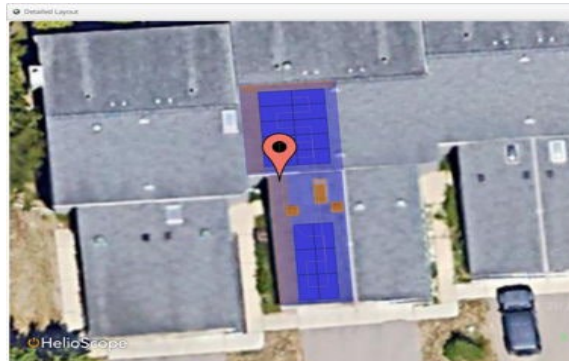
Approx. \$1,094

Why it matters

Install a Solar PV (photovoltaic) system to offset electric energy consumption in your house. A PV system can significantly reduce your electric bill and increase your homes resiliency throughout the year.

Your home has a large south-facing roof space above one of your bedrooms and your garage. This area is ideal for a solar array to offset your grid-supplied electricity with renewable energy. We have included a modeled solar design from Helioscope along with this report.

[Residential Renewable Energy](#)



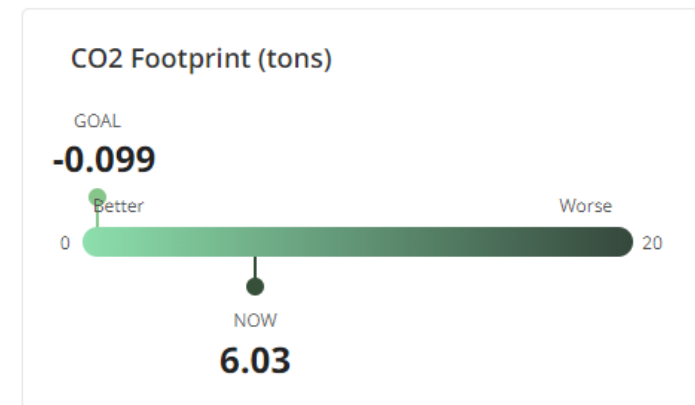
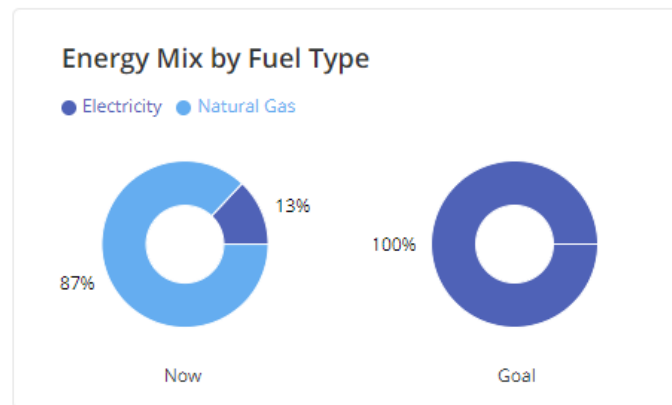
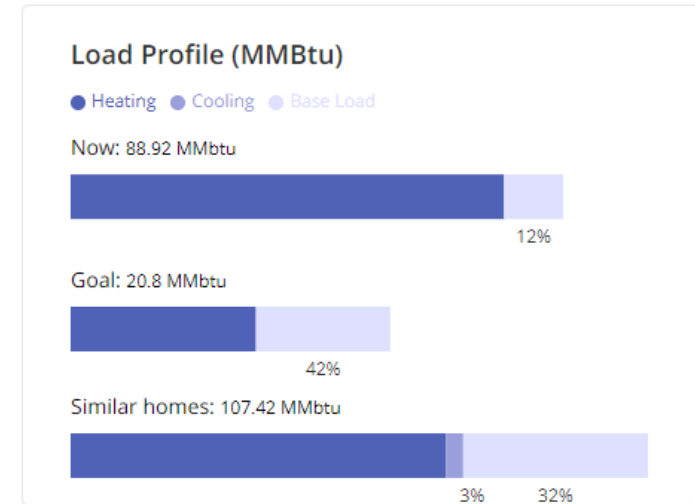
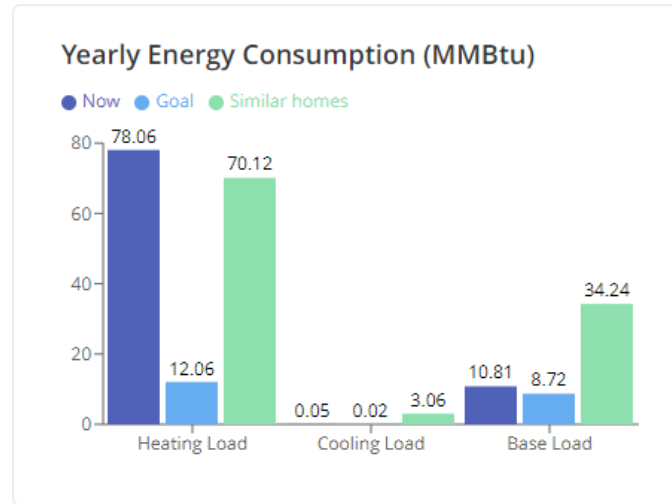
Based on your home's roof space, orientation to the sun, and shading from trees and other buildings, you could reasonably install 5.8 kW of solar and produce over 6,267 kWh of renewable energy per year.

Your A²ZERO Home Assessment

You provided the HEA team with your annual utility data. This information was plugged into our energy modeling program, Snugg Pro.

Review your Snugg Pro report for more in depth information about what going carbon neutral can mean for you:

(Insert Snugg Pro report link)



This graphic shows your energy consumption compared to similar homes and your identified low carbon goal.

A²ZERO HEA Pilot Participant Deliverable: SnuggPro Report



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A²ZERO HEA Home Assessment – Snugg Pro



ELEVATE Your Energy Assessment

Home

Assessment Date
Feb 16, 2023
08:00 AM

Assessed By
Lesley Sheridan
lesley.sheridan@elevatepn.org

Elevate
235250

Thank you for your time and participation in the virtual energy assessment. These assessments are vital in helping to understand the needs of the homes in the Bryant neighborhood and the information collected will assist in applying for funding that could assist homeowners with paying for energy efficiency upgrades and electrification of heating systems and appliances.

Inside Your Report

- Cover 1
- Energy Use 2
- Solutions 4
- Upgrade Details 5
- Health & Safety 15

Their in decrease assess quest

Powered by **Snugg Pro** # 235250

ELEVATE Refrigerator

REFRIGERATOR

Why it matters
Old refrigerators can often cost twice as much to operate as a new refrigerator. Replace your old refrigerator with a new ENERGY STAR model and be sure to recycle the old one (keeping it running in your garage will use even more energy).

Choose ENERGY STAR certified products.

Notes to Homeowners
Consider replacing refrigerators that are older than 10 years. You could save over \$100 on your annual electric bill by replacing an old fridge with an energy efficient model. [ENERGY STAR Refrigerators](#)

As a DTE electric customer, you may be eligible for a \$50 rebate for recycling your old fridge. [DTE Free Appliance Recycling](#)

Now & Goal

DETAILS	NOW	GOAL
Refrigerator		
Refrigerator 1		

ELEVATE Upgrade Heating System

HEATING SYSTEM

Why it matters
The energy use projections presented on page 4 of this report were modeled using a ducted heat pump as the replacement system. Heat pumps are highly efficient electric heating and cooling systems with the potential to be powered by solar generated electricity, therefore contributing to decarbonization goals.

Outdoor unit of a ducted cold climate heat pump (left) and ductless mini split heat pumps (right) are two examples of cold climate heat air source heat pump configurations.

Notes to Homeowners
Your home currently has a low-efficiency (80% AFUE) model forced air natural gas furnace. Natural gas furnaces typically have a lifespan of 15-20 years. Plan ahead to replace your current heating system before it becomes an emergency.

In the meantime, furnace tune-ups are recommended annually for older furnaces and every 3-5 years for equipment less than 10 years old. Tune ups will keep your furnace running efficiently and identify any potential problems before they become serious. Your utility offers a rebate for furnace tune-ups: [Tune up your furnace and receive a \\$75 rebate](#). Please confirm with DTE and your contractor the rebate eligibility before ordering the service.

It is recommended that air sealing and insulation improvements are implemented before, or at the same time, as replacing the heating system. Consult an HVAC installation professional and request a site assessment to receive more accurate cost and savings estimates.

One option is to replace the current furnace with a high efficiency natural gas model (97% AFUE). If you choose to replace your old furnace with another natural gas furnace, ask for a high efficiency condensing furnace that is an [ENERGY STAR certified model](#). Your utility offers a rebate for furnace upgrades: [DTE Furnace Upgrade Rebate](#)

Another option is to remove the natural gas heating system and replace with a cold

ELEVATE Insulate Crawl Space

CRAWL SPACE

Why it matters
Insulating and "conditioning" your crawl space will increase the overall temperature of the space and make the floors above it more comfortable. Air-sealing, installing moisture barriers, and insulating crawlspaces also helps prevent pests, mold, and mildew from entering your home.

Notes to Homeowners
Consult a home insulation professional to conduct a site assessment and provide detailed cost estimates.

Air-sealing should be completed before adding insulation to the crawlspace.

The type of work recommended for the crawlspace will be influenced by whether you retain your ducted system for heating or replace your heating system with ductless heat pumps.

If a ducted system is retained, the crawlspace should be air sealed and insulation installed on top of a moisture barrier along the walls and floor of the crawlspace. The ducts should also be sealed to prevent any conditioned air from leaking into the crawlspace. This helps with moisture management and contributes to energy savings.

If ductless heat pumps are installed, then ducts will be removed from the crawlspace and the underside of the house will be air-sealed and insulated using spray foam.

Now & Goal

DETAILS	NOW	GOAL
Crawl Space		
Crawlspace Type	Vented - Year Round	Conditioned Crawl
Modeled Crawl Floor Area	868 ft ²	
Modeled Crawl Wall Area	283.49 ft ²	
Crawl Wall Insulation		11 R Value
Crawl Cavity Insulation		
Crawlspace Rim Joist Length	94.5 ft	
Crawlspace Rim Joist Treatment		Separately
Crawlspace Rim Joist Insulation		21 R Value

The A²ZERO Home Energy Advisor Program

The City of Ann Arbor wants all residents to access the benefits of clean, affordable power!

The Home Energy Advisor Program is a **FREE service** available to **ALL** City of Ann Arbor homeowners, renters, and landlords

Advisors support residents to make informed decisions on home energy projects

This service aims to enhance home comfort, efficiency, and reduce greenhouse gas emissions via building decarbonization.

Learn more about the A²ZERO HEA Program: [Program Information](#).

Learn more about decarbonization and electrifications from these informative videos:

[Building Decarbonization](#)

[Air Sealing and Insulation](#)

[Blower Door and Infrared Camera](#)

[Heat Pumps](#)

[Solar PV Systems](#)

[The Smart Grid](#)

[High-Performing Homes](#)



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NEXT STEPS



Community-wide deployment

- RFP 23-49 issued 10/2023
 - Includes Pilot Report
- Currently reviewing proposals and interviewing
 - Bids came in higher than our budget
 - Requesting refinement of scope and scale, to fit within budget
 - Fee for assessments in some market segments?
 - Degree of MF building inclusion?
 - Extent of services offered?
- Alignment with rebate program, HERD and other A²ZERO programs
- Questions / thoughts 