

ADDENDUM No. 1

RFP No. 23-49

Administrator of Home Energy Advisor Program

Due: October 3, 2023 at 3:00 P.M. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes forty-six (46) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- Attachment C – City of Ann Arbor Non-Discrimination Declaration of Compliance
- Attachment D - City of Ann Arbor Living Wage Declaration of Compliance
- Attachment E - Vendor Conflict of Interest Disclosure Form of the RFP Document

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Deliverables from the completed pilot Home Energy Advisor are attached here. These include an Operations Guide, and a sample “Path to Zero.” These resources can be utilized and/or altered by the Administrator of the Home Energy Advisor Program, and are included here for reference.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

A²ZERO Home Energy Advisor

Operations Guide



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Program Summary

The Ann Arbor A²ZERO Home Energy Advisor (HEA) Program is a cost-free, one-stop shop to help Ann Arbor residents make home improvements for health, comfort, energy savings, and sustainability. The program counsels residential renters, owner-occupants, and landlords to meet the specific needs of each participant, customizing a path to net zero energy use through a whole-home approach, and helping them transition into a cleaner energy future.

Program Goals

1. Eliminate disproportionate energy burdens for low-income residents, inclusive of Black, Indigenous, and People of Color communities in the City of Ann Arbor.
2. Substantially reduce the reliance on fossil fuel-sourced energy within both affordable and market rate single family and multifamily buildings in the City of Ann Arbor, expanding access to cleaner transportation options and increasing the uptake of energy efficient appliances and cold climate heat pumps in pre-existing homes.
3. Advise residents on energy efficiency, weatherization and electrification projects, including answering questions, assisting with project selection based on home assessments, connecting residents to qualified contractors, helping with bid reviews, and counseling through project completion, easing the complexity of decarbonization for Ann Arbor residents.
4. Provide customized whole-home prescriptions (“Path to Zero”) to fully decarbonized, healthy and safe homes to every participant, including connections to funding and financing opportunities.
5. Educate residents and contractors about decarbonization and clean energy solutions for home improvement.
6. Support the just transition to local renewable energy.

HEA Pilot Program

The A²ZERO HEA Pilot was a 9-month pilot program to test the internal and external operations of a city-wide Home Energy Advisor program. The HEA pilot program launched on December 2022 and ended August 2023. The pilot program’s objectives were to (1) develop the program’s overall operations and administration structure (2) establish and launch the implementation structure for services (3) define property assessment and recommendation criteria, (4) create a path to net zero energy use for each participant, and (5) assist participants with short-term project selection and implementation, as appropriate.

Needs Statement

In 2020 the City of Ann Arbor published the A²ZERO Carbon Neutrality Plan¹. This plan outlines the city’s strategy to combat climate change as follows:

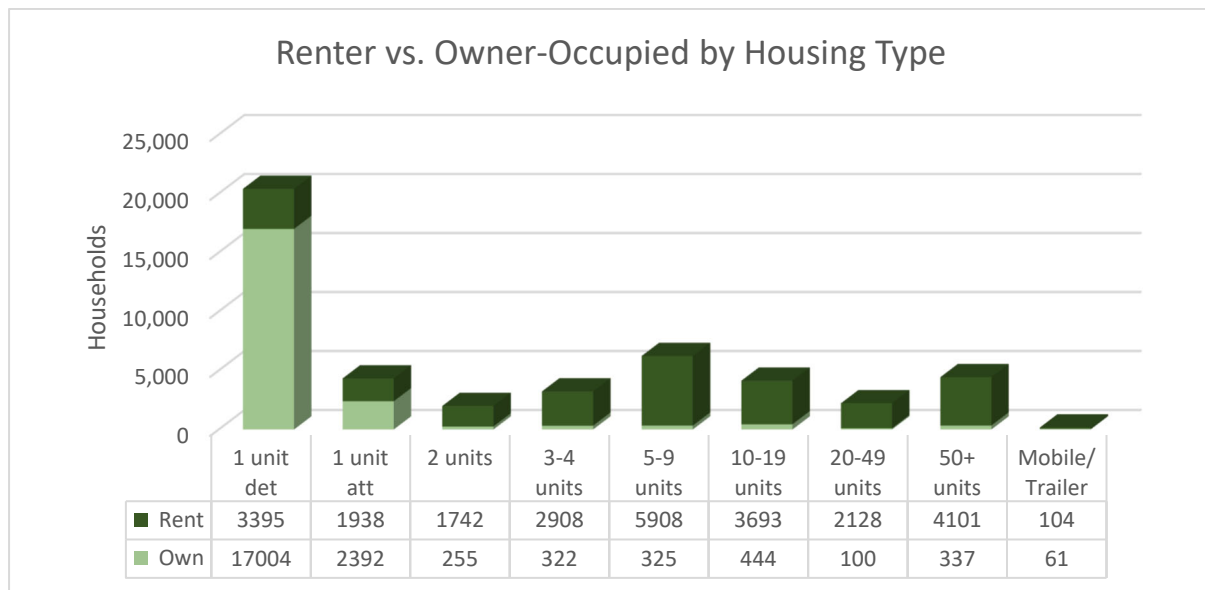
“On November 4th, 2019, Ann Arbor City Council unanimously adopted a Climate Emergency Declaration, stating that climate change is one of the most important issues of our time and that responding to the climate crisis necessitates a mobilization on par with those activated during

times of disaster. In passing the resolution, the Council also committed to charting a path for how the entire Ann Arbor community could achieve carbon neutrality by the year 2030....To achieve carbon neutrality, the entire Ann Arbor community must eliminate 2.1 million metric tons of carbon dioxide equivalent emissions annually – this is the quantity of greenhouse gas emissions we emitted, as an entire community, in 2018. ...For now, this Plan focuses on eliminating the 2.1 million metric tons of carbon dioxide equivalent that primarily come from natural gas, electricity, gasoline, coal, and diesel used by residents, visitors, students, and businesses in Ann Arbor.”

Housing Stock

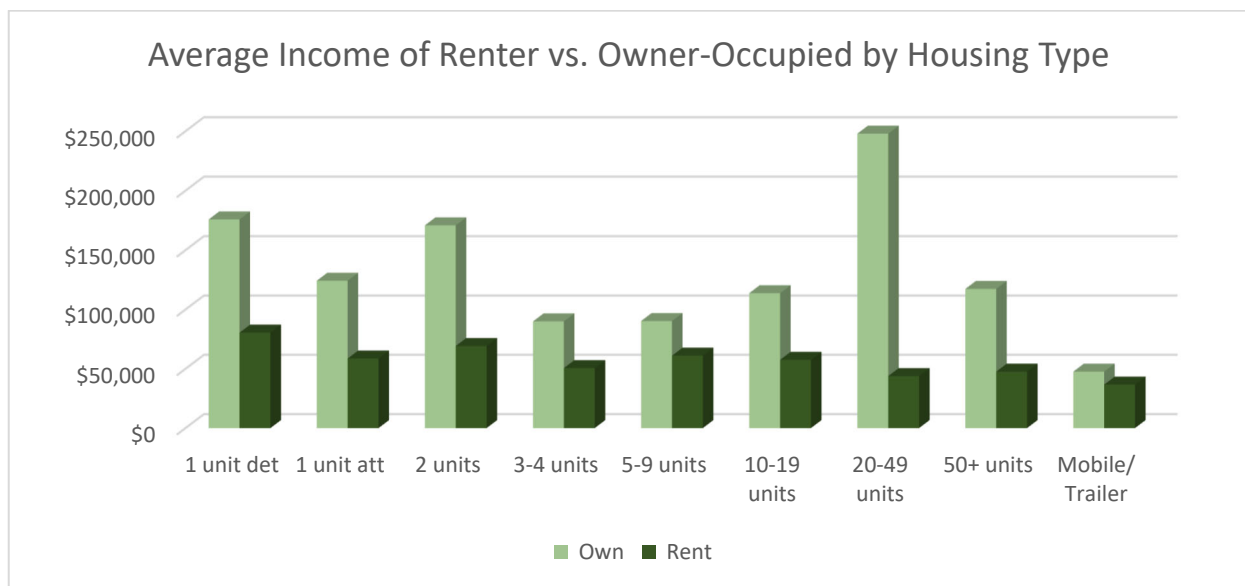
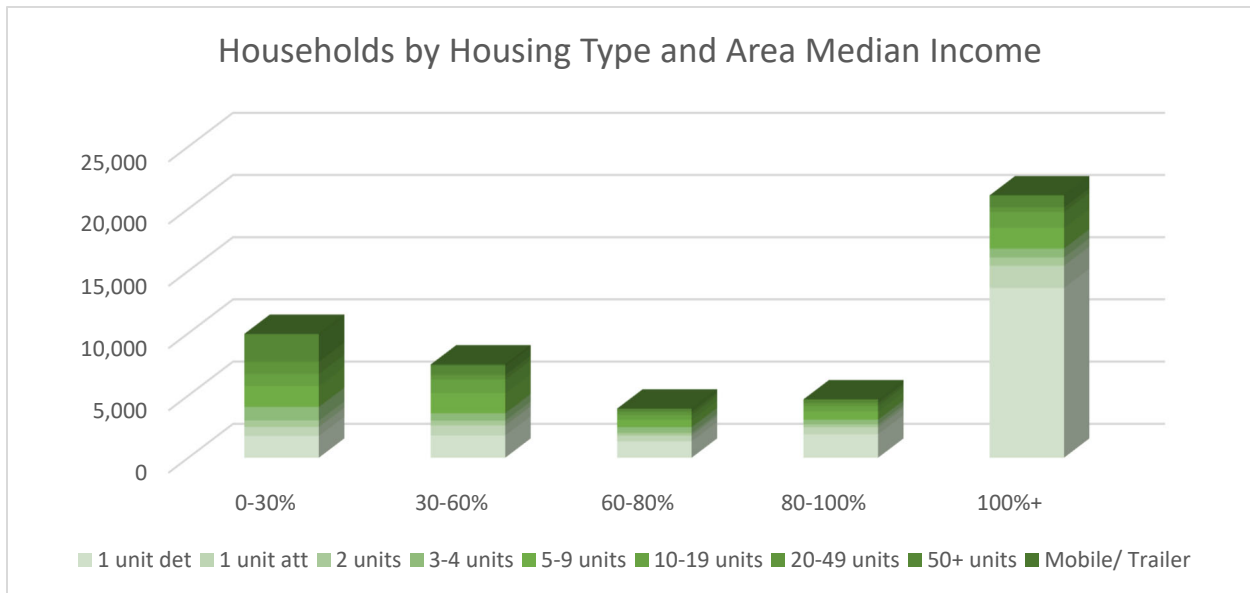
The Home Energy Advisor is meant to serve all households in the City. An analysis of the city of Ann Arbor was conducted to understand the total addressable participants’ market size to guide the program design and services. According to US Census data, Ann Arbor has over forty-nine thousand households at an ownership rate of 45%.

According to the Department of Energy’s LEAD tool, most of the owner-occupied housing in Ann Arbor is heavily concentrated in smaller-unit housing (1-4 units), while renter-occupied housing is heavily concentrated in larger-unit housing (5+ units). There are nearly equivalent amounts of owner-occupied single unit households as there are renter occupied multi-unit households.



Nearly 45% of households live at or below 80% of the Area Median Income. This is heavily concentrated in larger-unit renter-occupied housing (~22%), but there is a significant number of smaller-unit housing with limited incomes that are both renter- and owner-occupied (~21%). On average, the household income of renter vs. owner of any housing type is 58% less. This indicates that a significant portion of Ann Arbor’s households will be eligible and require support for accessing all available grants, incentives, and other support programs to make investments that will lead to towards net zero housing. However, it will

require participation of landlords of smaller and larger unit rental housing. Still, one-third of households in Ann Arbor are single family owner-occupied with incomes above 80% AMI, and these homes will be most capable of making investments in upgrades to their homes.



Ann Arbor has a diverse array of household types, ownership structures, and incomes. This will require the Home Energy Advisor program to create structures and outreach strategies that will engage the key decision makers for each of these household types and advise them on their Path to Zero.

Program Structure

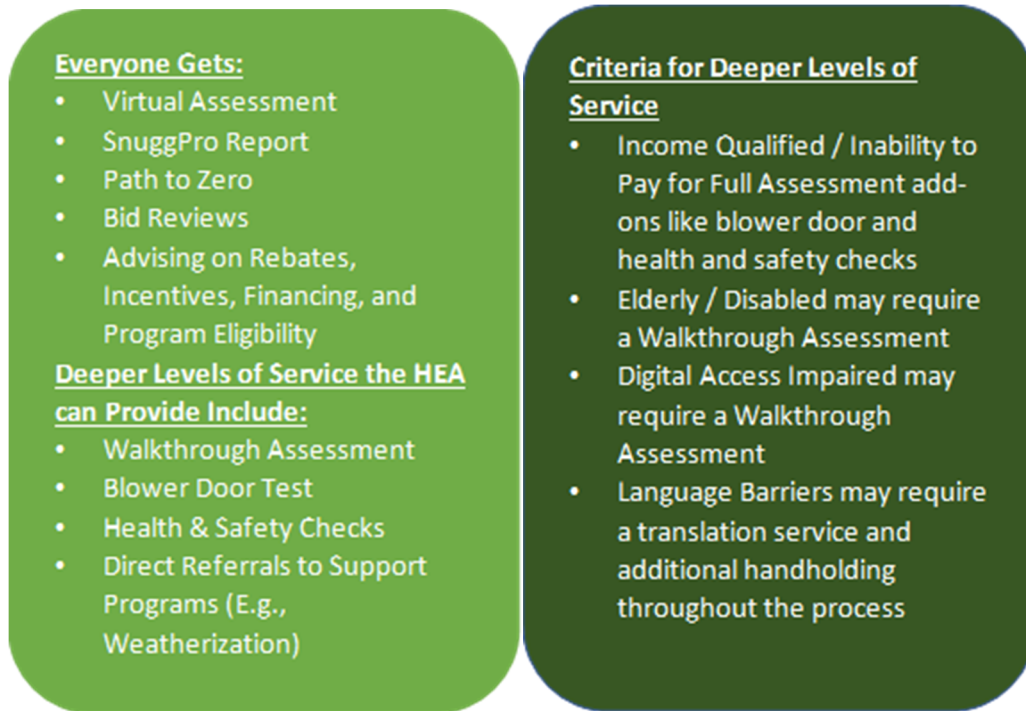
The A²ZERO Home Energy Advisor (HEA) provides a single point of contact to households in Ann Arbor, guiding them on their path to zero carbon emissions. Elevate and EcoWorks provided management of the HEA pilot, on behalf of the City of Ann Arbor Office of Sustainability and Innovation (OSI), to identify ways it could be scaled and made available city wide.

A city-wide Home Energy Advisor program would enable any household in Ann Arbor to access the program through an online intake form, and an A²ZERO Home Energy Advisor would schedule an initial consultation followed by a virtual or onsite A²ZERO Home Assessment. The intake form captures basic information about the household, personal priorities, and specific areas the resident is interested in discussing. The initial consultation and assessment provides an overview of the process and services available through the HEA, digs deeper into the specific needs of the household, and assesses existing systems and energy costs in the household to chart a path to zero carbon emissions. Based on the initial consultation and assessment, and where the household is on its path to zero emissions, the Advisor would recommend next steps, potentially including:

- Coordinating additional onsite services, such as a blower door test with infrared camera, health and safety testing, and combustion testing of HVAC systems
- Providing a Path to Zero to guide actionable next steps and help residents navigate their A²ZERO Home Assessment
- 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

The HEA program could provide any of the services outlined above but may reserve providing deeper levels of service for those who have limited or fixed incomes, are elderly or disabled, have digital access or literacy issues, or language barriers that may require a more hands on approach. The city could scale support for different parts of the HEA service mix, based on priorities and available resources.

It is recommended that a network of service providers and implementation partners be established to allow the program to scale these services with demand. Interest in the program may have peaks and valleys throughout any given year, so maintaining service standards will require some level of flexibility in capacity.



Program Requirements and Eligibility

The A²Zero Home Energy Advisor Program would be available to all city of Ann Arbor residents, including both owner-occupied and renter-occupied households. Both single-family homes and multifamily buildings are eligible for services, and both the owners and/or tenants can reach out for assistance. The program is targeted at existing buildings. As the A²ZERO Home Energy Advisor Program scales up, this eligibility could expand to include advising on new construction.

It is recommended that the program provide clear criteria for eligibility to receive deeper levels of service, as outlined in the previous section.

Staffing

The HEA pilot program was supported by three primary roles that provided the outlined services for Ann Arbor residents. These three roles are the Home Energy Advisor, Energy Manager, and a Program Manager. The Home Energy Advisor team also accessed experts from within their organizations to provide review of A²ZERO Home Assessments, bid reviews, and to answer technical questions, as needed. The team expected to work more with contractors to provide some services, but they were not needed during the pilot.



Program Manager

The Program Manager oversees the Home Energy Advisor and Energy Manager. This person also helps organize and implement evaluations of services. The Manager also leads communications between the OSI and HEA team.

Home Energy Advisor

The main point of contact for most participants is the Home Advisor. The Advisor coordinates and conducts consultations, provides virtual A²ZERO Home Assessments, schedules additional services and consultations with experts, and connects households with other available services.

It is recommended when additional capacity is needed for the advisor role, an Intake Coordinator could be added to the team to support client outreach, scheduling, and other less technical responsibilities. Additional virtual assessors can also be added to support virtual A²ZERO Home Assessments, which requires some training and oversight but no professional certifications.

Energy Manager

Participants who need additional supports and/or more technical supports will be connected with an Energy Manager. This role provides onsite A²ZERO Home Assessments, additional onsite services, reviews of contractor bids, and will work with larger multifamily building owners (5+ units) to provide a more in-depth assessment for achieving zero emissions for all their residents. They must have experience and/or credentials that qualify them to provide these services.

Contractors

Contractors for the Home Energy Advisor program would provide additional services and can be trained to provide onsite A²ZERO Home Assessments and multifamily assessments. These would most likely be BPI or RESNET certified professionals or energy engineers.

Experts

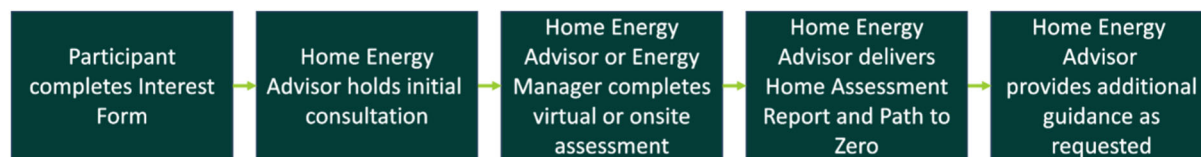
Households with specific technology- or construction-related questions will be connected with Experts in the areas they need assistance for. The Experts will provide more technical advice and direct households towards resources or specialty contractors that can help them explore complex decarbonization and resilience opportunities. This role can also provide bid reviews for households with short term projects that include these complex technology- or construction-related needs.

It is recommended that a diverse array of experts be available to support the HEA, as resident needs, building types, and technology options vary significantly across participants.

Participant Journey

The HEA Pilot Program opened to participants in March 2023. Over the duration of the project, 14 Ann Arbor residents entered the program.

The participant journey throughout the HEA Pilot Program is displayed in the diagram below.



Participants who needed additional supports and/or guidance were provided these additional services:

- Additional follow-up call(s) to answer any questions 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

Pre-Call Intake

During the pilot, minimal outreach efforts were necessary in order to limit the number of participants to the target participant size of 10-20 households. The Ann Arbor Office of Sustainability and Innovation (OSI) HEA lead, Julie Roth, led outreach to potential pilot participants targeting specific groups. This included reaching out to individuals who participated in Ann Arbor's Aging in Place program, collaborating with community partners like Community Action Network for outreach, and informing renters who engage frequently with the OSI. Interested participants were provided a link to an intake form.

The A²ZERO Home Energy Advisor Intake Form was used to collect background information on the participant, their home, income, utilities, retrofit priorities, and motives for starting their path to a net zero carbon home.

Initial Intake Consultation

Participants received a welcome email that requested they schedule a 45-minute intake consultation via Zoom by using a Calendly link. The intake consultation consists of an overview of the pilot program led by the Advisor, as well as a verification of the participants building information that the participant provided in the intake form.

Within this consultation the participant was given the opportunity to ask the Advisor any program related questions while also answering a list of provided questions that help inform the HEA team of the participants concerns and needs. This consultation was also used to walk participant through any confusing utility data.

The initial intake consultation was documented by the Advisor along with the utility data.

Home Assessment

Following the consultation call the participant received an email requesting they schedule an assessment through the identified methods. The majority of the HEA Pilot Program participants received a virtual home assessment via Zoom. The virtual assessment was supported by the Home Energy Advisor and the

Energy Manager. A smaller number of participants received onsite assessments with the Energy Manager, and 2 participants received blower door tests and thermal imaging from an energy engineer.

All home assessments include:

- Analysis of utility bill data, as provided through a simple link from the participant from their DTE account
- Collecting resident concerns (e.g., drafty rooms, water infiltration, knob and tube wiring) and priorities for upgrades (e.g., insulation and air sealing, heat pumps, solar)
- Confirming building information collected from publicly available data sources (square footage, building age, configuration, tree cover, etc.)
- Asking questions about resident behavior and habits (e.g., thermostat set points, hot water temperature settings, using natural ventilation from windows, use of portable heaters, usage of appliances, etc.)
- Discussing past work or recent purchases of equipment, including participation in any utility or support programs (e.g., weatherization)
- Documenting appliance and systems data through pictures or screen captures of serial and model numbers
- Walking through the home, either in onsite or virtually, to get a feel for the layout

HEA Deliverables

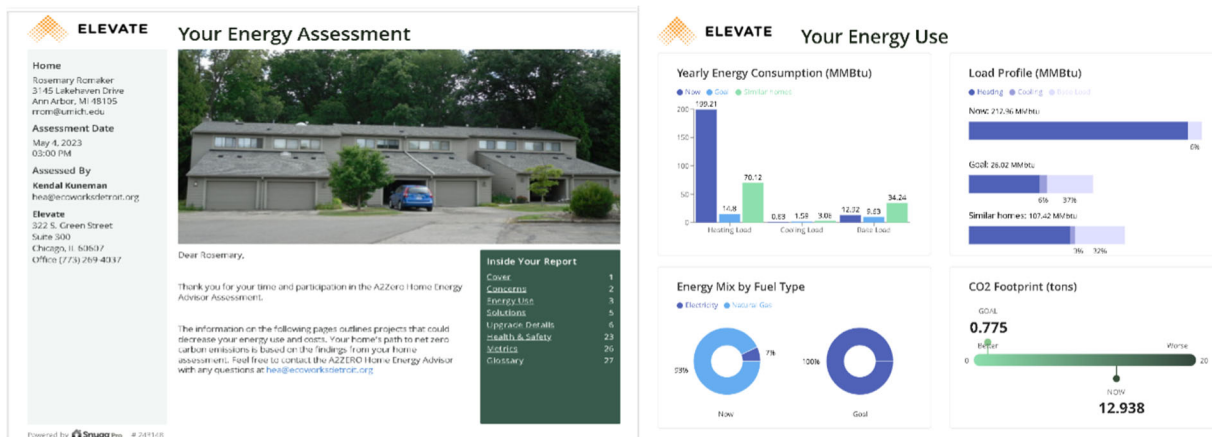
At the end of the program, participants are provided with a personalized Path to Zero and A²ZERO Home Assessment. These two documents offer next steps and education centering the identified short-, mid-, and long-term home projects that lead towards a carbon free home. Participants that did not have solar and were viable candidates for solar were provided with a solar assessment. Participants that received blower door tests and thermal imaging were provided with the images and notes on problem areas.

It is recommended that the Initial Consultation be combined with the A²ZERO Home Assessments to simplify the process for households and make more efficient use of time. This would require more communication, coordination, and data collection before the Initial Consultations and A²ZERO Home Assessments are scheduled. However, residents should be able to schedule a call to ask about any questions they may have and may not initially need a full intake process or assessment.

Services and Deliverables

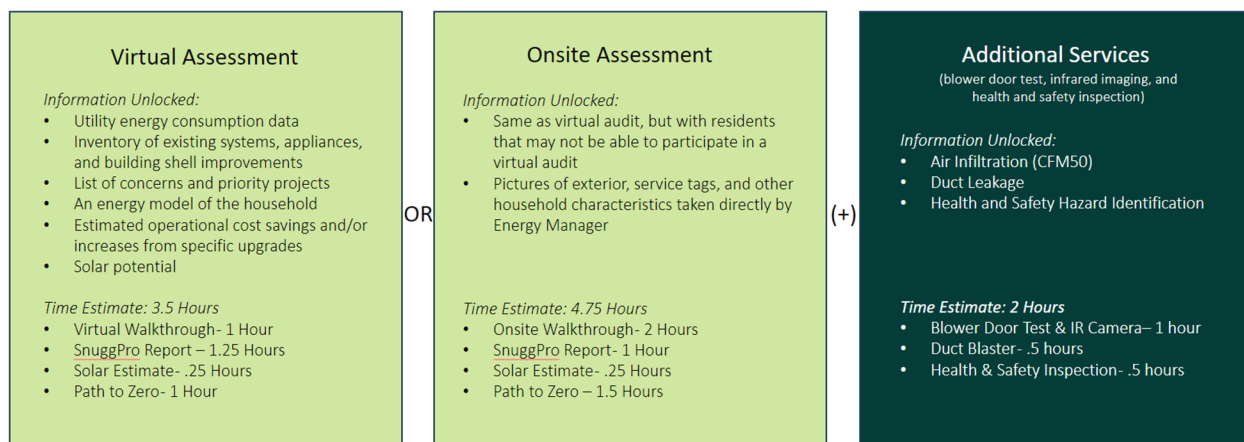
A²ZERO Home Assessments

Most households received an A²ZERO Home Assessment. For 1-4 unit buildings, these assessments were provided through Snugg Pro, an energy modeling software-as-a-service that can be infinitely updated based on a household’s changing needs over time. Snugg Pro is BPI-2400 compliant and capable of qualifying households for Inflation Reduction Act rebates and tax credits, utility incentives, Michigan Saves Loans, rebates that may become available through the City of Ann Arbor, and HES scores by a certified HES rater. Multifamily buildings (5+ units) received an assessment by the Energy Manager that meets ASHRAE standards and is based on Elevate’s proven multifamily assessment process. Additionally, all households and buildings were provided with a desktop Helioscope analysis, to assess solar potential.



The Snugg Pro assessment example above shows significant opportunities for the household to reduce overall energy consumption, save money, and nearly eliminate their carbon footprint through a combination of electrification and onsite solar.

The A²ZERO Home Assessment and Path to Zero provide actionable next steps and guidance for households to move forward with decarbonization and resilience projects that lead them toward net zero carbon emissions. With continued support from the Advisor and Energy Manager, households will always have a place to turn to help them make smart, cost-effective decisions and explore next steps on their decarbonization journey.



The A²ZERO Home Assessments are offered through virtual or in-person services. Throughout the pilot program assessments were mainly conducted through virtual audits, with the option of provided in-home services to participants with deeper levels of need.

Multi-family Assessments

Engaging with larger multifamily (5+ units) owners requires a different process than working with owner-occupied small unit buildings (1-4 units). These owners vary in ownership type and priorities (nonprofit vs for-profit, subsidized vs. unsubsidized, etc.), so must be met where they are and given advice on how to make cost-effective solutions to move towards zero emissions over time. Elevate has utilized its proven approach to working with larger multifamily building owners to structure this part of the HEA's services.

Multifamily assessments include:

- Collection of resident and owner (common area) utility data through DTEs landlord portal
- Walkthrough of property by Energy Manager with property manager, including significant documentation of systems and building design with images
- Requests for any available systems specifications and architectural drawings
- Simple paybacks calculated for any recommended upgrades, prioritized by immediate, near, or long term
- Identification of any existing equipment issues that could be addressed by working with the contractor that completed the work
- Identification of no-cost or low-cost interventions to create impacts (e.g., changes to operations and maintenance practices, resident engagement and education, etc.)
- Analysis of solar and energy storage options

No multifamily properties responded to initial outreach, so the team worked with local nonprofit multifamily owner Avalon Housing to pilot how the HEA could work with multifamily building owners. Avalon Housing had a property called Hickory Way that was newly constructed in 2021.

We provided Avalon Housing with an assessment report focused on specific next steps they could take to address the high energy use at Hickory Way.

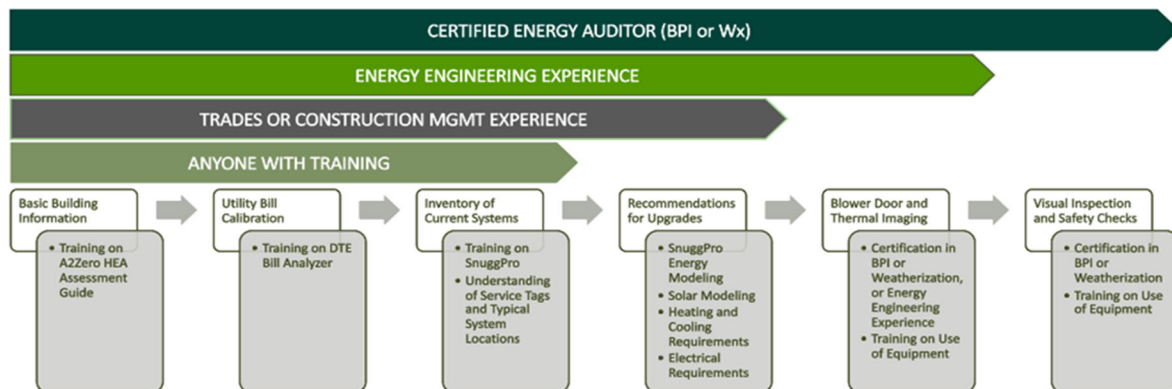
These included:

- Contacting the original contractor that installed the heat pumps to verify proper installation and that cold-climate kits were installed properly, and having them correct issues.
- Putting set-point ranges in to in-unit thermostats so tenants could not set extreme heating or cooling levels.
- Providing tenant education and engagement on how to better manage energy consumption and the difference of how heat pumps heat and cool their units compared to the forced air systems most people have experienced throughout their lives.

It is recommended that larger multifamily building owners be engaged early on in the program to help them establish a long-term plan. These owners have much longer planning horizons than most smaller building owners, so assisting them with integrating decarbonization into their long term planning would help ensure opportunities are not missed when windows for big investments open.

Assessments Scalability

The graphic below shows the scalability of the A²ZERO Home Assessments and additional onsite services, based on the amount of training or certifications required. The HEA program can scale up its capacity by providing training and enable more experienced professionals, like the Energy Manager or certified contractors, to focus on the parts of the process that can only be completed by someone with their expertise.



Path to Zero


Every household that participates in the Home Energy Advisor program received a Path to Zero. The Path to Zero is an informational guide that outlines specific, customized steps the household can take in the short, medium and long-term to achieve net zero carbon emissions. The graphic below outlines specific steps an HEA pilot participant can take to achieve a net zero home.



The Path to Zero also provided overviews and links to a curated set of programs and services (e.g., Weatherization Assistance Programs or DTE Rebates). This resource is designed to be updated, over time, as households continue their journey and implement decarbonization and resilience improvements.

Your Short-term Projects


PROJECT	SHORT TERM (this year)	COMMENTS / CONSIDERATIONS
Thermostat Set Points	X	Install a programmable thermostat
Refrigerator	X	Replace refrigerator with ENERGY STAR certified refrigerator
Seal Air Leaks	X	Hire insulation and air sealing professional
Insulate Walls	X	Pair insulation and air sealing together
Upgrade Water Heater	X	Replace water heater with electric tank or heat pump water heater



The above graphic shows the timeframe in which upgrades may make sense. Based on the A²ZERO Home Assessment, the most immediate projects are replacing a 30+ year old water heater and engaging an insulation and air sealing professional to address significant air infiltration around baseboards and the door wall. These are immediate needs that will make a significant impact.

Your Path to Zero Projects

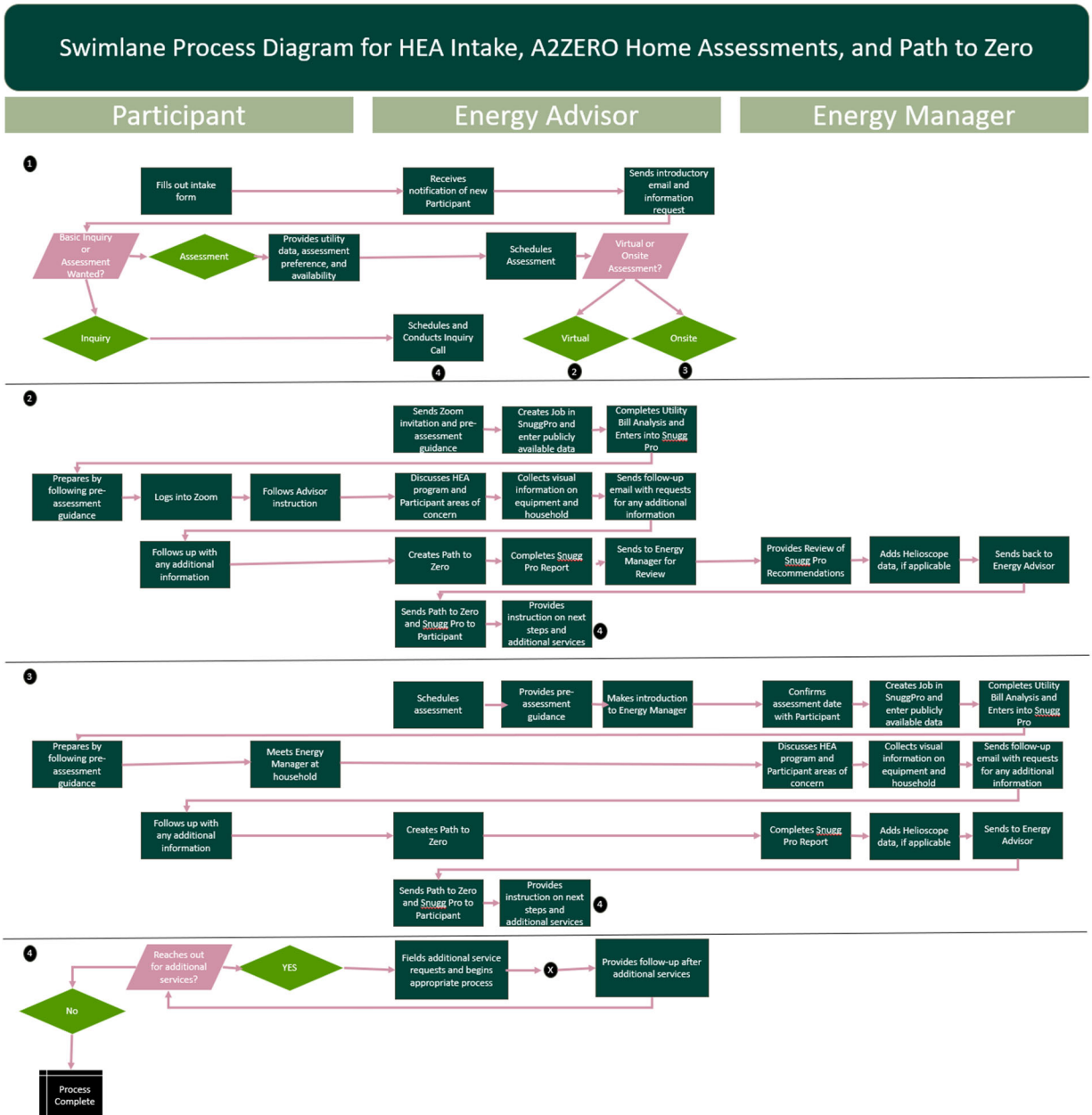
PROJECT	MED TERM (2-5 years)	LONG TERM (5+ years)	COMMENTS / CONSIDERATIONS
Electric Panel Upgrade	X		Consider alongside electrifying heating and cooling
Upgrade Heating System	X		Replace natural gas furnace with ducted heat pump
Upgrade Cooling System	X		Upgrading to a heat pump will provide heating and cooling.
Heat Pump Dryer		X	Consider electric heat pump dryer
Induction or Electric Cooking Range		X	Consider electric induction cooking range
EV Charger		X	Consider alongside purchasing an electric vehicle
Upgrade Windows		X	Add storm windows, solar screens or replace windows
Solar PV		X	Install solar on south-facing roof over bedroom and garage
Other Electrification Upgrades		X	Consider electric induction cooking range, electric heat pump clothes dryer, and an electric vehicle and charging station



Medium term needs include upgrading the electric panel and heating and cooling systems. These projects could be done any time but are not critical needs and would benefit from careful planning and engaging with multiple contractors to get the best solutions that will meet future needs.

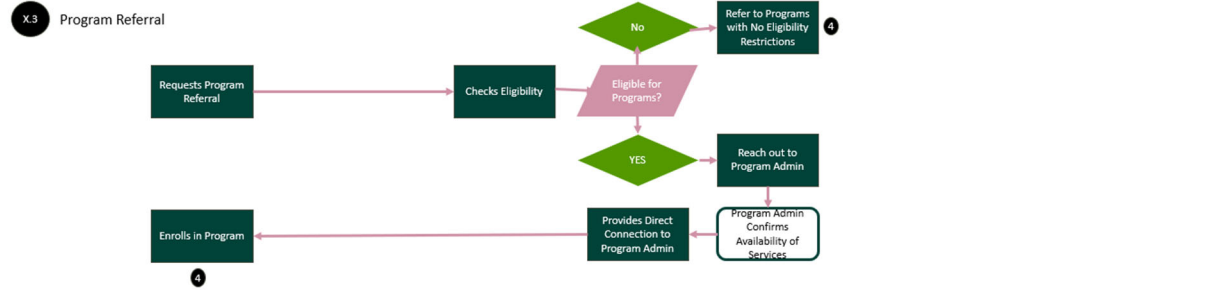
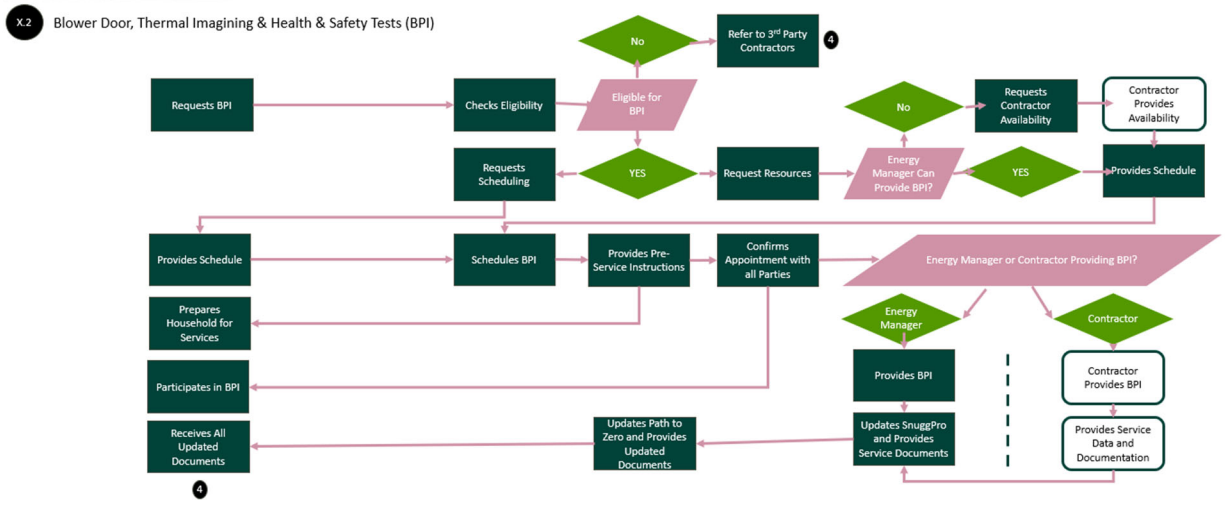
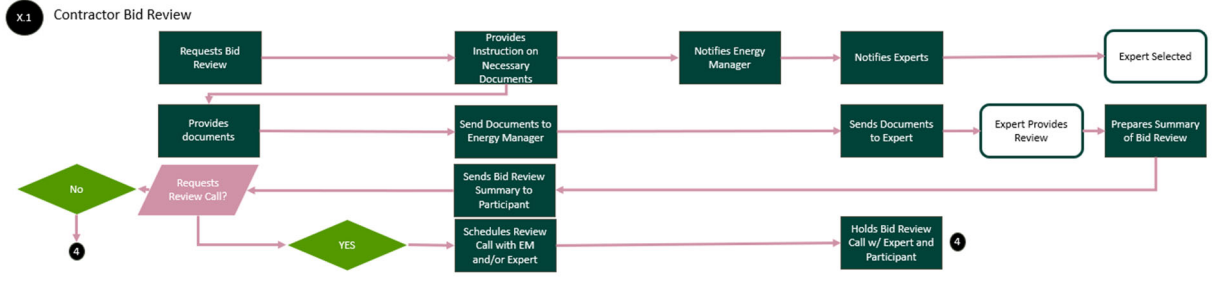
Sample Process Diagram for 1-4 unit Building Assessments

Below is a sample process diagram for how the Participants, Energy Advisor, and Energy Manager coordinate to provide the Initial Consultation, Virtual and Onsite A²ZERO Home Assessments, and Path to Zero. The process diverges based on Virtual or Onsite A²ZERO Home Assessments and converges back to address Additional Services. Because the HEA program is open to anyone in the City for the entirety of the program being in existence, the process only ends when the Participant stops reaching out. Those who receive additional services are sent into separate processes, which are outlined in a second process diagram.



Swimlane Process Diagram for HEA Additional Services

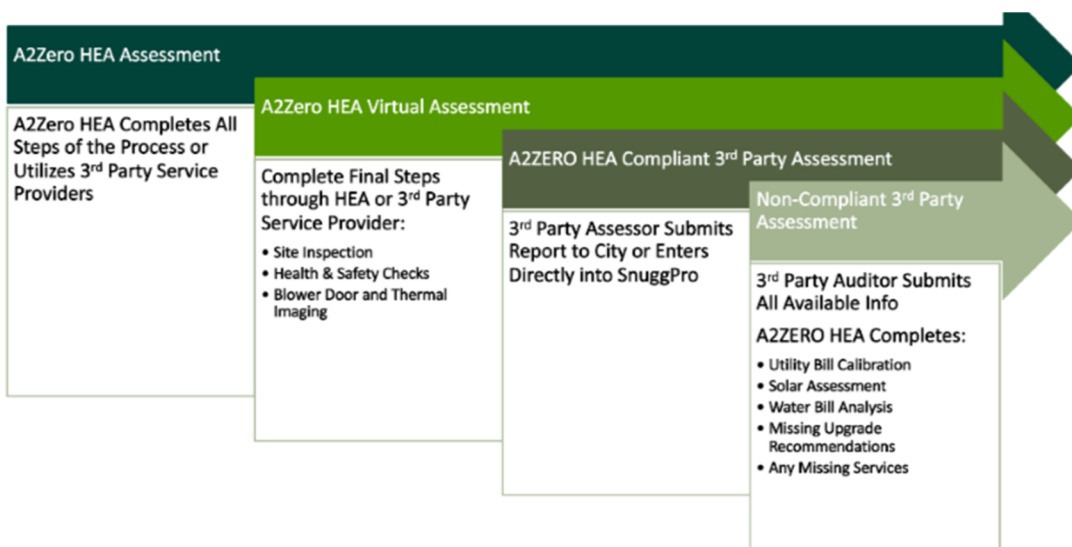
Participant	Energy Advisor	Energy Manager
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Pathways to a Rebate

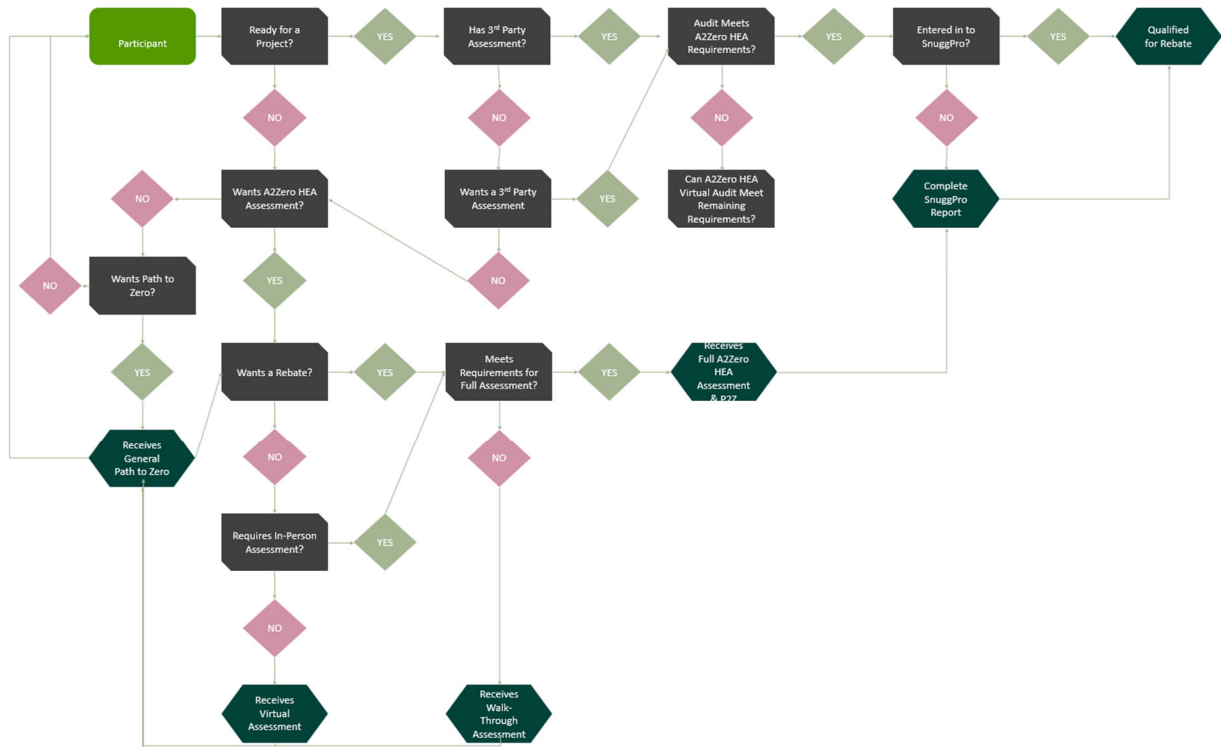
As the City develops programming, the A²ZERO Home Energy Advisor will be an important service to help guide households towards the resources the city may provide. Importantly, the A²ZERO Assessment can be utilized as a compliance or qualification process for specific programs. As an example, the city is developing a rebate program that will help incentivize households towards meeting A²ZERO decarbonization goals. The HEA program and A²ZERO Home Assessment process can be an effective support program to provide guidance and qualify households for these rebates.

To ensure flexibility and ease of access, households should have multiple pathways to qualify for a rebate that are not entirely dependent on going through the HEA program. Households should be able to utilize any combination of the HEA or third-party contractors and professionals to meet the qualification criteria for a rebate. The graphic below shows potential combinations of utilizing the HEA or third parties to qualify for a rebate.



The following graphic is a process flow that shows how households could utilize a third party or the HEA program to qualify for a rebate. Each pathway a household takes includes their information being eventually collected by the HEA program, so the city can have a comprehensive database of all households that have participated in the HEA and rebate programs.

Pathway to a Rebate
 Participants cycle through this process until they have eligible projects and have completed all aspects of the A2Zero Home Energy Assessment



Data Platforms and Services

Below, we outline the platforms and services utilized for the Home Energy Advisor Pilot. We suggest that any data platforms or software utilized meets the basic criteria outlined below.

Energy Modeling

Throughout the A²ZERO HEA pilot program, Snugg Pro was used as the leading energy modeling tool for the Home Assessments. Snugg Pro offers adaptive energy modeling, shareable reports, and user-friendly templates for single family and small multifamily households.

Snugg Pro is BPI-2400 compliant energy modeling software, so it can be used to qualify households for federal home performance rebates. It has also been cleared with Michigan Saves as an acceptable audit report to qualify for their financing. Snugg Pro report data can be aggregated for reporting on program metrics and potential outcomes. It can also be updated with specific information from contractor quotes to provide an estimate of changes in energy costs associated with specific equipment and building upgrades.

For multifamily assessments, Excel-based energy modeling tools were utilized with calculations that met ASHRAE guidelines. It is recommended that any platform used should be capable of qualifying multifamily units for any available utility, state, or city incentive and rebate programs or tax credits.

Solar assessments were provided through Helioscope desktop analysis, based on address and available map data.

Participant email Communications

Participants were communicated with through email accounts on both Gmail and Outlook. It is recommended to have the entire project team on a single platform and URL to eliminate confusion.

Participant Video Calls

Zoom is a communications platform that allows users to connect through video, audio or phone. This service was used throughout the participant journey. Zoom allows image and file sharing, recording of virtual assessments, and is not tied to any specific browser or operating system.

Team Communications

The project team communicated across multiple platforms and services, including Zoom, Gmail, Outlook, and Microsoft Teams. There is no specific recommendation on team communication platforms, but there is some advantage to being on Microsoft Teams as it enables chat easier SharePoint integration with City of Ann Arbor OSI.

Secure File Storage

SharePoint was used as the main source of documentation. It is an online document management system. The cloud storage system allows for instant backups of documents and files and has the ability to be both secure and keep confidential information safe as well as accessible to individuals through link sharing. This system is also used by the City of Ann Arbor OSI, which enables easy integration. Participant files were shared via email from Gmail and Microsoft Outlook.

Images and Screen Capture

Microsoft's built in screen capture tool was used during Virtual Audits to capture images of service tags and other important things to visually document. For instances where screen capture was not possible, Participants were asked to take photos with their phone and send via email or text to the project team.

Energy Data

DTE utility data was provided by Participants through a link from their DTE account. This link provided data in an online format that was converted to what was needed for utility bill calibration through an Excel spreadsheet. With proper instruction, similar spreadsheets can be exported directly from DTE's website. However, the project team was looking for the path of least resistance to get the utility data they needed. It is important to note that this data is not always available and can have incorrect data points that must be evaluated to ensure it does not adversely affect energy models.

Evaluation and Reporting

Evaluating program performance is essential to ensuring continuous improvement and efficient use of resources to serve Ann Arbor residents. Some key metrics that must be tracked include:

- Average time spent per Participant and for specific HEA services (e.g., consultations, assessments and assessment updates, bid reviews, program referrals)
- Total number of instances of specific HEA services
- Total current energy consumption of HEA Participants
- Modeled energy consumption and GHG reductions from achieving net zero goals
- Economic activity facilitated by HEA program (If available)
 - Investments by Participants
 - Grants, incentives, and rebates utilized by Participants
 - Utility bill changes (as verified by updated utility bill data after upgrades are completed)
- Number of referrals made to other programs (e.g., Weatherization, LIHEAP, etc.,)
- Participant experience metrics on satisfaction, usefulness of program, and areas to improve
- Demographics of participants, including equity-related measures and geographic location

Metrics should be tracked and reported to City of Ann Arbor OSI on a monthly basis, with quarterly and annual summaries. Key changes to program design should be planned with a minimum of three months' notice and rolled out at the beginning of the following quarter.

Another key goal of evaluation and reporting is storytelling. Capturing customer stories and testimonials, or having the program promoted through local events or community groups will be integral to the successful growth of the program. Working closely with OSI on any communications and marketing components of the program is required.

YOUR PATH TO ZERO!

A²ZERO HOME ENERGY ADVISOR

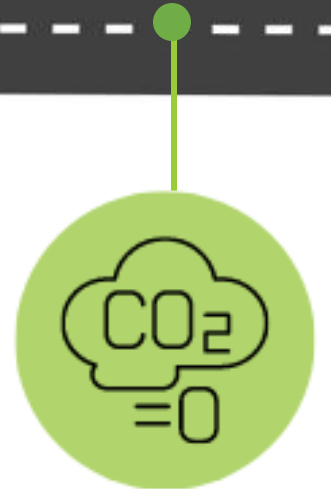
This Path Belongs to:

[Name]

[Address]

[Email]

[Date]



**You've
reached
net zero!**



Participant Information

Your age: 70

Relationship to home: Homeowner

Fixed income: Yes

Age of building: Built in 1970

Utilities: Gas and Electric

Your needs: Weatherization; Electrification; Financing

Your 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.)

Addressing Your Concerns

Your Path to Zero is designed to help make your decarbonization journey easier and more cost effective.

Throughout this resources we have provided additional information to address your homes concerns.

Home repair and decarbonization cost

The HEA team has put together a list of available and upcoming rebates and incentives. These programs are meant to help residents with a fixed income.

Your home has a drafty downstairs bathroom

We have identified air sealing and insulation as a short-term project.

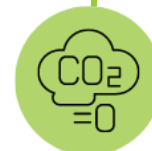
Condominium Association Limitations

Working with condominiums can be hard and confusing. The City of Ann Arbor has created [this guide](#) to help resident navigate decarbonization projects.

Appliances replacement/upgrades

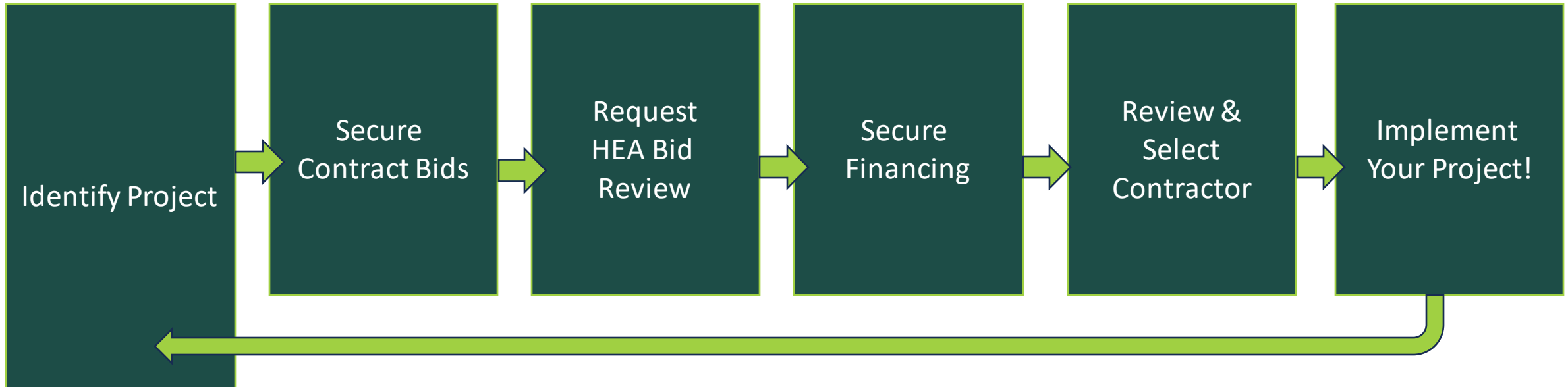
We have identified purchasing a programmable thermostat as a short-term project.

Where to start your path?



You've reached
net zero!

Steps to Complete Your Project(s)



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

Your Short-term Projects

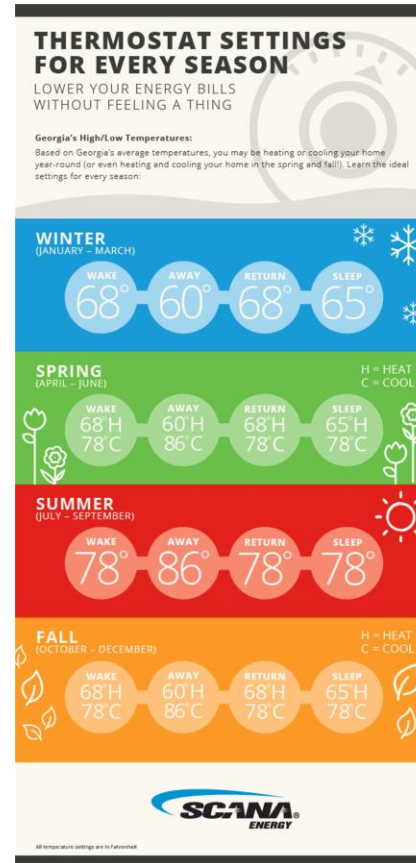
PROJECT	SHORT TERM <i>(this year)</i>	COMMENTS / CONSIDERATIONS
<i>Thermostat Set Points</i>	X	<i>Install a programmable thermostat</i>
<i>Seal Air Leaks & Insulate Walls</i>	X	<i>Hire insulation and air sealing professional</i>
<i>Electrical Upgrade</i>	X	<i>Hire contractor to upgrade your electrical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

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

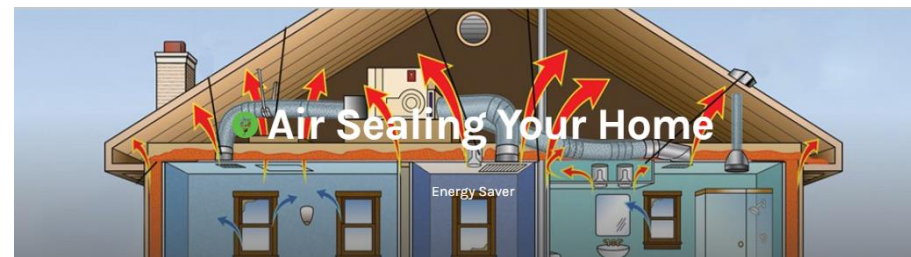
Project 2

Weatherization: Insulation and Air Leaks

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.

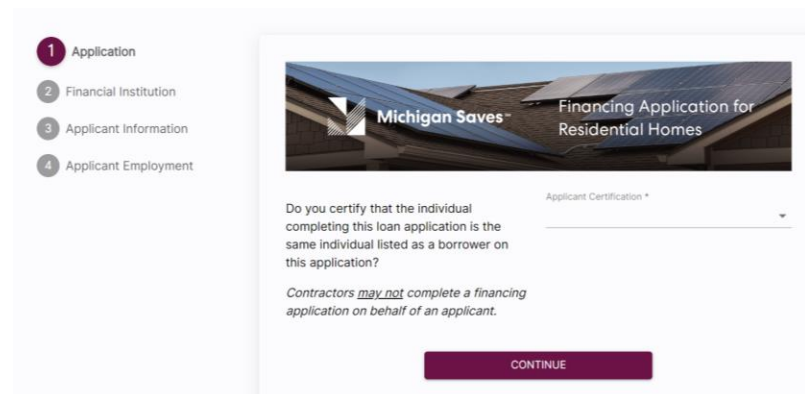


Rebates/Incentives:

- 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.




Why it matters

Upgrading to an all-electric home may require an upgrade to your electric panel and possibly the electric service (amps) provided by your utility.



Steps to ensuring you can have an all-electric home include:

1. Check with your electrician or utility company on what amp-service you have to your home.
2. Make sure your electric panel is rated for the amp-service to your home and has enough breakers to provide power to your electric appliances, systems, and additional things like an electric vehicle charger.
3. You may need to run additional electric lines, especially higher voltage (240v) lines, to parts of your house where they currently do not exist (e.g., your garage for an EV charger).
4. Consider a smart electric panel that can enable your home to integrate solar, energy storage, and EV charging



Check your current electric panel's main breaker to identify its amp rating.



Additional Resources:

[Energy Star Home Upgrade: Make Your Home Electric Ready](#)

[Redwood Energy Pocket Guide to All-Electric Retrofits of Single-Family Homes](#)

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 an *Electrical Upgrades* approved by Michigan Saves. They should have the badge below on their profile.

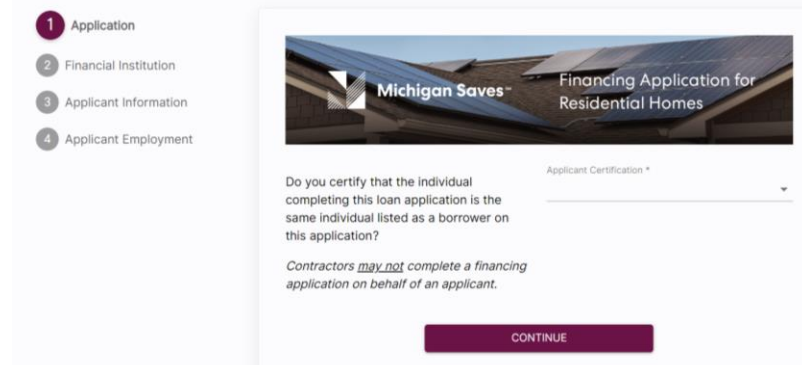


Rebates/Incentives:

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

Financing Option:

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



Completing Your Path to Net Zero



You've reached net zero!

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 Path to Zero Projects

PROJECT	MED TERM (2-5 years)	LONG TERM (5+ years)	COMMENTS / CONSIDERATIONS
<i>Electric Panel Upgrade</i>	X		<i>Consider alongside electrifying heating and cooling</i>
<i>Upgrade Heating System</i>	X		<i>Replace natural gas furnace with ducted heat pump</i>
<i>Upgrade Cooling System</i>	X		<i>Upgrading to a heat pump will provide heating and cooling.</i>
<i>Heat Pump Dryer</i>		X	<i>Consider electric heat pump dryer</i>
<i>Induction or Electric Cooking Range</i>		X	<i>Consider electric induction cooking range</i>
<i>EV Charger</i>		X	<i>Consider alongside purchasing an electric vehicle</i>
<i>Upgrade Windows</i>		X	<i>Add storm windows, solar screens or replace windows</i>
<i>Solar PV</i>		X	<i>Install solar on south-facing roof over bedroom and garage</i>
<i>Other Electrification Upgrades</i>		X	<i>Consider electric induction cooking range, electric heat pump clothes dryer, and an electric vehicle and charging station</i>



Solar PV

Annual Energy Savings

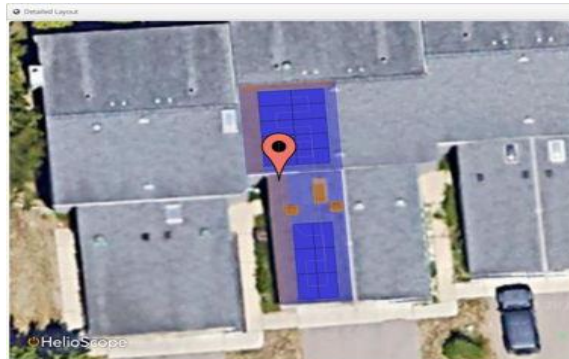
Approx. \$1,094

Why it matters

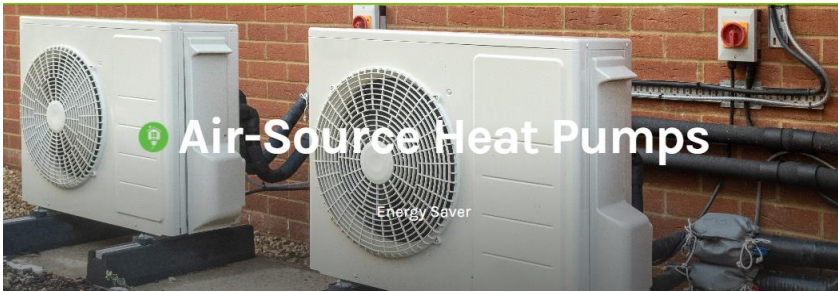
Install a Solar PV (photovoltaic) system to offset electric energy consumption in your house. A PV system can significantly reduce your electric bill and increase your homes resiliency throughout the year.

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.



Heating and Cooling System

Annual Energy Savings

Approx. \$-315

Why it matters

Installing a more efficient furnace, boiler or heat pump can significantly reducing your energy usage in your home.

Depending on the age of the unit, substantial savings may be gained by replacing it with an ENERGY STAR rated appliance. If you're heating with gas, look for a sealed combustion unit.

If you want to electrify your home, consider removing the natural gas heating system and replace with a cold climate air source heat pump. Heat pumps also have the benefit of being able to provide both cooling and heating functions. Heat pumps use electricity as the fuel source instead of natural gas therefore reducing emissions and are more efficient than natural gas furnaces - potentially reducing energy used for space heating by up to 50%.

[Energy Star Home Upgrade site for Clean Heating and Cooling](#)

[Energy Savers Consumers Guide to Home Heating and Cooling Fact Sheet](#)

[Energy Savers: Air Source Heat](#)



Annual Energy Savings

Approx. \$65

Why it matters

For most households, water heating is the second largest expense in your home and may account for 15% of your utility bill.

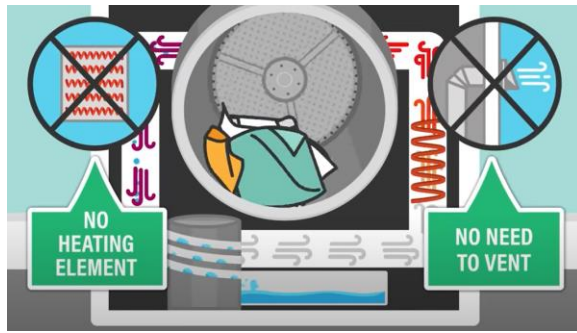
Replacing your water heater with a high efficiency sealed combustion, power vented electric model, or a heat pump water heater can help you save energy and money. Plus switching from gas to electric can reduce the ability for dangerous carbon monoxide to leak into your home.

Water Heater

Heat pump water heaters require a larger amount of space (~1,000 cubic feet) and are sized larger than corresponding natural gas models. A professional with experience installing heat pump water heaters should be consulted to determine if your home meets the space requirements for a hybrid heat pump water heater. New electrical connections and/or an electric panel upgrade may be needed - please consult a professional electrician.

Additional Information:

[Department of Energy Infographic](#)
[Energy Star Home Upgrade: Super-Efficient Water Heater](#)
[ENERGY STAR Certified Water Heaters](#)



Heat Pump Dryers

Electrifying your home can require some behavior changes. It is important to understand how these changes may affect your habits.

Annual Energy Savings

Approx. \$-4

Why it matters

Eliminating fossil fuel use in your home requires you to switch to all-electric cooking, clothes drying, and using an electric vehicle.

Transitioning to heat pump dryers can help reduce FF dependence, reduce the risk of home fires, and are overall gentler on clothes.

A heat pump dryer works as a closed loop system. Rather than releasing warm, humid air through a dryer vent to the exterior of the home, as a conventional dryer does, a heat pump dryer sends it through an evaporator to remove the moisture without losing too much heat. Using a refrigerant within this process means using less electricity to generate heat.

[Energy Star: Heat Pump Dryer](#)

Induction Cooktops

Induction cooktops are an electric cooktop that generates its energy from a magnetic field below the glass surface.

Cooking with induction cooktops require some changes to how you cook. These cooktops heat pans quicker than tradition cooktops. Transition to induction cooking also requires you to replace your cookware. Because of the electromagnetic waves, induction cooktops must be used with specific types of metal: cast iron, steel, or pots and pans that's state they are induction ready.

[Energy Star Induction Cooking Tops](#)

[Energy Savers: Gas and Electric Ovens, Stoves, and Ranges](#)



Why it matters

Induction cooktops are 5-10% more energy-efficient than conventional electric stoves and about 3x more efficient than gas stoves.

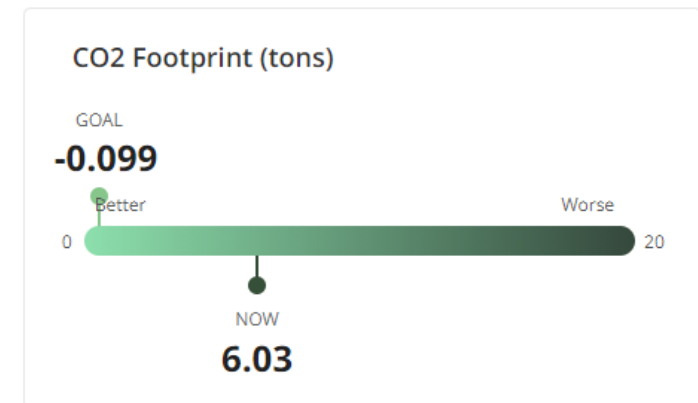
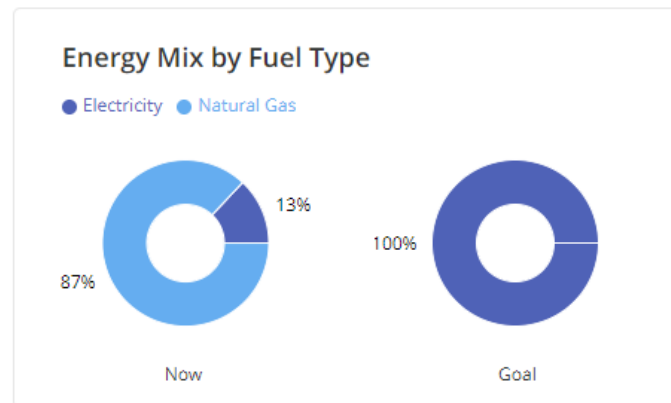
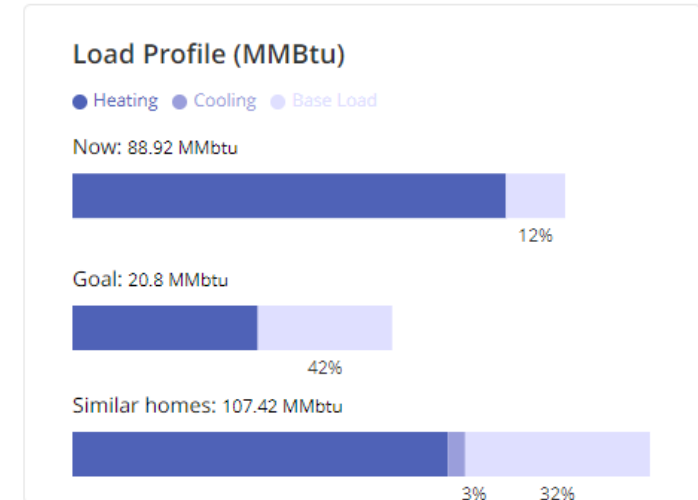
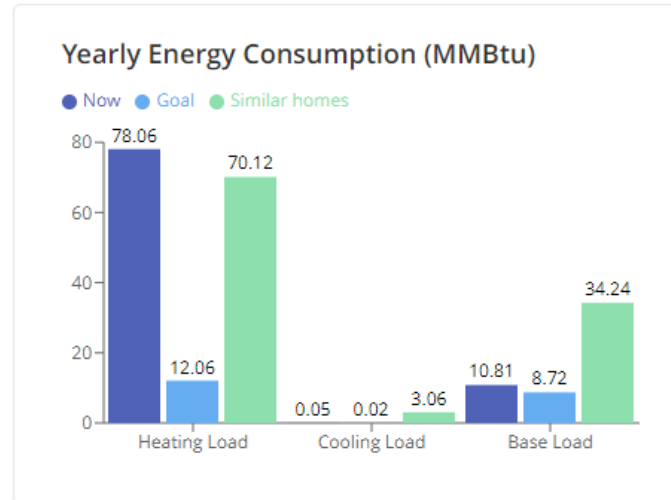
These cooktops are easy to clean, cook food faster, and are more environmentally friendly.

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.

Additional Rebates/Incentives

Program Title	What it applies to	Access link
Michigan Saves	Provides financing for energy upgrades to your home. They also have a network of qualified contractors.	https://michigansaves.org/residential-homes/
Ann Arbor Solarize	This is a community bulk-buy solar program. The Ann Arbor Office of Sustainability and Innovations works with installers to bulk buy solar allowing significant savings.	https://www.a2gov.org/departments/sustainability/Sustainability-Me/Families-Individuals/Pages/Ann-Arbor-Solarize.aspx
Property Tax Exemption Program - Ann Arbor	The City of Ann Arbor offers one year of property tax exemptions to eligible residents to complete energy efficient projects.	https://www.washtenaw.org/DocumentCenter/View/9529/2023-Ann-Arbor-City-Poverty-Exemption-Guidelines--Application?bidl=
DTE Energy Customer Rebates	DTE provides a variety of programs for residential customers. Visit the DTE rebates portal or visit the Michigan Public Service Commission website.	https://rebates.dteenergy.com/ https://www.michigan.gov/mpsc/consumer/energy-assistance
Energy Efficient Home Improvement Tax Credit	This is a 30% federal tax credit for home improvements. It has an annual cap of \$1,200 (\$2k for heat pumps).	https://www.energy.gov/policy/articles/making-our-homes-more-efficient-clean-energy-tax-credits-consumers
Washtenaw County Home Improvement Programs	This program offers a variety of free home rehabilitation, weatherization, and energy optimization services.	https://www.washtenaw.org/2923/Home-Improvement-Programs

Rebates/Incentives: Coming Soon

Program Title	What it applies to	Access link
Green Rental Housing – City of Ann Arbor OSI		https://www.a2gov.org/departments/sustainability/Sustainability-Me/Pages/Green-Rental-Housing.aspx
Aging in Place Efficiently - City of Ann Arbor OSI	This program is for qualified older adults to help them remain in their homes for as long as possible. Improvement focus areas are comfort, lower energy bills and home safety.	https://www.a2gov.org/departments/sustainability/Sustainability-Me/Families-Individuals/Pages/Aging-in-Place-Efficiently.aspx
Upcoming Federal Home Energy Rebates	In 2022 President Biden signed the Inflation Reduction Act into law. Stay informed about upcoming rebates and energy programs.	https://www.energy.gov/scep/home-energy-rebate-program

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

A Safe and Healthy Home

Health and Safety tests are recommended by the Building Performance Institute (BPI).

These tests help identify potential health and safety concerns in your home.

Use this [A Healthy Home Checklist](#) to make sure your home is a healthy one.

A Healthy Home Checklist

Bedrooms, Living Rooms, and Family Rooms

- Install smoke and carbon monoxide alarms
- Do not smoke or allow anyone else to smoke in the home.
- If your home was built before 1978:
 - Test your home for lead paint.
 - Fix peeling or chipping paint using lead-safe work practices.
 - Use safe work practices when painting, remodeling, and renovating to prevent spreading lead dust.
- Keep floors clear of electrical cords and clutter.

Kitchens

- Never use the stove or oven to heat the house.
- Use a range hood fan or other kitchen exhaust fan that vents outside.
- Install smoke and carbon monoxide alarms.
- Use safe cleaning and pest control products.
- Stop cockroaches, ants, and mice without pesticides:
 - Keep them out – seal openings to the outside and between rooms.
 - Starve them – put away food, clean up, cover the trash and garbage.
 - Deny them water – fix leaks and wipe up spilled water.
 - When necessary, use closed baits, traps, and gels.
 - Never use bug bombs.

Bathrooms

- Install grab bars next to the bathtub and shower.
- Use mats with nonslip rubber backs on bathroom floors.
- Clean up moisture and mold safely.
- Use a bathroom exhaust fan that vents outside.

Attics

- Check for water leaks from the roof.
- Ensure proper ventilation to prevent moisture that can promote mold growth.
- Seal gaps around roofing and attic openings to keep rodents and insects out.
- Clean up clutter to deny rodents and insects places to nest.

Stairways and Halls

- Fix loose or uneven steps and rails.
- Attach stairway carpet firmly to every step—or remove carpet and attach nonslip rubber stair treads.
- Keep stairs free of clutter.
- Install handrails on both sides of the stairs.
- Keep a working light bulb in overhead lights in the hall and the stairs.

Everyone can have a healthy home. This checklist and accompanying illustration show some key action steps to take in each room and area of the home.

Basement, Crawl Space, Utility and Laundry Areas

- Set hot water heater at 120°F to prevent burns.
- Change furnace/AC filter regularly.
- Have gas appliances and furnaces checked yearly to make sure they don't release extra carbon monoxide.
- Make sure the clothes dryer vents outside.
- Test for radon. If there's a high level, hire a specialist to eliminate the hazard.

Outer Parts of House and Yard

- Keep pests away:
 - Fix holes, cracks, and leaks on exterior of the house.
 - Eliminate standing water and food sources.
 - Keep trash can covered with a lid.
- Remove shoes before entering the house to keep dirt containing lead and other toxins outside.
- Maintain gutters, downspouts, and roof to prevent moisture from entering the home.
- Use safe work practices when painting, remodeling, or renovating a home built before 1978.
- If you have a septic tank or private well, properly maintain it to prevent illness.
- Be ready in case of disaster: have a kit for shelter in place and plan fire escape routes.

Special steps to protect children:

- Make sure cribs, playpens, and play equipment are safe.
- Keep cribs free of soft objects or loose bedding.
- Use cordless blinds and shades, or tie the cords out of reach of children.
- Place infants on their back to sleep.
- Place safety covers on electrical outlets.
- Lock prescription and over-the-counter medications away from children and use childproof caps.
- Use stair gates at the top and bottom of stairs.
- Lock up products used for cleaning, car maintenance, gardening, and pest control.
- If you have a swimming pool, make sure you have proper fencing and gates around the pool.
- Complete a playground safety checklist if you have playground equipment in your yard.
- If a firearm is kept in the home, it should be stored unloaded and locked in a secure container— inaccessible to children.

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](#)

Congratulations on
starting your
Path to Zero!



You've reached
net zero!

