

Identifying Barriers to Linden Energy Saving Programs



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RESEARCH GOAL

To provide focus to Smart City and AEP Ohio's energy saving programs so they will be better able to work with low income neighborhoods and foster meaningful change. Specifically, our group attended community meetings, spoke with community leaders and developed a survey to identify barriers to participation.

LINDEN

Linden is a neighborhood located in the northeast portion of Columbus and has been the focus of many economic development efforts. The median household income in Linden is \$29,000 (in comparison to Columbus which is \$63,700).

Figure 1. Residential Energy Burden

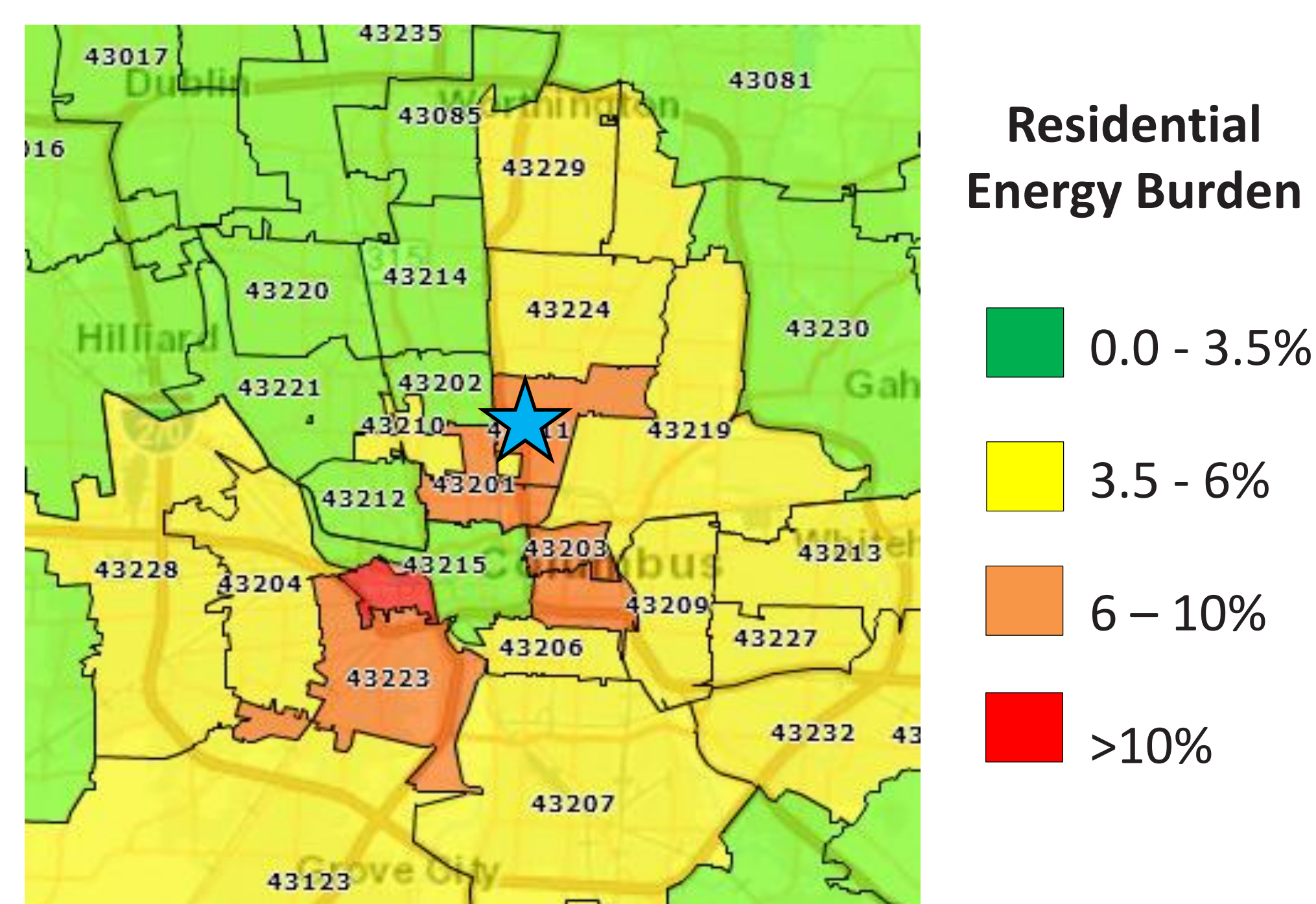


Figure 1: Residential energy burden is a measure comparing average annual residential energy costs to median household income. 6 percent is considered to be an unaffordable level.

LINDEN ENERGY SAVERS PROGRAM

The Community Energy Savers program partners with a community to incentivize residents to participate in energy saving programs provided by both AEP Ohio and Columbia Gas. Each time a community member participates in one of the programs, they earn points towards an end goal. Linden's participation in the program is rewarded with improved exterior lighting on the playground of Hamilton STEM Academy and upgraded water heaters in schools within Linden.

SURVEY DISTRIBUTION

We reached out to several companies and organizations to gain more information about the Linden Neighborhood and gather data for our research.

The companies and organizations that responded and consistently followed up with our group include:

- Sustainable Columbus
- GreenSpot
- AEP Ohio
- Columbia Gas
- MORPC
- The Ohio State University

Through collaboration with our various points of contact, we were able to distribute our surveys at:

- The Linden Community Meeting
- AEP and Columbia Gas' Energy Savers Kick-Off Event

Key Takeaways:

- Linden has been over studied with surveys and focus groups coming from companies or organizations promising to deliver results, but fall through
- Stronger trust can be established between community members and the program

Image 1.



Image 3.



Image 2.



Image 1: Assisting a resident in completing the survey.
Image 2: Standing by AEP and Columbia Gas' Kickoff marketing table.
Image 3: Helping a community member sign up for the Energy Savers program.

Figure 2. Social Network Map

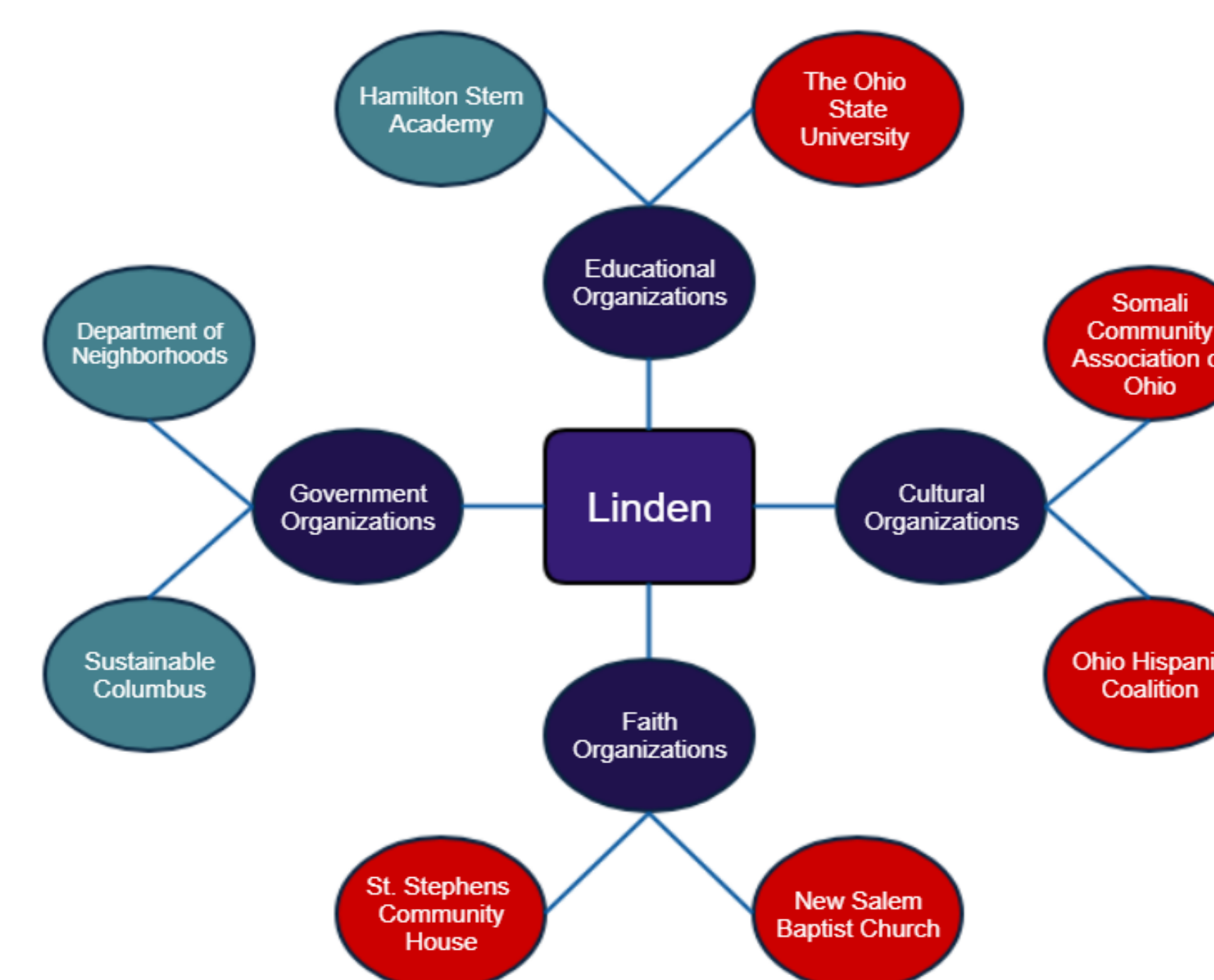


Figure 2: Illustrates key organizations in the Linden community who can be utilized to spread information about the Energy Savers Program. Green represents groups that have collaborated with the Energy Savers Program and Red represents the groups that the program has not successfully collaborated with.

PRELIMINARY SURVEY RESULTS

Although we had limited survey participants, our results aligned with information we gained from interviews with community leaders. Here are several of our preliminary findings:

- Short time horizon for cost savings
- High opportunity cost of time
- Reluctant to share info with neighbors
- Renters are less likely to participate
- Unfamiliar with AEP and Columbia Gas energy efficiency programs

Figure 3. Willingness to Spend Time on an Energy Audit

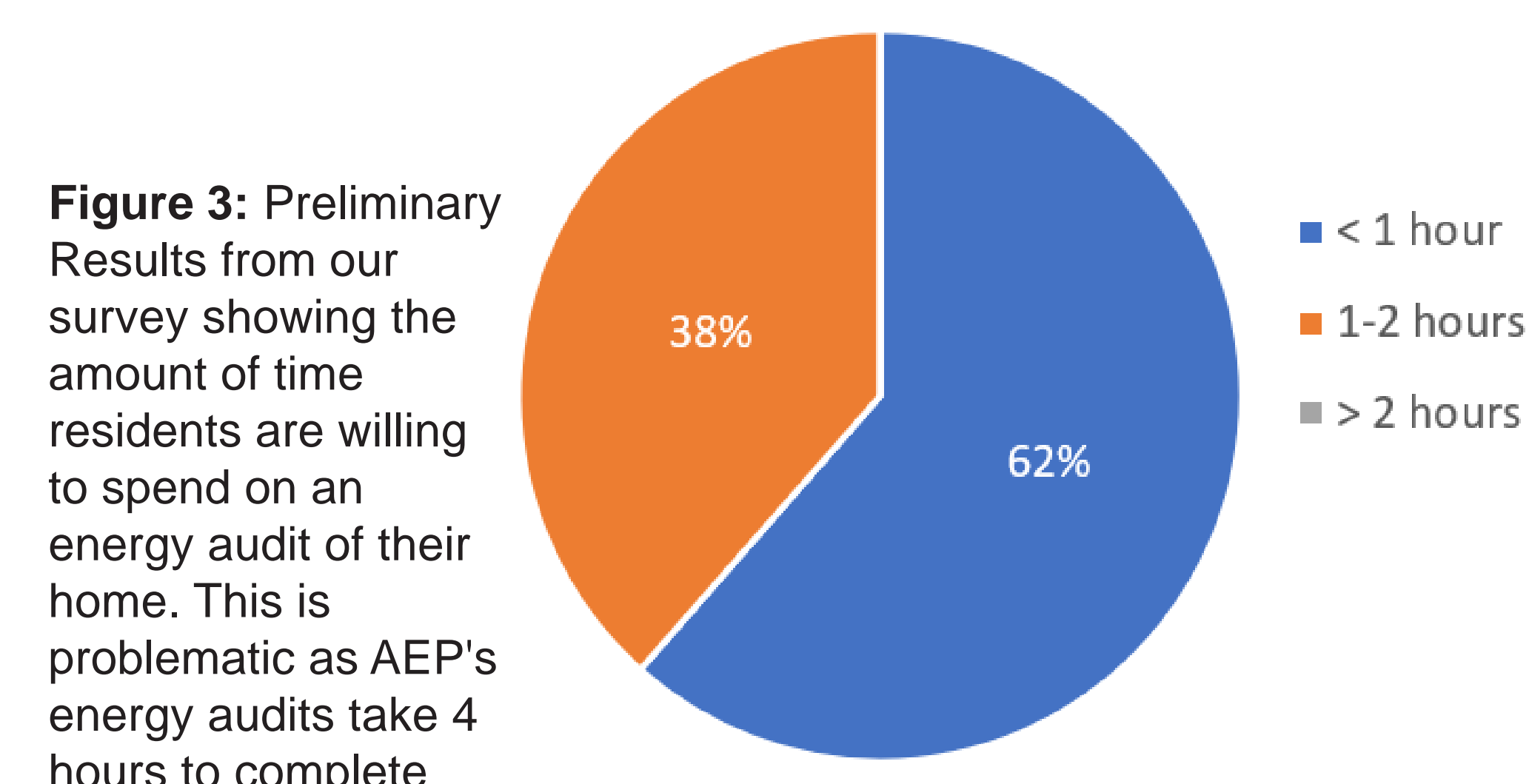


Figure 3: Preliminary Results from our survey showing the amount of time residents are willing to spend on an energy audit of their home. This is problematic as AEP's energy audits take 4 hours to complete

FUTURE DISTRIBUTION

- Identify community organized events where time can be dedicated to filling out a survey
- Hold informal, public events for the community where residents can engage with surveyors
- Utilize social media to reach residents and encourage participants to post about the program

RECOMMENDATIONS

Increasing Participation

- Offer in-home auditing options that are shorter than 4 hours.
- Emphasize comfortability over efficiency
- Most popular energy-efficiency upgrades to market.
 - Programmable thermostats
 - LED lightbulbs

Reaching Out to the Community

- Make Somali, Arabic, and Spanish speaking allies in the community.
 - Somali Community Association of Ohio (SCAO) youth, business, and community meetings.
- We recommend that AEP Ohio and Columbia Gas contribute funds to hiring community advocates.
 - IMPACT community action group has donated \$75,000. This will pay for 3 community advocates per community at \$15/hr, 20hrs/week.
- If Linden does not reach the goal by the deadline, AEP Ohio and Columbia Gas should extend the deadline, so they do not contribute to growing distrust in this neighborhood.

Continuing Research

Stephanie Mitchell will be working with Dave Celebrezze and Alana Shockey on Bloomberg grant funded audits in Linden.

Image 4. AEP Ohio's energy saving program logo

BIBLIOGRAPHY

1. AEP Ohio. (2019). "Community Savers Pilot". *American Electric Power*.
2. Chant, Elizabeth et al. (2000). "Those are Incentives, Not Rebates: Using DSM Funds to Leverage Investment in Low-Income Multifamily Housing". *Vermont Energy Investment Corporation*.
3. Columbus GreenSpot. (2018). "GreenSpot Neighborhood". *The City of Columbus*.
4. Envision Hilltop. (2019). "Hilltop Community Plan". *The City of Columbus*.
5. Marbury, Donna. (2018). "Making Green Power Initiatives a Priority". *The City of Columbus: Smart Columbus*.
6. MORPC. (2015). "Franklin County Energy Study Recommendations". *Mid-Ohio Regional Planning Committee*.
7. Ohio Development Services Agency. (2019). "Energy Assistance Programs". *Ohio.gov*.
8. Sustainable Columbus. (2017). "City of Columbus Annual Sustainability Report". *The City of Columbus*.
9. U.S. Census Bureau. (2017). American Community Survey 5-Year Estimates: Poverty Status In The Past 12 Months Of Families By Household Type By Tenure.
10. U.S. Department of Energy. (2017). "Making an Impact: Low-Income Energy Efficiency Programs". *Better Buildings Residential Network*
11. U.S. Energy Information Administration. (2015). "Residential Energy Consumption Survey". *United States EIA*.
12. Zipmap. (2018). "United States Zip Code Boundary Map: Franklin County, Ohio". *U.S. Naviguide LLC*.

