

CENTRAL NEW YORK REGIONAL CLEAN ENERGY HUB REGIONAL ASSESSMENT AND BARRIERS ANALYSIS



About EnergySmart CNY

New York State is embarking on a transition to an inclusive clean energy powered economy. All residents, businesses and communities across the State will have access to new opportunities to benefit from this transition including clean energy careers, home improvements, and clean transportation options. But there is a lot of information out there, and people may not know where to start. To help New Yorkers access and navigate these opportunities, the New York State Energy Research and Development Authority (NYSERDA) created the Regional Clean Energy Hubs. Clean Energy Hubs connect people to the growing clean energy economy.

EnergySmart CNY is the Regional Clean Energy Hub serving the Central New York (CNY) counties of Cayuga, Cortland, Madison, Onondaga, and Oswego as well as assisting the Haudenosaunee nations in our region. It is a collaborative project of the CNY Regional Planning and Development Board (CNY RPDB), Alliance for a Green Economy (AGREE), and Greater Syracuse Works (GSW), the evolution and combination of the prior Solarize, HeatSmart CNY, and other energy education programs. EnergySmart CNY provides information to individuals, small businesses, and affordable housing owners about the benefits of the clean energy economy, ways to reduce energy use and costs, and how to make more informed energy decisions.



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Executive Summary

Purpose and Objectives

This Regional Assessment and Barriers Analysis (RABA) will guide the development of EnergySmart CNY. EnergySmart CNY is a partnership between local organizations with on-the-ground expertise, knowledge, and relationships and NYSERDA, a state agency with public resources and expertise in clean energy technologies, economics, and program design. The RABA provides regional context for our program operations, identifies trends and other important factors that impact our work in the region, develops recommendations for local and state program administrators, and outlines next steps for our program to maximize our reach and impact.

Key Findings

- The region is on the cusp of two major projects: a New York State Department of Transportation (NYSDOT) intensive highway reconfiguration project (I-81), and the siting of a gigantic microchip fabrication facility for Micron Technology (hereafter referred to as Micron). Both projects will change the region, creating generational opportunities for economic development and enormous challenges as the region undergoes population growth and new demands on local resources. This development will have major energy, housing, transportation, workforce, and environmental implications that intersect with our work.
- There is a great need for the information provided by EnergySmart CNY – many residents have not heard about the programs we can connect them with. Longstanding programs like Home Energy Assistance Program (HEAP) and the Weatherization Assistance Program (WAP) are most known by residents while newer programs like EmPower+ or Comfort Home have less name recognition. There is a general lack of knowledge about program eligibility, project costs/benefits, and how to access programs, and many residents assume programs are not for them due to a variety of factors detailed in this report.
- Old housing stock and a lack of resources for home investments make our work to help residents insulate their homes and adopt clean heating and electricity sources challenging, especially when working to prioritize low-income residents and residents living in DACs. At the same time, projects completed for these residents can dramatically improve quality of life.

Community Engagement

EnergySmart CNY used a variety of quantitative and qualitative methods to gain insight into our region's access to clean energy barriers and opportunities, including one-to-one conversations with local organizations, community-based conversations with residents, surveys, stakeholder meetings, and roundtables. In all, our engagement activities gathered feedback by reaching well over 1,100 Central New York residents, the majority of whom live in disadvantaged communities (DACs) as defined by New York's Climate Justice Working Group.

- Program incentives have not kept up with inflation and are insufficient to cover the measures that many homes need to become adequately insulated and efficient. Our program struggles to find solutions for situations involving broken, unsafe, or inadequate heating systems for low-income residents due to gaps in the programs covering heating systems.
- Our region’s clean energy employers struggle to recruit and retain employees in a tough job market, while residents who could benefit from available jobs face transportation, childcare, and other resource constraints that make employment difficult. Clean energy employers such as home performance and heating, ventilation, and air conditioning (HVAC) contractors who work with state and utility incentive programs like EmPower+ face challenges with high administrative burdens and sudden program rule changes that decrease the economic viability of projects.
- Despite these challenges, our region has many assets to draw upon and build from as we seek to better serve residents and scale our outreach and operations. Central New York has a rich history of energy and technological innovation, and previous Solarize and HeatSmart campaigns have built familiarity with clean energy technologies and established strong relationships with contractors. The region offers numerous redevelopment sites, including brownfields and capped landfills for community solar, and approximately 56 publicly owned wastewater treatment facilities that could support thermal energy networks. Notably, National Grid's Thermal Energy Network pilot project at the Metropolitan Syracuse Wastewater Treatment Plant aims to harness wastewater heat exchange technology for heating and cooling new residential and commercial buildings.

Recommendations and Next Steps

The RABA identifies multiple strategies for addressing these barriers through strengthening our local partnerships, focusing and honing our marketing, streamlining our processes, and providing workforce connections and wraparound services. Some highlights include:

- Strengthening local clean energy knowledge through development of a newsletter, energy literacy workshops, and webinars that are customized to address the regional characteristics, demographics, interests, and trends;
- Enhancing outreach through the development of a community advocate/volunteer/influencer program and incorporation of multiple languages;
- Developing outreach materials and strategies specific to priority audiences such as renters, landlords, retired homeowners, new homeowners, HEAP recipients, households on delivered fuels, moderate income households;
- Relaunching updated HeatSmart and Solarize campaigns in response to community-identified interests in clean energy and building on previous success and brand recognition;
- Identifying needs of jobseekers and connecting them with on-the-job training when needed, connect them with childcare and/or older adult care, General Education Development (GED) programs, regional on-demand transport where available, driver’s license programs etc.; and
- Providing training to contractors who seek to diversify their workforce and customer base; highlighting employers who are diversifying their workforce.

It is also clear in the findings of the RABA that overcoming our identified barriers will require strong collaboration and responsiveness from our state partners in this work. Some of the solutions identified will need technical and material support from NYSERDA and/or programmatic changes developed in consultation with our program, our sister hubs across the state, and other stakeholders.

II. Baseline Regional Characterization

Central New York (CNY) is geographically centered in Upstate New York and includes the counties of Cayuga, Cortland, Madison, Onondaga, and Oswego. The region covers an area of 4,146 square miles, centered on the Syracuse metropolitan area with surrounding suburban areas, small cities and towns, and rural farming communities. It spans the territories of three nations of the Haudenosaunee, namely the Oneida, Onondaga, and Cayuga Nations.

Sociodemographic Data

According to the 2020 U.S. Census, the region has a population of approximately 785,000 residents, with 61% located in Onondaga County. For the past 30 years, the region has had a relatively stable population, a trend that is likely to change in the next decade due to the siting of a large microchip fabrication facility in the northern suburbs of Syracuse, which is expected to bring 125,000 new people to Onondaga County in the next decade (Coin & Weiner, 2023).

There are approximately 326,619 households in CNY, and the average household size is 2.3. The median age for the region is 40.8 years. The average household income in CNY is \$64,623. Over 51% of CNY households are considered low-to-moderate income (LMI), defined by NYSERDA as those with incomes at or below the higher of 80% of area median income (AMI) and 80% of state median income (SMI).

According to CNY Vitals:

“Within counties, poverty rates vary widely. The region’s highest concentrations of poverty lie within Syracuse census tracts with large populations of immigrants, African Americans, and Hispanics. The city’s poverty rate, which was over 30% in 2020, and the racial disparities in poverty, are problems which many organizations are working to examine and address.

Rural poverty is also a concern, as shown by the high poverty rates in many small cities and towns. Auburn, Cortland, and the City of Oswego have poverty rates of 18%, 23%, and 28%, respectively. Even in Madison County, which has the lowest countywide poverty rate in Central New York, there are pockets of high poverty such as the village of Morrisville, where over 21 percent of residents lived below poverty in 2020.”



■ Cayuga ■ Cortland ■ Madison ■ Onondaga ■ Oswego

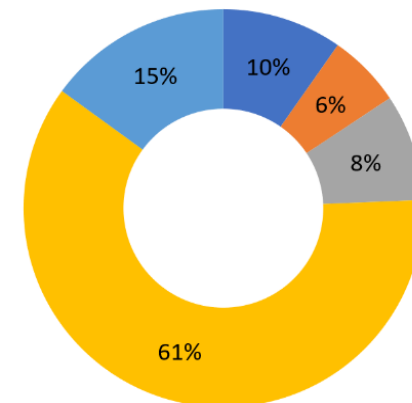


FIGURE 1: CNY POPULATION

Data on this page comes from the 2020 U.S. Census, and the 2017-2021 American Communities Survey Public Use Microdata Sample (PUMS)

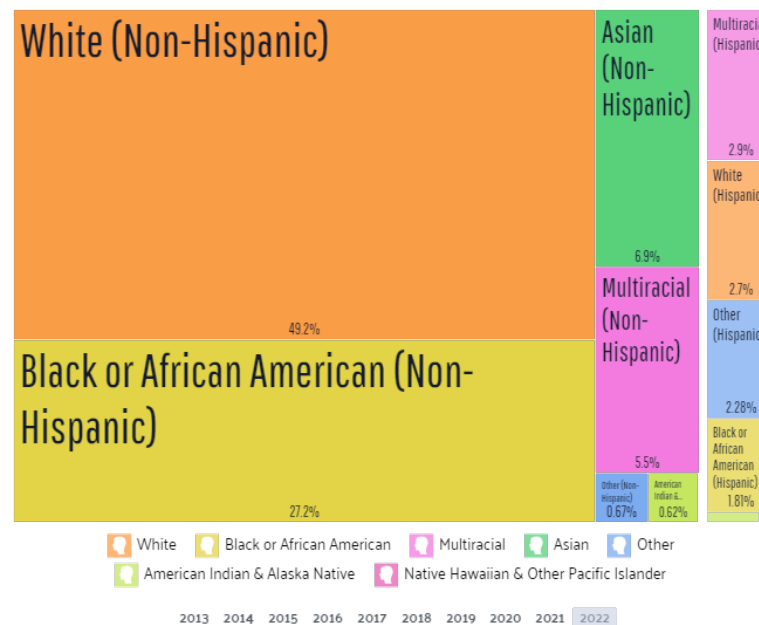
Racial and Ethnic Diversity

Across CNY, approximately 79% of the population identifies as non-Hispanic white. The City of Syracuse has a more diverse population, with less than half the population (49%) identifying as non-Hispanic white.

TABLE 1: RACE/ETHNICITY IN CENTRAL NEW YORK (2020 US CENSUS)

Race/Ethnicity	Population #	Population %
American Indian and Alaska Native	4,169	0.53%
Asian	23,050	2.94%
Black or African American	60,407	7.69%
Hispanic or Latino	36,155	4.61%
Native Hawaiian and Other Pacific Islander alone	196	0.02%
Some other race	2,901	0.37%
Two or more races, not Hispanic or Latino	37,157	4.73%
White	621,079	79.11%
Total	785,114	100.00%

FIGURE 2: RACIAL DEMOGRAPHICS IN CITY OF SYRACUSE (DATAUSA)



Languages Spoken

While 91.7% of CNY residents speak only English at home, there are still over 60,000 people who speak another language and 22,500 people in CNY who report that they speak English less than “very well.” Nearly 5,000 who say they do not speak English well are Spanish speakers. Over half of these Spanish speakers live in the City of Syracuse, and 84% are located in Onondaga County. “Other Indo-European Languages” are the most prevalent language group in the surrounding counties. Syracuse has always been a city of immigrants and continues to welcome people from around the world to resettle here. The Syracuse City School District (SCSD) reports that there are 74 languages spoken by students in the district. Regionally, the most prevalent languages other than Spanish are Chinese, Arabic, Vietnamese, Ukrainian,

Data on this page comes from the 2020 U.S. Census, the U.S. Census 2022 ACS 5-year Estimate Subject Tables and the Syracuse City School District

Swahili, and Amharic, Somali or other African languages. See Appendix C. 1 for details.

Communities of Particular Focus for EnergySmart CNY

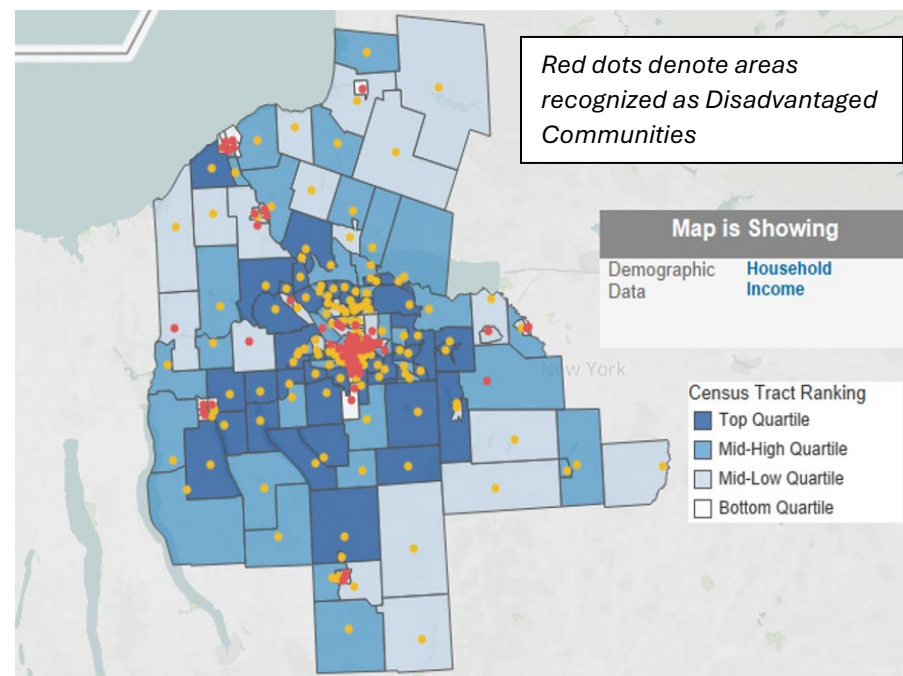
Regional Clean Energy Hubs focus especially on helping people in DACs as defined by NYS, while also serving people throughout CNY as well as the Haudenosaunee nations in our region.

TABLE 2: DACS IN CNY

Name	County	Portion
City of Auburn	Cayuga	All but SE 1/4 of city
Town of Conquest	Cayuga	Entire
Town of Mentz	Cayuga	Entire
City of Cortland	Cortland	All but western section north of SUNY Cortland
Town of Fenner	Madison	Entire
Town of Lincoln	Madison	Entire
Town of Smithfield	Madison	Entire
Town of Stockbridge	Madison	Entire
Village of Canastota	Madison	Entire. DAC is larger than village boundaries
City of Syracuse	Onondaga	About half of the city
Town of Dewitt	Onondaga	East Syracuse and other portions of the town
Town of Elbridge	Onondaga	Entire
Town of Geddes	Onondaga	Solvay and northern part of town
Town of Onondaga	Onondaga	Nedrow and area near Onondaga Hill
Town of Salina	Onondaga	Most of the town, except Lyncourt and Liverpool
Village of Baldwinsville	Onondaga	Portions of village and adjacent area
City of Fulton	Oswego	All but the SW ¼ of the city
City of Oswego	Oswego	Entire
Town of Granby	Oswego	Entire
Village of Pulaski	Oswego	Entire

New York’s Climate Leadership and Community Protection Act (CLCPA or simply “NY’s Climate Law”) recognizes that low-to-moderate income households are not limited to the geographically identified DACs and need to be served wherever they are located. In addition to the geographically delineated DACs, there are 35 other census tracts in CNY where the average household income is in the mid-low quartile, indicating a high proportion of the population that is low to moderate income. These include the sections of the City of Auburn, Cortland, Fulton that are not official DACs, and significant remaining portions of the City of Syracuse. See Appendix C.2 for the full list.

FIGURE 3: HOUSEHOLD INCOMES IN CNY BY CENSUS TRACT



SOURCE: GAGNON & PODAPATI (2023).

Buildings and Sector Assessment (Dominant land uses, building typologies)

Onondaga County is significantly urban and suburban, while still retaining rural areas. Cayuga, Cortland, Madison and Oswego Counties are predominantly rural, each with at least one small city and many villages and hamlets surrounded by farmland and forests.

Housing

The number of housing units in CNY is estimated at 353,838. 90% of units are occupied. Regionally, 68% of units are owner occupied, while 32% are renter occupied. In Syracuse, the owner-occupancy rate is lower at 43%. Racial disparities in home ownership and mortgage lending persist, with home ownership rates much higher and mortgage and refinance application denial rates much lower for white households as documented by the New York Attorney General’s Office. While there are some high-rise apartment buildings in the City of Syracuse, most apartments are three stories or less, often garden apartment style. Single family housing is the predominant housing type in the region. Most of the single family attached 2-4 units and multifamily buildings are located in DACs, as is most of the renter occupied housing.

Typical of communities in the Northeast, the housing stock in the region is old, with 27% of the units built before 1939 and 59% built before 1969. In DACs, 38% were built before 1939. Most of the housing is located in Onondaga County, including 47,500 homes built before 1939, the majority of which are located in DAC census tracts. Over ¼ of the homes in each county are located in DACs.

The median housing value in CNY is \$187,113 and the median rent is \$890, less than the national average. However, rents in Syracuse have jumped dramatically since 2020, climbing a whopping 27%, faster than any other city in the U.S. (Tampone, 2023). In the City of Syracuse DACs, the median home value is only \$98,324. In Oswego and Canastota, it is \$118,000, in Cortland \$110,000. In Madison County, the Towns of Lincoln, Stockbridge, Smithfield, and Fenner are all designated as DACs, but collectively have 88.5% homeownership and a median home value of \$198,019.

Data on this page comes from the 2020 U.S. Census, the U.S. Census 2022 ACS 5-year Estimate Subject Tables, and Gagnon & Podapati, 2023.

FIGURE 4: HOUSING OCCUPANCY IN CNY

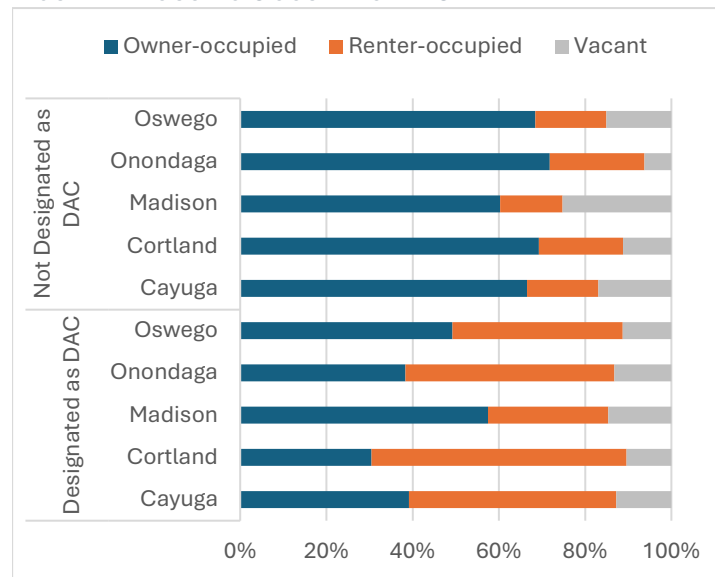
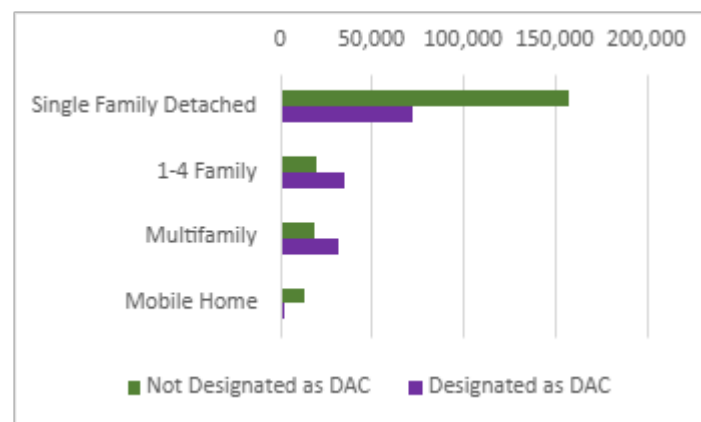


FIGURE 5: HOUSING TYPES IN CNY



Other Buildings

Sixty-nine percent (69%) of the commercial and industrial buildings in CNY are located in Onondaga County. Over fifty-nine percent (59%) of the buildings in CNY were built before the first national energy codes went into effect in 1975. (Parker, 2023)

“Other fuel” use (propane or oil, for example) is almost entirely attributable to properties in the other four counties. Buildings in Onondaga County are almost all heating with gas or electric.

Buildings in the food service sector represent the largest energy users in buildings smaller than 10,000 sq ft (Figure 8). These buildings have large refrigerators, many commercial-grade appliances, including substantial gas-driven ranges. Their HVAC systems are almost entirely “small packaged units.” Observations around CNY indicate that many of these are already ductless minisplits, a form of air source heat pump. Other building types of this size are office and mercantile. Offices may include buildings owned by nonprofit organizations.

FIGURE 8: SITE ENERGY USE BY BUILDING TYPE

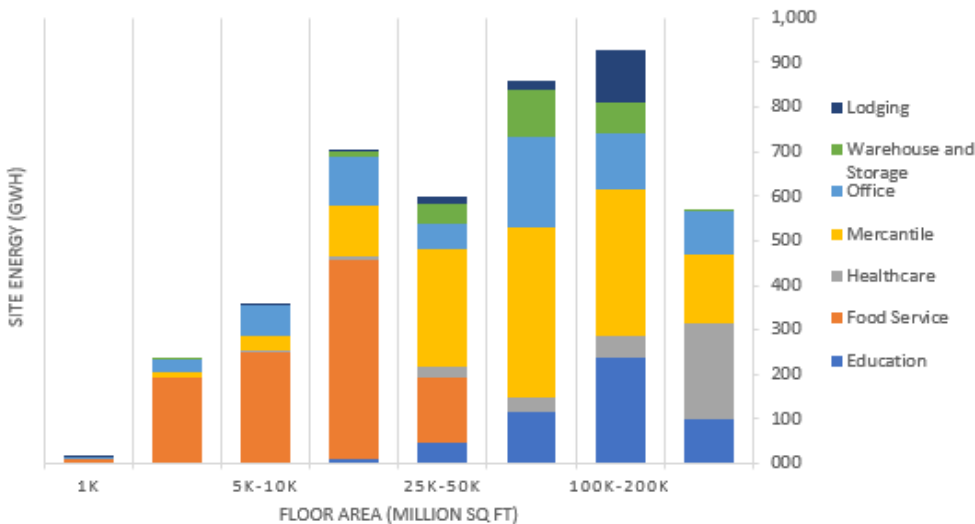


FIGURE 6: NUMBER OF COMMERCIAL & INDUSTRIAL BUILDINGS IN CNY BY BUILDING SIZE (SQ FT)

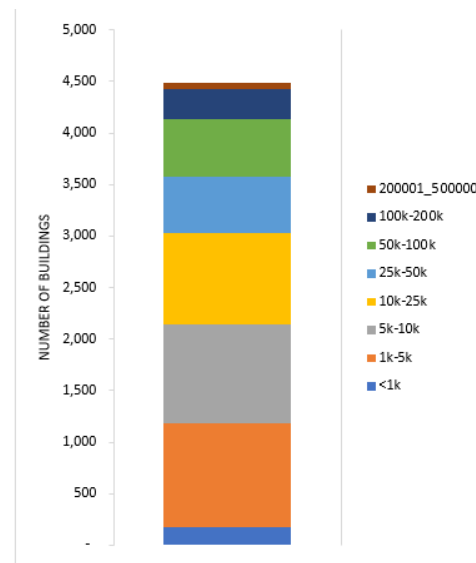
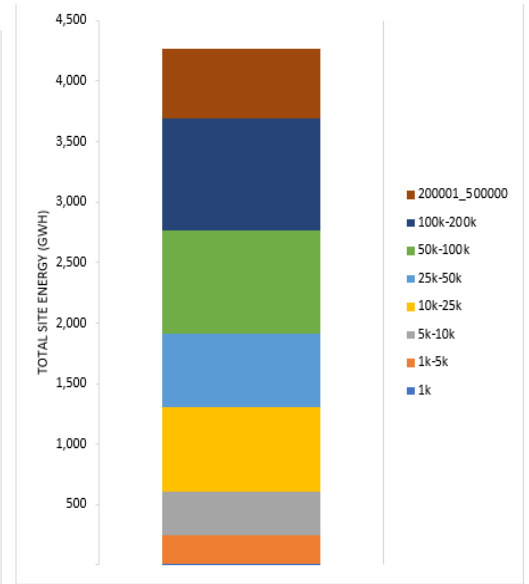


FIGURE 7: SITE ENERGY USE BY C&I BUILDINGS IN CNY BY BUILDING SIZE (SQ FT)



Buildings under 10,000 sq ft comprise nearly half of the non-residential buildings in CNY (Figure 6), but only 14% of the energy use (Figure 7). **Buildings greater than 50,000 sq ft represent 20% of the buildings but 55% of the energy use.**

See Appendix D.2 for more information.

C&I Data on this page includes information from the ComStock™ dataset developed by the National Renewable Energy Laboratory (NREL) with funding from the U.S. Department of Energy (DOE).

Utilities Serving CNY

The major utilities serving CNY include National Grid, New York State Electric & Gas (NYSEG), and Rochester Gas & Electric (RG&E). Customers of these utilities pay into the System Benefits Charge (SBC) and benefit from the greatest number of energy efficiency programs. There are also municipal electric companies serving Hamilton, Solway, Marathon, and Skaneateles, and the Oneida-Madison Electric Cooperative. Customers of these utilities have a more limited range of energy efficiency programs available to them. See Appendix D. 1 for a map of utility territories.

Heating Fuels

The dominant heating fuel source used in Central New York is utility gas (also known as “natural gas,” “fracked gas,” “fossil gas,” or “methane gas”) supplied by utilities. In Onondaga County, 70% of homes use utility gas as their primary heating source. In other, more rural counties, utility gas use is still prominent; however, many homes use electric, liquid propane gas, fuel oil, kerosene, and wood and even a small population still use coal to heat their homes. The data does not distinguish between electric resistance heat and heat pumps.

While the data above characterizes primary heating fuels, many CNY homes use multiple heating systems, especially rural or older houses. Two common causes include: houses that have been expanded over time or with cold spots and additional heating systems installed to serve those areas; and rural electrical outages and/or high delivered fuel costs encouraging the use of multiple systems to choose from based on current conditions. The latter is commonly seen in rural homes that rely on wood heat to reduce their use of expensive delivered fuels.

FIGURE 9: RESIDENTIAL HEATING SOURCES IN CNY

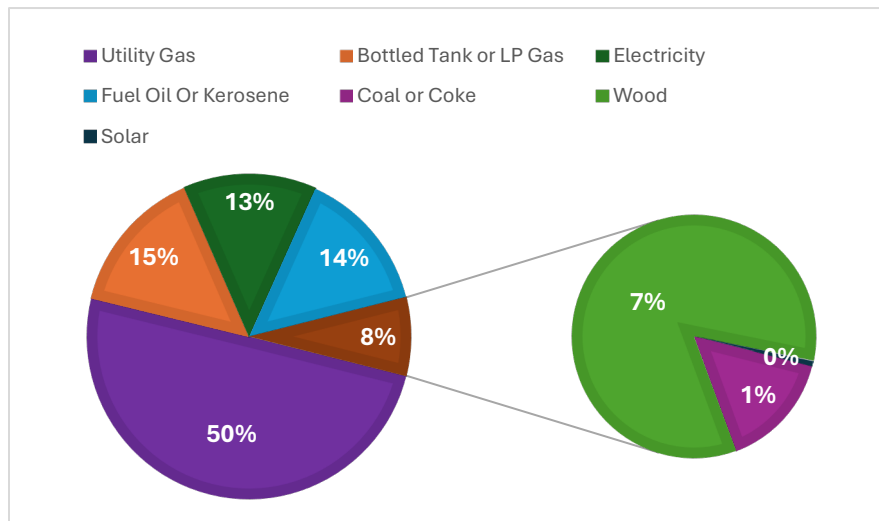


TABLE 3: HOUSEHOLD FUEL USE BY COUNTY

Fuel:	Utility Gas	Electricity	Propane	Fuel Oil or Kerosene	Wood	Coal or Coke	Solar	Other	No Fuel Used
Cayuga	14848	3934	4361	4281	1936	358	16	773	97
Cortland	8760	2323	2110	2777	1484	455	33	247	71
Madison	10148	3280	3527	5342	1560	518	2	323	69
Onondaga	134047	36514	6234	7164	1953	874	97	2025	1445
Oswego	19036	6679	9469	5326	4464	562	52	976	185
Total	186839	52730	25701	24890	11397	2767	200	4344	1867
Total %	60%	17%	8%	8%	4%	0.9%	0.1%	1.4%	0.6%

Data on this page comes from NYSERDA's Patterns and Trends: New York State Energy Profiles, 2007–2021

Regional Clean Energy Workforce

General Regional Workforce Overview

In the CNY region, the four top industries listed in Figure 7 (*Government; Trade, Transportation & Utilities; Private Education & Health Services; and Professional & Business Services*) make up 68% of the total nonfarm jobs.

For those four top industries, over-the-year change in employment (2024, August), the number of jobs in the Government, Private Education & Health Services, and Professional & Business Services industries grew significantly (1,200, 2,300, and 400 jobs respectively), but the Trade, Transportation & Utilities industry lost 300 jobs.

Across CNY, 76% of the population between 20-64 years old participates in the workforce. In the City of Syracuse and the City of Auburn these workforce participation numbers are lower, with Syracuse at 67% and Auburn at 62%.

Average commute times to work in the CNY region is 23 minutes, four-minutes lower than the national average of 27 minutes.

The biggest transportation difference when comparing statewide are the methods for commuting. As seen in Figure 7, most people in CNY drive individually to work because convenient public transit is not widely available in the region, especially compared to NYS as a whole (23.5%). Only in Syracuse and Onondaga County do we see more than 1% use of public transit (5.4% and 2.4% respectively). Carpooling, working from home, and walking are more prevalent in Syracuse (and likely the other urban centers) than throughout the region. (Appendix E.1)

FIGURE 10: INDUSTRIES IN CNY AS REPORTED BY THE 2024 NYS DEPARTMENT OF LABOR MARKET BRIEFING

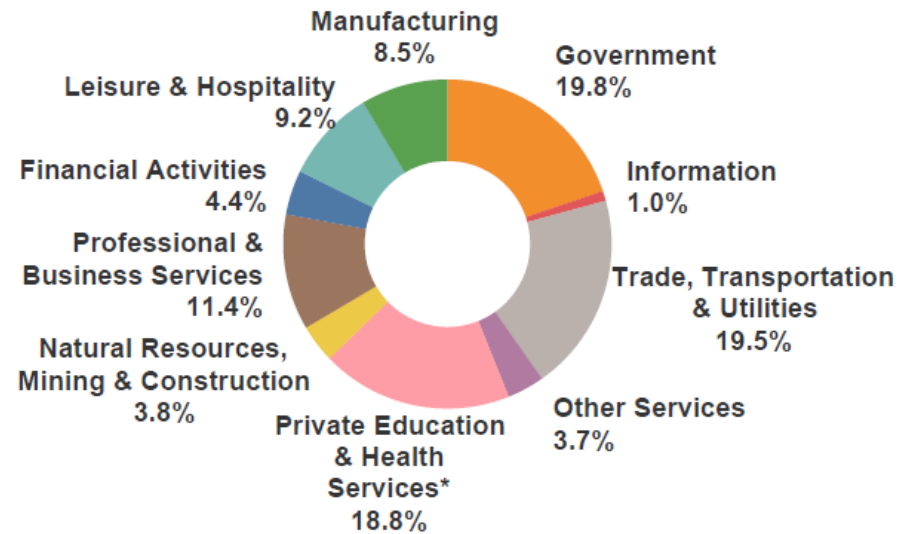
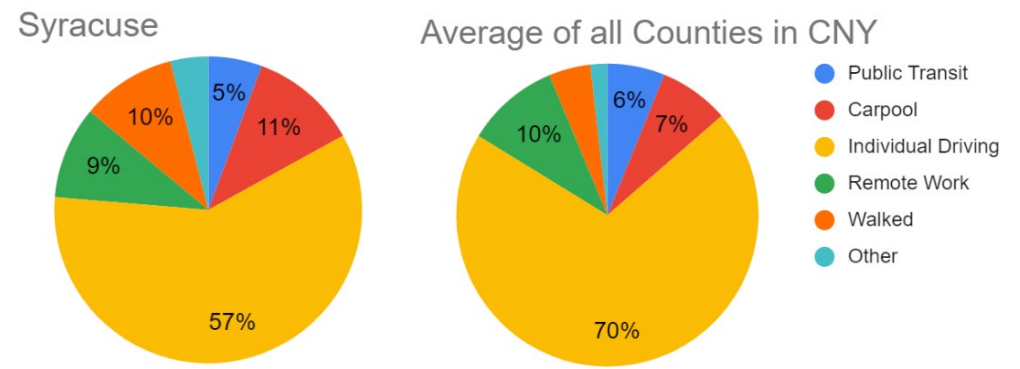


FIGURE 11: TRANSPORTATION METHODS IN SYRACUSE AND AVERAGE OF ALL COUNTIES IN CNY AS REPORTED BY THE U.S. CENSUS BUREAU AMERICAN COMMUNITY SURVEY 2017-2021



Data includes information from the Labor Market Briefing for Central NY report (2024, August) developed by the New York State Department of Labor (NYSDOL) and the American Community Survey 2017-2021 dataset released (2022) by the U.S. Census Bureau.

Clean Energy Workforce

The clean energy workforce in the CNY region is a small, but growing share of the regional economy. This growth is represented both by the share of clean energy jobs relative to the total jobs regionally as well as the share of clean energy workers relative to the total labor pool.

According to the 2021-2025 Onondaga Local Workforce Development Plan, “Central New York has one of the highest concentrations of private sector “green jobs” of any region in the country.”

Statewide in 2022, 72% of clean energy industry employees identified as white, 15% as Hispanic/Latinx, and 9% as Black. Individuals identified as Black and individuals identified as Asian increased 1% between 2021 – 2022, while Hispanic/Latinx and White employees had no increase. The proportion of women in the workforce grew from 25% in 2021 to 26% in 2022, but this industry is still predominately male. (NYSERDA Clean Energy Industry Report, 2023) See Appendix E.3.

There are a greater number of clean energy jobs in DACs relative to the DAC populations in Onondaga County (1.5%) and Cayuga County (1.1%) than there are statewide (0.9%), but there are fewer clean energy jobs located in DACs in Madison, Cortland and Oswego counties. However, the number of individuals who reside in DACs and are employed in clean energy jobs in each county is less than the statewide average (0.88%), except for Cayuga County (1.1%). (NYSERDA Clean Energy Industry Report, 2023) This signifies that while these jobs are located near the individuals residing in DACs, these individuals are not well represented in the clean energy workforce.

Trends according to the Clean Jobs America Interactive Map (E2, 2023)

Positive trends:

- Onondaga County massively outperforms the state in *Renewable Generation Job* growth (22.1% vs. 6.2%).
- All five counties outperform the state in *Electric Vehicle* job growth (between 7.6% and 13.80% vs 3.2% statewide).

Negative Trends:

1. *Energy Efficiency* job growth in all five counties is flat to negative, compared to a 1.70% statewide average growth.
2. *Grid & Storage* job growth in Central New York is outpaced by the statewide rate (8.30%). Onondaga County has the highest growth rate (2.9%) in this job category out of the five counties within CNY.
3. Besides Onondaga County with a high growth of 22.1%, the other four counties have seen flat to middling *Renewable Generation* job growth rates.
4. Onondaga County has consistently outperformed the more rural, less populated counties in the growth rate from 2021. The other four counties have seen tepid growth rates in most clean energy subcategories.

See Appendix E.2 for more details.

Data includes information from the 2023 NYSEDA Clean Energy Industry Report and the Clean Jobs America Interactive Map developed by E2, based on 2023 United States Energy and Employment Report

EXISTING EMPLOYERS

EnergySmart CNY has identified over 200 employers in the region that can be considered clean energy employers, in fields ranging from HVAC, home performance, geothermal well drilling, electrical, electric vehicle mechanics, sales, consulting, solar installation, and more. In the EmPower+ program alone there are 36 companies who have completed 1,774 projects in CNY since July 2023 (Appendix E.4). There are over 50 businesses, institutions and organizations who are approved to participate in at least one of NYSERDA's Workforce Development Programs: Clean Energy Internship (PON 4000), On-the-Job Training (OJT) (PON 3982), and Climate Justice Fellowship (PON 4772). As we continue to identify more clean energy businesses who serve the CNY region, as well as promote and assist navigating the programs, this list will grow. The list of approved Workforce Development Program Participants is in Appendix E.5.

OPPORTUNITIES AND TRENDS

After Government, the Trade, Transportation & Utilities sector is the largest employer in the CNY region and the sector with the most clean energy jobs, demonstrating that workers in this sector could be upskilled and trained to meet the demand of the growing clean energy economy. For example, there are opportunities to train HVAC contractors who install gas or oil furnaces to install heat pumps. There is also potential for utility workers who install gas pipelines to build thermal energy networks, which utilize the same materials and skills.

Offshore Wind Training Institute (OWTI) - The wind energy market, both land-based and offshore, is expected to grow significantly over the next few decades, increasing the need for employment in the industry. SUNY Morrisville, among eight SUNY institutions, was awarded \$500,000 for offshore wind training and workforce development to prepare students for careers in the emerging offshore wind industry. SUNY Morrisville began a Renewable Energy Fundamentals and Wind Technician course, offering micro credentials, certificates, and technical degrees at no-cost or reduced cost to students. Their efforts include outreach by K-12 STEM workshops, renewable energy career exploration, and teach professional development. (Appendix E.6)

Bitzer Scroll Inc. is getting a \$5 million federal grant to increase its production of electric heat pump components at its factory in DeWitt. The expansion is expected to create 20 new jobs. The company currently employs 150 people at its factory. The funding comes from the U.S. Department of Energy's Heat Pump Defense Production Act Program, which is designed to boost U.S. production of energy-efficient heat pumps. (NYSDOL, 2024 and Moriarty, 2024)

New York Bus Sales, a bus dealer for 53 counties in NYS and longtime leader in alternative fuel buses, announced it will move its longtime headquarters in Chittenango (non-DAC location) to East Syracuse (DAC location) by the end of 2025. Their move is motivated by NYS legislature requiring school bus operators to exclusively purchase electric powered buses starting in July 2027 and removing all internal combustion engine school buses from the road before 2035. The move was driven by proximity to the necessary electrical grid infrastructure. Construction of the new facility is to be completed by the end of 2025. Once the move is complete there will be 70+ full-time employees (New York Bus Sales, 2024).

Clean Energy Workforce Development Assets

INTERNSHIPS

The NYSERDA Clean Energy Internship Program (PON 4000) helps individuals gain real-world clean energy experience and earn money through a paid internship. In the CNY region, from 2023 to currently, there are 19 prospective interns in the internship directory, a directory where participating businesses can select a prospective intern to begin working with. Education and promotion to clean energy businesses about existing workforce opportunities like the Clean Energy Internship Program is critical to grow the clean energy workforce by using these individuals who applied, have been approved, and are waiting in a directory.

HIGHER EDUCATION

SUNY Clean Energy Consortium is comprised of SUNY institutions who share a common goal of offering training and educational programs designed to meet the growing needs of the clean and renewable energy industry. **SUNY College of Environmental Science and Forestry (ESF)**, **SUNY Morrisville** and **SUNY Oswego** are members of this consortium. These schools have *many* different clean energy related degree programs with some being Renewable Energy, Renewable Energy Technology, Sustainable Energy, Environmental Science, Construction Management, Mechanical Engineering Technology, Sustainable Resource Management, Electrical and Computer Engineering, Technology Management, and more.

In 2021, **SUNY Morrisville**, located in Madison County, built a \$16 million **Agricultural and Clean Energy Technology (ACET) Center**. This new 30,000-square-foot applied learning technology building serves as the home to their renewable energy program. Lab facilities in the ACET Center include a Solar Lab (PV and thermal), 85 kW solar PV array, Wind & Hydro Lab, Tower Climbing Lab, Thermal Energy Lab, classrooms, and more. Their new Offshore Wind Technician Training integrates existing courses and curriculum for a Wind Turbine Technician micro-credential and a new 2-semester certificate program.

At the forefront of groundbreaking clean technology research, **Syracuse Center of Excellence in Environmental and Energy Systems (CoE)**, located within Syracuse University (SU), is a collaborative organization that engages more than 200 private companies, organizations, and academic institutions to create new products and services in indoor environmental quality, clean and renewable energy, and water resource management. Syracuse CoE connects academic and industry researchers to innovate products and technologies for the marketplace, works with collaborators to secure funding for environmental and energy research, and catalyzes partnerships for large research projects by assembling advantageous, interdisciplinary teams.

SUNY Onondaga Community College (SUNY OCC) is located in Syracuse and has a second campus in Liverpool. Some of their degree programs with education transferable to the clean energy industry are: Advanced Manufacturing, Architectural Design Studies, Automotive Technology, Construction Management, Electromechanical Technology, Engineering Science, and Mechanical Technology.

SUNY Cayuga Community College has two campuses, one in Auburn and the other in Fulton. This college has multiple degree programs with education transferable to the clean energy industry: Advanced Manufacturing, Industrial Maintenance Technology, Environmental Studies, and Mechanical Technology.

SUNY Tompkins Cortland Community College (TC3) is supported by both Cortland and Tompkins Counties and has extension sites located in Cortland and Ithaca. They have multiple degree programs with education transferable to the clean energy industry are: Applied Science and Technology, Construction and Environmental Technology, Engineering Science, Environmental Studies degrees.

The **Board of Cooperative Education Services (BOCES)** provides training programs for high school students and adult learners. The following BOCES locations are in CNY counties: Onondaga-Cortland-Madison (OCM), Cayuga-Onondaga (CO), and Oswego Center for Instruction, Technology & Innovation (CiTi). Trades such as Electrical/Electronic work and HVAC installation and maintenance, are critical skills for workers to help transform the region to adopting cleaner forms of energy. Madison County is also connected to BOCES in bordering counties located outside of CNY.

TRAINING OPPORTUNITIES

In addition to existing county Workforce Development Boards and Career and Technical Education programs offered by both Syracuse City School Districts and BOCES, there are other training opportunities in the CNY region as well:

New York State Weatherization Directors Association (NYSWDA), a 501c3 nonprofit organization, is the leading provider of building science training in New York State and New England. NYSWADA's Energy Efficiency Training Center is in East Syracuse, NY. Established in 2006, the expanded training facility provides a modern, state-of-the-art site for training weatherization staff and home performance contractors from around the country. The training center includes two classroom spaces which can accommodate up to 54 individuals.

Joint Apprenticeship Training Centers (JATC) offer on-the-job training and off-the-job training at an education center. These centers offer apprenticeships in a variety of trades. These apprenticeships provide several benefits, including the opportunity to earn a living while learning a trade, gaining qualifications, and receiving support from others. Compared to every county in NYS, ranked below Queens (New York City) of having 22 training centers, Onondaga County is tied for second place with Erie County of having 14 Joint Apprenticeship Training Center locations. With Onondaga, Oswego, and Cortland Counties, CNY has 18 union training centers. Having these 18 training centers in our region is a great asset to unions and to build more of the workforce with skills and career pathways into the clean energy industry. The full list of Joint Apprenticeship Training Centers in CNY is in Appendix E.7. (Palacios, 2024)

OTHER WORKFORCE DEVELOPMENT INITIATIVES

In preparation for the large-scale construction projects of both the development of Micron, a microchip fabrication facility, and the NYSDOT I-81 Viaduct Project, creating an improved corridor through the city of Syracuse, New York State has implemented training initiatives that could further grow the number of individuals with skill sets transferrable to the clean energy workforce, including the Future-Ready Workforce Innovation Consortium, the One Network for Advanced Manufacturing Partnerships (ON-RAMP), and NYSDOT WorkSmart NY through Syracuse Educational Opportunity Center (EOC) that prepares students for various construction jobs. See Appendix E.8.

Central New York Regional Partners

EnergySmart CNY is developing a dense network of partnerships with contractors, regional utilities, workforce development agencies, educational institutions, city, county and state agencies, community-based organizations, non-profit organizations, environmental and environmental justice organizations. These partnerships may take the form of one-off collaborations that are limited in scope, or they may extend to coordinated and ongoing campaigns. Apart from utilities and government agencies, our partner list is composed of more than 200 entities (consisting largely of Community Based Organizations); our Employer/Business Partner list consists of 207 current/potential regional and local partners. **Below is a non-comprehensive list that is suggestive of the kinds of partnerships and resulting opportunities and shared activities.**

Sector	Current & Potential Partners*	Opportunities	Examples
Contractors	HVAC, electricians, solar, weatherization contractors, especially those participating with Empower+, Comfort Home, NY Clean Heat, NYSERDA OJT and Internship programs, and associated professional organizations.	Share opportunities, expectations and standards regarding training and employment.	Several contractors have participated in EnergySmart CNY-hosted job fairs including two hosted at the annual NY State Green Building Conference.
Utilities & Industry	National Grid, NYSEG, RG&E, municipal electric utilities.	Partner with utility consumer advocates on community outreach.	EnergySmart CNY has held joint office hours with National Grid consumer advocates at libraries in Oswego County
Workforce Development	BOCES, SUNY Morrisville, SUNY ESF, SUNY Oswego, CNY Works, Urban Jobs Task Force, CenterState Corporation for Economic Opportunity, Onondaga Earth Corps, Supported Employment Program, Manufacturers Association of CNY, Technology Alliance of CNY, NYS Weatherization Directors Association training center, local high schools.	Job fairs, career counseling. Shared training programs to develop welcoming workplaces. Partner with BOCES to enroll students and contractors into NYSERDA Internship Program.	Partnered with local school districts and SUNY Morrisville for a “Clean Energy Careers Exploration Day” in 2024. Tabling at various career fairs and public events hosted by schools and workforce development organizations.
Government Agencies & Social Service Providers	New York State Office for the Aging, Affiliated County Agencies, Planning Departments, NYSERDA Clean Energy Communities (CEC) and NYS Department of Environmental Conservation (DEC), Climate Smart Communities (CSC).	Assistance in braiding resources and coordinating support for clients	Partnering with HEAP administrators to facilitate connecting clients to each other's services and outreach events. Partnering with local municipalities on CEC/CSC Community Campaigns

<p>Education</p>	<p>Higher Education including SUNY Morrisville, SUNY Oswego, SUNY College of Environmental Science and Forestry, SUNY Cortland, SUNY EOC, Community Colleges (e.g., Onondaga Community College), Syracuse University, Le Moyne University, Hamilton College, Colgate University</p> <p>City and County Schools, including Syracuse City School Districts, Public Libraries</p>	<p>Research collaborations, assisting graduating students. Reaching parents and community members affiliated with schools. Enroll students in education programs which require internships to enroll eligible students in NYSERDA Internship Program.</p>	<p>Working with students in the SU Dynamic Sustainability Lab at Syracuse University’s Center of Excellence in Energy and Environmental Systems.</p> <p>Participation in “Community Conversations” hosted by the Syracuse City School District, Summer 2023.</p>
<p>Community-Based & Local Development Organizations</p>	<p>Home Headquarters, P.E.A.C.E. Inc., Jubilee Homes of Syracuse, Community Action Partnerships, CNY Community Foundation, Syracuse Housing Authority, Huntington Family Center, RISE (Refugee & Immigrant Self-Empowerment), Syracuse Northeast Community Center, Southern Hills Preservation Association, Fulton Community Development, Westcott Community Center, Northside Learning Center, Syracuse Community Connection, Food Bank of Central New York, Syracuse-Onondaga Food Systems Alliance, Food Access Healthy Neighborhoods Now (FAHNN), Blueprint 15.</p>	<p>Coordinated campaigns to reach members and participants in each other’s programs</p>	<p>We enrolled Mobile Food Pantry participants in EmPower+ since November 2023.</p> <p>In April 2024, we attended food pantries in all 5 CNY counties for the in-person administration of our RABA survey.</p> <p>Partnering with FAHNN to reach residents in a DAC in Syracuse’s southside.</p>
<p>Faith-based & Other Non-profit Organizations</p>	<p>Catholic Charities of Onondaga County, Brady Faith Center, Interfaith Works of CNY, Jubilee Homes, Syracuse Tenants Association, Syracuse Tenants Network, Northside Learning Center, Public Utility Law Project (PULP), Refugee & Immigrant Self-Empowerment (RISE), Clear Path for Veterans</p>	<p>Collaborate and share resources to reach and serve constituencies</p>	<p>In preparing a community conversation in March 2024, we phone-banked Syracuse Tenants Union members to participate and address any immediate energy-related concerns.</p>
<p>Environmental, Energy, and Environmental Justice Organizations</p>	<p>Climate Change Awareness and Action, GreeningUSA, NY Renews Coalition, Sierra Club, Clean Communities of CNY, Citizens Campaign for the Environment</p>	<p>Mutual support in opportunities to reach an environmentally aware constituency</p>	<p>In August-September 2023, we partnered with environmental organizations to staff a booth at the NY State Fair (12 hrs/day over 2 weeks).</p>

III. Baseline Assessment of Clean Energy Program Participation

NYSERDA Program Participation

Over the last five years, NYSERDA has invested \$39 Million in CNY projects for residential energy efficiency, electric vehicle charging, and solar projects. Most funding went to improving the insulation and energy efficiency of 7,525 LMI households, providing an average of \$4,885 in funding resulting in an average of \$8,267 in lifetime savings per household. Solar programs are being underutilized in DACs, with only 22% of Solar for All enrollments and 11% of NY-SUN solar projects being installed in DACs.

Available Clean Energy Programs

There are a variety of programs and funding sources to assist NY residents and building owners control their energy costs and become more energy efficient. Key programs that EnergySmart CNY refers people to include:

- EmPower+ (NYSERDA)
- Comfort Home (NYSERDA)
- NY Clean Heat (Utilities)
- Energy Affordability Program (Utilities)
- HEAP (NYS Office of Temporary and Disability Assistance)
- Federal and State Tax Credits
- Inflation Reduction Act rebates (Federal)
- Healthy Neighborhoods Program (NYS Department of Health)
- Rural Energy for America Program (REAP) and Section 504 Single Family Housing Repair Loans & Grants (USDA)
- Other home improvement funding sources. See Appendix F for a more comprehensive list.

FIGURE 12: CNY UTILIZATION OF SELECT NYSERDA PROGRAMS, 2018-2023

Single Family Residential Energy Efficiency Programs

Total	Moderate Income Households	Low Income Households
Number of Projects		
7,525	1,768	5,757
Annual CO2 Reduction in MT		
12,471	3,034	9,436
NYSERDA Funding		
\$34,496,848	\$6,374,618	\$28,122,230
Average Annual Savings		
\$353	\$386	\$348
Average Lifetime Savings		
\$8,267	\$9,177	\$8,045

Solar Programs

Solar For All	Solar For All in DACs
Number of Projects	
567	125
NY-SUN	
Number of Projects	
370	40
Annual CO2 Reduction in MT	
1368	136
NYSERDA Funding	
\$4,023,209	\$407,207
Average Annual Savings	
\$758	\$721

Electric Vehicle Programs

Charge Ready	Charge Ready in DACs
Number of Projects	
46	17
NYSERDA Funding	
\$797,046	\$319,000

NYSERDA program data on this page comes from the Community Hubs Dashboard (Gagnon & Podapati, 2023).

Prior & Existing NYSERDA Community Campaigns

The CNY RPDB's Energy Program and AGREE facilitated many regional and local community campaigns, including Solarize Syracuse, Solarize CNY, and HeatSmart CNY which educated over 1,700 participants and improved the energy efficiency of 363 homes through better insulation, cold climate air source heat pumps (CCASHPs), ground source or geothermal heat pumps (GSHP), and heat pump water heaters (HPWHs). The net annual emissions reduction achieved was second highest in the state, at 778.4 MT CO₂e. (Cadmus, 2023).

CNY RPDB also acts as the regional Clean Energy Communities (CEC) and Climate Smart Communities (CSC) contractor, providing no cost technical assistance to municipalities. CNYRPDB's coordinator assistance in the CEC and CSC programs has helped improve local attitudes on clean energy, provided a network of municipalities working on similar clean energy initiatives, allowed municipalities to act as examples for community members, and has distributed over \$2.4M in grant funds for clean energy projects earned through the CEC program.

The CEC program has leveraged the knowledge and assets developed in the Solarize and HeatSmart CNY campaigns in support of the three types of community campaigns which municipalities can earn credit for: Clean Heating and Cooling, Community Solar, and Electric Vehicles.

Communities who have participated in CEC heat pump campaigns include the towns of Pompey, Cazenovia, Manlius, Hamilton, Owasco, Richland, and the Village of Pulaski. Communities who have participated in community solar campaigns include the towns of LaFayette, Manlius, Scipio, Richland, Clay, and Geddes and the villages of Homer, Fayetteville, Pulaski, Minoa, and the City of Auburn. The Town of Manlius is the only municipality in the region with an electric vehicle campaign. Some are complete; others could earn more points. All that can become active again would benefit from assistance from EnergySmart CNY community campaigns for education, outreach, and technical assistance.

Community Heat Pump Systems

A thermal energy network (TEN) uses a network of pipes to connect multiple buildings together and to thermal sources and sinks, such as geothermal, surface water, and operations with waste heat to provide space heating cooling and domestic hot water. This technology is one of the most efficient ways to install heat pumps and an effective way for municipalities and campuses to reduce greenhouse gas emissions.

NYSERDA is supporting the evaluation of three "Community Heat Pump Systems" in Syracuse, including the Urban Villages project in Syracuse, a Syracuse University project that would also serve homes, and the Inner Harbor project where National Grid proposes to harness wastewater heat exchange technology at the Metropolitan Syracuse Wastewater Treatment Plant to provide heating and cooling to a variety of new residential and commercial buildings nearby.

Much potential exists in the region. There are approximately 56 publicly owned wastewater treatment facilities that may be suitable for the development of thermal energy networks. Waste heat from treatment plant processes may be harvested and used to heat commercial, industrial, and multifamily structures. Treatment facilities are located in most cities in the region. Many publicly owned wastewater treatment facilities are located within a 1.5-mile radius of large industrial and commercial parcels, which are prime candidates for thermal energy networks.

There are several large sites primed for adaptive reuse or new development in the region where thermal energy networks should be considered, including the redevelopment of Shoppingtown Mall and Great Northern Mall into mixed use development, and the sites listed in CNY RPDB's Central New York Real Estate Site Profile Database.

IV. Stakeholder and Community Engagement

Outreach Objectives, Tools, and Methods

How we engaged our community

EnergySmart CNY used a variety of methods over the past year and a half to gain insight into our region's access to clean energy opportunities:

- **One-to-one conversations** with local partners and potential partners (approximately 30 meetings)
- **Community-based conversations**, in which residents were engaged at events, local businesses, and institutions (such as churches, libraries and laundromats) and asked questions about their knowledge and interest in clean energy and clean energy jobs (700 people reached, 317 filled out written questionnaire)
- Documentations of questions and challenges during **EnergySmart outreach events**, such as tabling at local markets and community events
- **Stakeholder meetings** (14 between November 2023 and March 2024) in which a brief presentation was provided, followed by small group conversations and the opportunity for participants to ask questions and provide other verbal and written feedback (several dozen participants)
- A **written community survey** (AGREE Survey) administered online and in-person at events and food pantries in all five counties. (349 responses)
- A **contractor roundtable**, in which local clean energy providers were invited and asked a series of questions (6 companies represented)
- A **contractor survey**, in which local companies answered a series of questions through an online form (13 contractors completed the survey)

In all, our engagement activities gathered feedback by reaching well over 1,100 CNY residents. Half the respondents of the Community Survey were low-income residents (with annual household incomes <\$50,000, not corrected for household size), 59% lived in DACs, and approximately 20% were people of color. Seventy-two percent (72%) of the respondents owned their own homes while renters made up 28%. Eighty-two percent (82%) of respondents live in single-family homes, including 42% of renters. The Community Conversations did not collect demographic information about respondents, but the conversations were held in largely DACs and in locations selected to reach low-income residents and people of color. A majority of the stakeholder meetings and public event activities took place in disadvantaged communities.

Purpose of engagement

Our stakeholder engagement and feedback gathering activities have focused on answering key questions such as:

- What do residents in our region know about clean energy home improvements, technologies, and opportunities and what are their perceptions of these technologies and opportunities?
- What do residents in our region know about programs that can assist them in accessing clean energy home improvements, technologies, and opportunities?

- How have residents in our region accessed information about clean energy home improvements, technologies, and opportunities?
- Which clean energy home improvements, technologies, and opportunities are residents in our region most interested in?
- What barriers have residents in our region faced when attempting to access clean energy home improvements, technologies, and opportunities, and what kinds of interventions have worked or could work in addressing those barriers?
- What challenges have program educators, program administrators, and clean energy businesses faced while informing residents about and connecting residents to clean energy home improvements, technologies, and opportunities?
- What challenges have clean energy employers faced recruiting, hiring, and retaining a qualified and growing workforce committed to providing residents with clean energy home improvements, technologies, and opportunities?

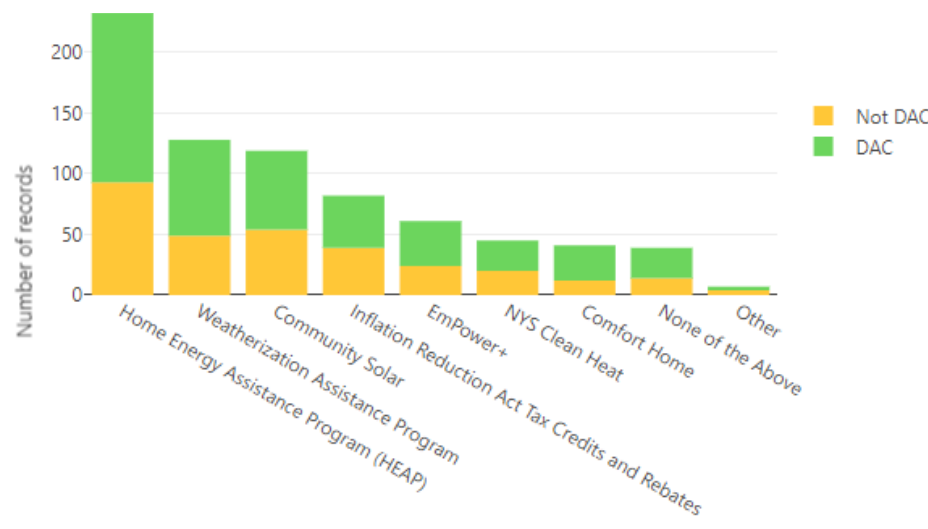
By seeking answers to these crucial questions, EnergySmart CNY hopes to improve its own outreach methods, offerings, and programs and those of our local employers and partners. We also hope to provide feedback to our state partners so that they may benefit from this information as they develop and evolve both the Regional Clean Energy Hubs program and the incentives, marketing, and grants programs the hubs promote.

Stakeholder and Community Engagement Feedback

Knowledge about and interest in clean energy home opportunities

- 93.7% of respondents selected that they know what clean energy is, but not all are able to identify clean energy sources and technologies. By far the most well-known sources of clean energy are solar panels and heat pumps. This suggests that our region’s community campaigns, Solarize and HeatSmart CNY, may have successfully raised the profile of these energy sources in our region.
- When asked if the respondent would like more information about clean energy and available government programs, 65% of the respondents selected yes.
- When asked an open-ended question during community conversations if the respondent knew of any programs that can help them use clean energy/be more energy efficient, 91.2% selected that they did not know about any programs offered. (Source: Community Conversations, GSW). AGREE’s community survey, administered later, asked people to choose from a list of programs they have heard of, and 88% selected at least one answer. Nearly all those surveyed have heard of HEAP, and about half have heard of the Weatherization Assistance Program and Community Solar,

FIGURE 13: AGREE SURVEY RESPONDENTS INDICATING FAMILIARITY WITH PROGRAMS



with no significant variation based on whether they lived in a DAC or not. Less than 1/5th of those surveyed knew of EmPower+, Comfort Home, or NYS Clean Heat, although slightly more DAC residents had heard of them than those not living in DACs.

- Of 349 respondents to the community survey, 127 (37%) reported that they had applied for at least one of the programs listed in our survey. Of those, 57 (45%) reported being in the program currently or having benefited from the program, suggesting a large drop off between application and completion. Residents in DACs and those in other areas responded similarly. Though asked, most participants who applied but did not report benefiting from a program did not report a reason. (Community Survey, AGREE – See Appendix H).

Community Interests

- Most respondents to the AGREE Survey are interested in one or more energy efficiency improvements. A majority (53%) expressed interested in improving their homes’ energy envelopes with smaller numbers selecting solar (37%), community solar (25%), a heat pump water heater (26%) or a heat pump to replace their furnace (28%). (Community Survey, AGREE). This suggests that our program’s emphasis on heat-pump readiness by prioritizing insulation and other efficiency upgrades is well suited to community priorities.
- During GSW’s Community Conversations, when homeowners, specifically, were asked if they would be interested in installing solar panels or heat pumps, 85% said no, indicating that interest in these measures among DAC residents is lower, a result that roughly matches the findings among DAC respondents to the AGREE Survey. (Source: Community Conversations, GSW – see Appendix G).
- Replacing windows rated second highest, after envelope improvements, as the most desired energy improvement. Window replacements is a measure that NYSERDA and utility programs rarely cover.

FIGURE 14: INTEREST IN ENERGY IMPROVEMENTS (AGREE SURVEY)

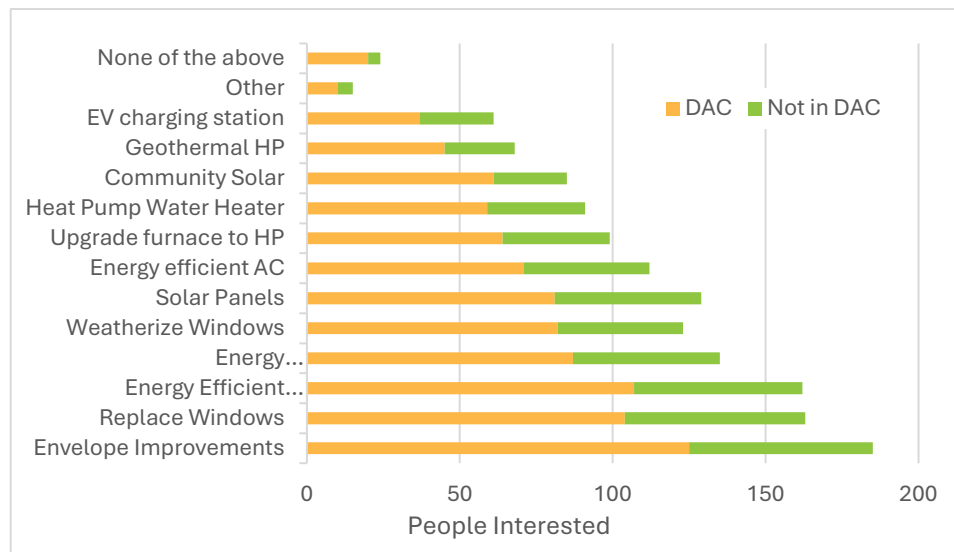
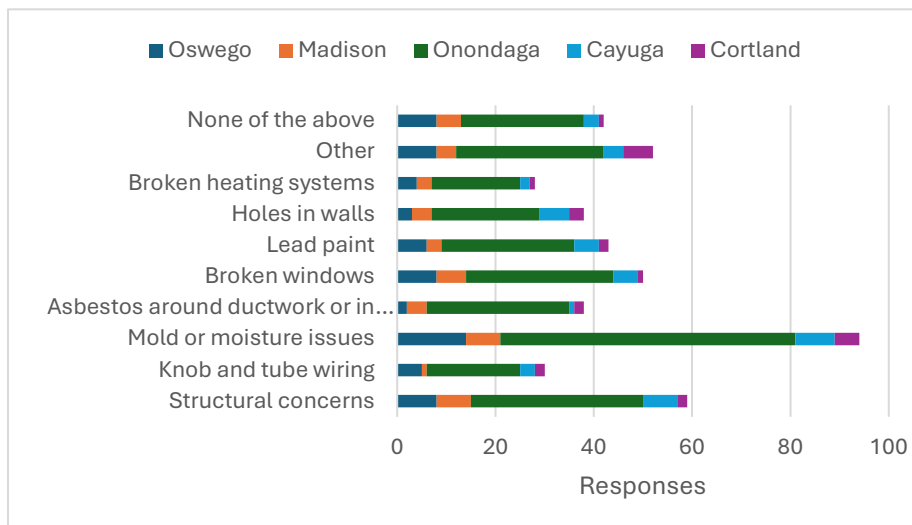


FIGURE 15: PRE-EXISTING CONDITIONS IN HOME (AGREE SURVEY)



V. Barriers, Opportunities, and Recommendations

The barriers, opportunities, and recommendations in this section reflect key takeaways from our regional analysis, the extensive stakeholder feedback gathered in preparation of this report, and years of experience helping market-rate and low-income residents' access clean energy technologies, programs, and opportunities.

Financial & Knowledge Resources & Capacity Barriers

- People do not know about most of the available programs.
- Contractors prefer direct referrals more than assignments through the EmPower+ system, because leads get lost in the referral system.
- The Independent Energy Efficiency Program (IEEP) incentives for municipal electric utilities are significantly less than those offered by investor-owned utilities and NYSERDA, and not offered by the Madison-Oneida Electric Coop.
- Most energy efficiency educational materials and providers only provide information and services in English, missing an opportunity to engage thousands of households for whom English is not their preferred or spoken language.
- There is a dearth of locally accurate information/tools to help residents anticipate how much accessing clean energy technologies will cost, making planning difficult. Online sources quoting costs are often not accurate for our region. This requires residents to go through the process of getting an energy audit and a quote from a contractor before gaining a ballpark understanding of anticipated costs.
- The home improvement process is daunting and time consuming. There are many programs to understand and many contractors to choose from. Residents may not be able to take paid time off to interact with contractors and have many competing priorities for their time.
- NYSERDA-published lists of contractors claiming to cover certain areas/offer certain services is inaccurate and overwhelming, and do not identify the contractor's specialties.
- Unless prompted by a particular issue such as a broken heating system or high energy bills, energy efficiency upgrades are not a priority for many CNY residents, and by the time they have time to follow up, programs or personnel may have changed.
- The GJGNY Energy Studies provided to nonprofits and small businesses dissuades building owners from making big energy improvements like heat pumps due to findings publishing payback periods do not take into account existing incentives and use statewide utility rates.
- Reducing the energy use of large buildings requires a much different skill set and level of expertise than residential or similar buildings.

Opportunities & Recommendations

EnergySmart CNY should:

- Build its reputation as a go-to resource to navigate current clean energy program funding for residential and small commercial / nonprofit buildings.
- Hire more multilingual staff when possible and create a local pilot program or community campaigns to work with translators.
- Improve its list of local contractors and their specialties.
- Develop a public-facing ongoing educational series, including "what to expect" materials.
- Focus on retirees and stay-at-home parents; they often are limited income but may have some financial resources and time and a vested interest in controlling energy costs.
- Develop a system for direct referrals to contractors for all programs and all market segments
- Create trainings to teach DIY techniques to make windows more energy efficient.

NYSERDA should:

- Facilitate program updates from IEEP to Hubs
- Provide training in how to work multilingually including using translation services and technology
- Assist with educational material translation
- Survey contractors for services provided and average costs per region as part of an RFQ response for community campaigns. Publish results and revise annually.
- Provide more case studies with cost breakdowns and operating costs, with adjustments for inflation.
- Direct GJGNY Energy Study to incorporate information on incentives, collaborate with Hub.
- Streamline applications across programs where possible.

Economic and Structural Barriers

- Pre-existing conditions and deferred maintenance limit the homes that can access EmPower+, Comfort Home, and WAP to improve air sealing and insulation enough to make homes electrification ready.
 - Key barriers preventing the insulation of a home include knob and tube wiring, mold and moisture issues, asbestos vermiculite insulation, and walls in disrepair. Removal of knob and tube wiring means a full rewiring of the house (estimates can be over \$10,000), and mold means tightening up these homes will make this issue worse unless energy recovery ventilators or dehumidifiers are added to the work scope.
 - EnergySmart CNY's survey respondents, representing a full range of household incomes, report the following issues in their homes: 27% - issues with mold or moisture, 11% - known asbestos, 9% - knob and tube wiring, 17% - Structural issues, 14% - Broken Windows. *Only 12% of survey respondents reported no pre-existing issues.*
 - Hoarding and disinclination or inability to move things away from walls and out of spaces where work needs to be done is another challenge that prevents some CNY residents from moving forward or limits the scope of work to be performed in a house.
- Existing sources of additional funding are still not enough to address the pre-existing conditions in the homes that need energy upgrades the most.
 - Most home improvement programs are loan-based, unless households are very low income or elderly. Many LMI households already have high debt-to-income ratios.
 - Due to market and affordability gaps, the money invested in residences is unlikely to be recouped upon sale or from increased rents.
 - The City of Syracuse Housing Study (2023) found that disinvestment and deferred maintenance have been mounting in the city, especially in neighborhoods that bear the historical harm of redlining. These neighborhoods also correspond with areas recognized by NYS as Disadvantaged Communities. Low home values in these communities continue to limit the amount of money they can borrow for upgrades. The City of Syracuse estimates costs of rehab for basic code compliance for the average Syracuse home at between \$35,000 to \$150,000. While best documented by the City of Syracuse, similar dynamics exist in the other cities and villages of our region.
- Participants and contractors both indicate that cost of insulation, heat pumps, and labor have skyrocketed, leading to less improvement available for the cost, and often requiring out of pocket contributions from LMI households and deterring others.
- The tightening of program rules as part of the rollout of IRA HEAR rebates have reduced the incentive stack available to help fund heat pump installations in LMI homes (for example, prohibiting combining EmPower+ and NYS Clean Heat), and the homes that qualify for incentives. LMI households have less chance of converting to heat pumps now than in 2021.

Opportunities & Recommendations

EnergySmart CNY should:

- Continue developing referral processes to home improvement funding sources, including USDA, HCR grantees, and local CDFIs.
- Continue to braid programs together to help homes overcome barriers.
- Connect households with vermiculite with Zonolite Trust program.
- Screen for broken windows and refer those households to WAP and/or EmPower+ contractors that do windows.
- Coordinate with city and county governments to leverage housing repair funds.
- New IRA funding in EmPower+ does have some ability to address electrical upgrades and other health and safety measures.

NYSERDA should:

- Expand funding to cover ERV/HRV and more efficient dehumidifier installations.
- Either provide additional funding for the full rewiring of a house or provide a waiver for homes with knob and tube wiring in the walls for insulation requirements to heat pump funding.
- Allow LMI households to get multiple and detailed quotes from contractors in order to keep costs competitive.

New York Department of Public Service should:

- Allow a portion of energy efficiency funding to go toward retrofit readiness, such as moisture abatement, asbestos removal, and repairs.
- Create programs that provide additional pre-electrification funding in geographic DACs.
- Encourage utility thermal energy networks for urban areas, especially those that include residences.

Program Design and Implementation

- NYS programs for low to moderate income households are unsupportive of switching to heat pumps, leaving homes with failing heating systems with few options or without heat.
 - EmPower+ requires levels of insulation unattainable by many homes prior to approving a heat pump installation, or even in cases where a heat pump could be approved after insulation, available funding is inadequate to cover both the insulation and heat pumps.
 - EmPower+ does not provide adequate funding to fully cover the cost of most whole home heat pump installations, even with additional IRA funds.
 - EmPower+ / OTDA extra funding for heat pumps for recent HEAP recipients only is available after the heating season, not when no-heat customers need it, and enrollment periods for this funding have gotten shorter.
 - EmPower+ IRA funding does not fund heat pump conversions for natural gas customers.
 - HEAP penalizes switching from delivered fuels to heat pumps because electric heating customers receive lower benefit rates than those using delivered fuels. The HERR program does not officially support fuel switching when heating systems need to be replaced.
 - Program funding has not kept up with inflation and do not cover what households need.
 - EmPower+ and HERR funding for efficient fossil fuel systems has decreased, requiring significant out of pocket costs for customers, yet these customers usually also cannot obtain heat pumps through the programs, leaving low-income households without affordable heating appliances.
 - "No heat" funding is available in EmPower+ and HERR only for homes with heating systems that failed in the current heating season, excluding homes that have been limping by with inadequate, inefficient, and dangerous temporary measures such as space heaters and using gas stoves for heat for a season or more.
- Neither EmPower+ nor Clean Heat provide incentives for systems that electrify a portion of the home or a portion of the energy use. Many homes in upstate NY, especially those on delivered fuels, already have multiple heating systems and are used to piecemeal addition of new systems to control costs. Electrifying the home in stages can be more affordable.
- What DAC residents want most often is new windows and air conditioning, which are rarely covered through EmPower+.
- Many people with solar on their homes but not enough space to cover their entire energy needs are interested in community solar to cover the remaining needs - but currently are prohibited from doing so by program design.
- The LMI solar incentive is not close to the same amount people who can take the tax credits get.

Opportunities & Recommendations

EnergySmart CNY should:

- Upgrade the former HeatSmart CNY intake and referral system to include new installers.
- Refer eligible homes to local Lead Abatement programs for old windows.
- Explore marketing strategies and assistance that speak to residents most requested improvements

NYSERDA should:

- Work with hubs to develop a comprehensive and coherent policy and program around the funding for low-income heating and cooling systems that supports energy affordability, the need for reliable HVAC, and alignment with the climate law.
- Have more flexibility and funding within EmPower+ to reduce the number of additional programs and program rules homeowners and contractors need to navigate to make up gaps in project costs.
- Allow GJGNY low-interest loans for windows.
- Allow all to subscribe to community solar, even if they already have solar panels.
- Enable Energy Advisors to help customers switch contractors.
- Allow incentives for partial load systems, especially when heating systems are inadequate. When doing so, ensure high standards so that residents are not sold heat pumps that don't work in cold climates.

Department of Public Service should:

- Allow stacking of Empower+ with Clean Heat to enable LMI households to afford heat pumps

OTDA should:

- Align HEAP electric heating benefit rates with oil and propane rates.

NYSERDA and OTDA should:

- Allow homes with longstanding heating issues to get assistance through Empower+ and HERR.

Perspectives and Information Barriers

- There is a perception across income levels that programs/technologies are for other people. Renters and people above low income often believe they do not qualify for the programs. Low-income residents often worry or assume that clean energy opportunities are only for wealthy residents. A surprising find from the community conversations is that people with "no income" also do not believe they qualify for these programs.
- There is a lack of trust in programs claiming to reduce energy bills, especially door-to-door and tabling operations. Many people have been taken advantage of by energy service companies (ESCOs).
- There is a lot of fear that "the State is coming for my stove" which can be construed as cooking stove, wood stove, etc. Many people have expressed that they rely on their utility gas stove for heat when the power goes out (a dangerous way to heat a home).
- There is a lack of understanding about the DAC designation.
- Marketing obviously aimed at LMI and DAC communities from people not known in the community is distrusted. Earned media through conventional news sources is better trusted.
- Community Solar providers often want to see your utility account number before providing any details about what they offer, making it hard to distinguish them from predatory ESCOs.
- There is a lot of interest in solar, but a lack of confidence in community solar and the promised 10% bill savings.

Additional Barriers

- Renters face many challenges to accessing programs, including getting landlord permission, inability to get other tenants to provide income documentation, fears of helping improve a property only to be evicted so the landlord can raise the rents, and societal dismissal of renters' worthiness for healthy and comfortable homes.
- Many of the tax credits are not available to landlords, and while they can write off the cost of maintenance of rental properties on their taxes, they cannot get write offs for "improvements."
- Some tenants express they do not want to go through the effort to improve the property owner's building because of poor relationships with the landlord and the landlord's neglect to provide quality housing or other needed improvements on the building.
- Repeated and accurate communication is also important for building trust. A true CRM or other marketing system that can track status and facilitate timely and consistent communication with customers from energy advisors and contractors is key to any hub's success. The current Salesforce system provided by NYSERDA is not adequate.

Opportunities & Recommendations

EnergySmart CNY should:

- Continue in-person outreach in DACs with trusted partners, bringing immediate value to build trust such as energy saving freebies like LED lightbulbs.
- Develop outreach materials that emphasize assistance to all income levels.
- Develop material packages and customer journeys specific to various customer types, inc. renters, retired homeowners, new homeowners, HEAP recipients, moderate income households etc.
- Visit the same places frequently and consistently, with trusted community partners, providing quality educational resources, and personalized outreach.
- Work with City of Syracuse Rental Registry to develop a landlord outreach program around the new EmPower+ IRA funding.
- Develop renter-specific offerings, based in empowerment and education, allowing them to choose the best option based on their situation.
- Emphasize programs with protections for renters, such as EmPower+.

NYSERDA should:

- Provide media advisory templates for easy use by Hubs to promote upcoming events.
- Facilitate development and consistent update of a master incentives database
- Create a process for the Hubs to vet local solar installers' offerings to help customers compare their options with transparency and confidence.
- Explore multi-platform communication manager systems to help facilitate better communication with customers.

Workforce Development Barriers

- There is a general lack of knowledge of clean energy careers across the region, and skepticism in Syracuse about “green jobs” as many programs a decade ago provided training but failed to connect people with jobs.
- Belief among workers that the clean energy transition will result in a loss of jobs, especially relating to gas utilities.
- Assumption that clean energy jobs need degrees or certifications.
- The clean energy industry is not on the in-demand occupations list, preventing other sources of funding, like Workforce Innovation and Opportunity Act (WIOA) funding, to grow the clean energy workforce.
- Employers accept GEDs and basic tool knowledge for entry level positions but prefer experience and completed training as well.
- Employers face a harsh and worsening workforce participation shortage throughout the region. According to 2023 Labor Statistics, labor force participation is at a historical low at 60.5% in the CNY Region and is lower than the state and national rates of 63.1% and 63.6% respectively. Furthermore, over 25% of the labor force is over age 55 so massive retirements are anticipated in the next 5 to 10 years.
- Key barriers to hiring/retention reported by the home performance and HVAC contractors included identifying good candidates; transportation, including lack of driver’s licenses or vehicles; a lack of skills; childcare; and competition from other employers like Amazon and UPS that pay well for work that does not involve crawling into dirty spaces.
- There is a general lack of gender and racial diversity in HVAC and home performance, although it is changing. Company culture is strongly influential.
- Administrative support is strained or nonexistent for midsize-small contractors. Administrative burdens are not worth the incentives to many contractors, particularly for smaller projects. This applies for home performance, HVAC, and solar, as well as on-the-job training.
- The ever-changing nature of the programs and the large number of resources it takes contractors and hubs to track and incorporate those changes is costly.

For more details see the Contractor Survey results in Appendix I.

Opportunities & Recommendations

EnergySmart CNY should:

- Connect jobseekers with paid on the job training opportunities.
- Identify needs of jobseekers and connect them with wraparound services such as childcare, GED programs, regional on-demand transport where available, driver’s license programs etc.
- Improve connections between contractors and educational and vocational institutions, training centers like NYSWDA, and workforce programs like SUNY EOC, Syracuse Build and Syracuse SURGE.
- Encourage more clean energy workforce outreach and investment in rural regions, especially in DACs.
- Engage with schools to promote clean energy careers.
- Highlight clean energy companies in CNY that are diversifying; feature them in outreach events and materials as well as developing trainings for other companies.
- Collaborate with community organizations like Urban Jobs Task Force to hold trauma-informed and implicit bias training for clean energy businesses to redevelop processes and policies.
- Connect with trusted education and workforce development networks to spread awareness about options for non-degree holders.

NYSERDA should:

- Create more materials for job-seekers about NYSERDA-approved on-the-job training programs and for existing career opportunities within various sectors.
- Keep program changes to a minimum.
- Simplify and streamline application and reporting requirements.
- Allow OJT funding for administrative staff.

Department of Public Service should:

- Support the co-development of more Utility Thermal Energy Networks, which use similar materials and skills as gas distribution pipelines and create a green industry transition pathway for gas workers.

VI. Next Steps: Recommendations & Timeline

The following high-priority, high-impact recommendations for EnergySmart CNY’s next steps are built on existing and developing partnerships and the analysis featured in this report, representing significant program development initiatives.

Recommendation	Details	DAC Audience	Timeframe
Create scalable systems for increasing the quality and quantity of service provided.	Develop materials and communications for various personas, including renters, retired homeowners, new homeowners, HEAP recipients, people on delivered fuels, low- and moderate-income households etc. to facilitate ease of response and consistency of assistance provided. Consider hiring a marketing firm or experienced communications staff for added necessary capacity and skillset.	Yes	Summer 2024-2026
Reboot and update HeatSmart and Solarize campaigns, partnering with CEC Community Campaigns	Vet and onboard new installers and community solar providers, update educational materials, marketing, and expertise, and deepen partnerships. Take into account community survey results focusing on air sealing and promote home performance to all. As part of this reboot, assess HeatSmart marketing in the context of NYSERDA and IRA incentives for low-income households.	City of Syracuse for Solarize, rural DACs for heat pumps	Begin Autumn 2024 with contractor RFQ
Strengthen Educational Outreach	Public and partner-facing newsletter, energy literacy workshops (ELWs), and webinars to provide low-cost, energy saving advice, increase community energy literacy, and host local experts and partners on various programs and technologies. Include bi-annual EnergySmart CNY program update and stakeholder feedback sessions for community accountability	Especially for ELWs and feedback sessions	Begin Autumn 2024
Contractor Engagement	Engage contractors with regular communications and meetings to strengthen workforce pathways and opportunities, working to increase program participation for both NYSERDA workforce development programs (Internship, OJT, etc.) and energy efficiency programs (EmPower+, Clean Heat, etc.).	Indirectly	Begin Summer 2024
Landlord outreach	Partner with the City of Syracuse to educate landlords and tenants of 1-4 family units about the new funding available via EmPower+ and the IRA.	Yes	Autumn 2024 – Winter 2025
Community Advocate and Volunteer Program	Training, support, and materials for volunteers, trusted community leaders, educators, and influencers, support services staff, etc. to help educate their communities, including through multilingual outreach.	Yes	Spring 2025
Workforce Development	Outreach to local schools and businesses about the NYSERDA OJT and Internship programs. Develop administrative support resources for small businesses to be able to apply for and work with the programs.	Yes	Begin Autumn 2024

VII. Appendices

Appendix A: Key Definitions from NYSERDA

Clean Energy Businesses: *Energy efficiency and clean technology businesses, organizations, or municipalities that have dedicated energy efficiency or clean technology positions as an integrated part of their business or organizational practices, including start-up companies or businesses or labor management organizations working on behalf of energy efficiency or clean technology businesses. (Source: NYSERDA Clean Energy Business Webpage)*

Disadvantaged Communities: Those individuals who meet the criteria established to identify a disadvantaged community adopted by the Climate Justice Working Group under the Climate Leadership and Community Protection Act. The criteria identify individuals based on a geographic component or an income component.

Priority Populations for Workforce Development:

- Veterans;
- Individuals with disabilities;
- Low-income individuals, whose household's total income is below or at 60% of the State Median Income, or whose household has been determined eligible for or is receiving assistance through the Home Energy Assistance Program (HEAP), Temporary Assistance for Needy Families (TANF), Supplemental Nutrition Assistance Program (SNAP), or other human service benefit programs;
- Incumbent or unemployed fossil fuel workers;
- Previously incarcerated individuals;
- 16- to 24-year-olds who are enrolled in or have completed a comprehensive work preparedness training program such as those offered by Boards of Cooperative Education Services (BOCES), technical high schools, Conservation Corps, YouthBuild, and AmeriCorps. The training program must include a combination of rigorous clean energy education with hands-on technical training. Eligibility of work preparedness programs under this category will be considered on a case-by-case basis;
- Homeless individuals;
- Single parents.

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Appendix C: Baseline Sociodemographic Data

C.1: Languages Spoken

Data source: American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1601

	ONONDAGA COUNTY, NEW YORK		CITY OF SYRACUSE, ONONDAGA COUNTY		OTHER CNY COUNTIES		ALL COUNTIES TOTAL	
	Total Language Speakers	Speak English less than "very well"	Total Language Speakers	Speak English less than "very well"	Total Language Speakers	Speak English less than "very well"	Total Language Speakers	Speak English less than "very well"
SPANISH	12999	3884	7938	2491	4154	736	17153	4620
OTHER INDO- EUROPEAN LANGUAGES	16287	5661	5069	1998	5368	1674	21655	7335
ASIAN AND PACIFIC ISLAND LANGUAGES	10975	5659	6516	3323	1854	774	12829	6433
OTHER LANGUAGES	8010	3886	5902	3048	862	261	8872	4147
TOTAL	48271	19090	25425	10860	12238	3445	60509	22535

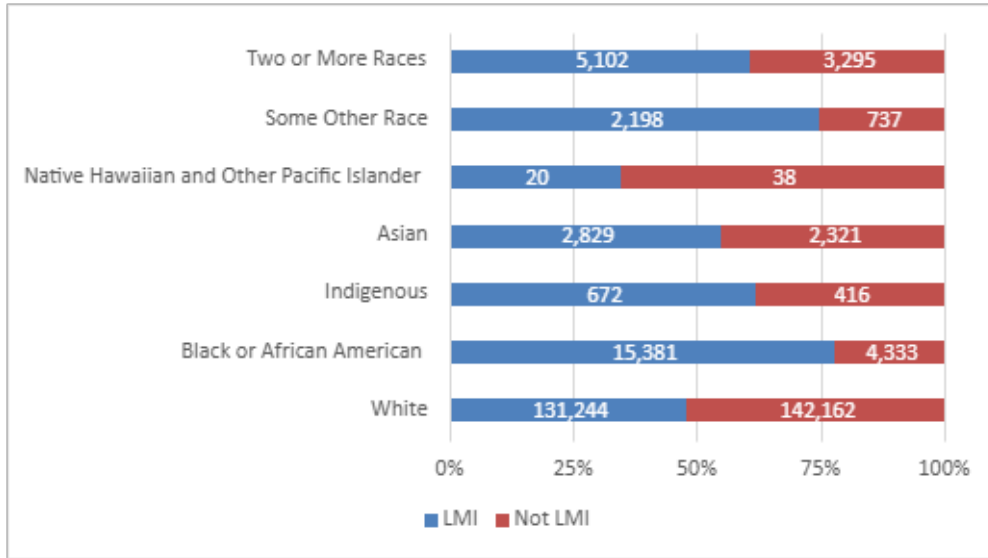
C. 2: Census Tracts with high LMI populations

Data Source: NYSERDA Tableau Data

Census Tract	Municipality / Neighborhood	Census Tract	Municipality / Neighborhood
36075020100	Redfield	36067010600	Mattydale/ Lyncourt/ N. Syr
36075020302	Richland	36067013900	Mattydale/ Lyncourt/ N. Syr
36075020500	Altmar	36067014200	Lyncourt
36075021501	Catfish Creek	36067003300	North Side
36075020800	Palermo	36067004400	Syracuse University Area
36075021103	Fulton	36067004500	Westcott
36075021300	Hannibal	36067005602	Outer Comstock
36011040100	Fairhaven	36011041500	Auburn
36075020702	Central Square	36011041600	Auburn
36075020901	Phoenix	36023970800	Cortland
36067011800	Seneca Knolls/ Village Green	36023970400	McGraw
36067012200	Camillus	36023970100	Deruyter
36067012700	Amboy	36023971100	Cincinnatus
36067013300	Liverpool	36053030800	Georgetown
36067011102	Liverpool Morgan Rd/ MUD Area	36053030700	Erieville
36067010800	Mattydale/ Lyncourt/ N. Syr	36053031100	Brookfield
36067010700	Mattydale/ Lyncourt/ N. Syr	36053030200	N. of Canastota
		36053030501	Cazenovia

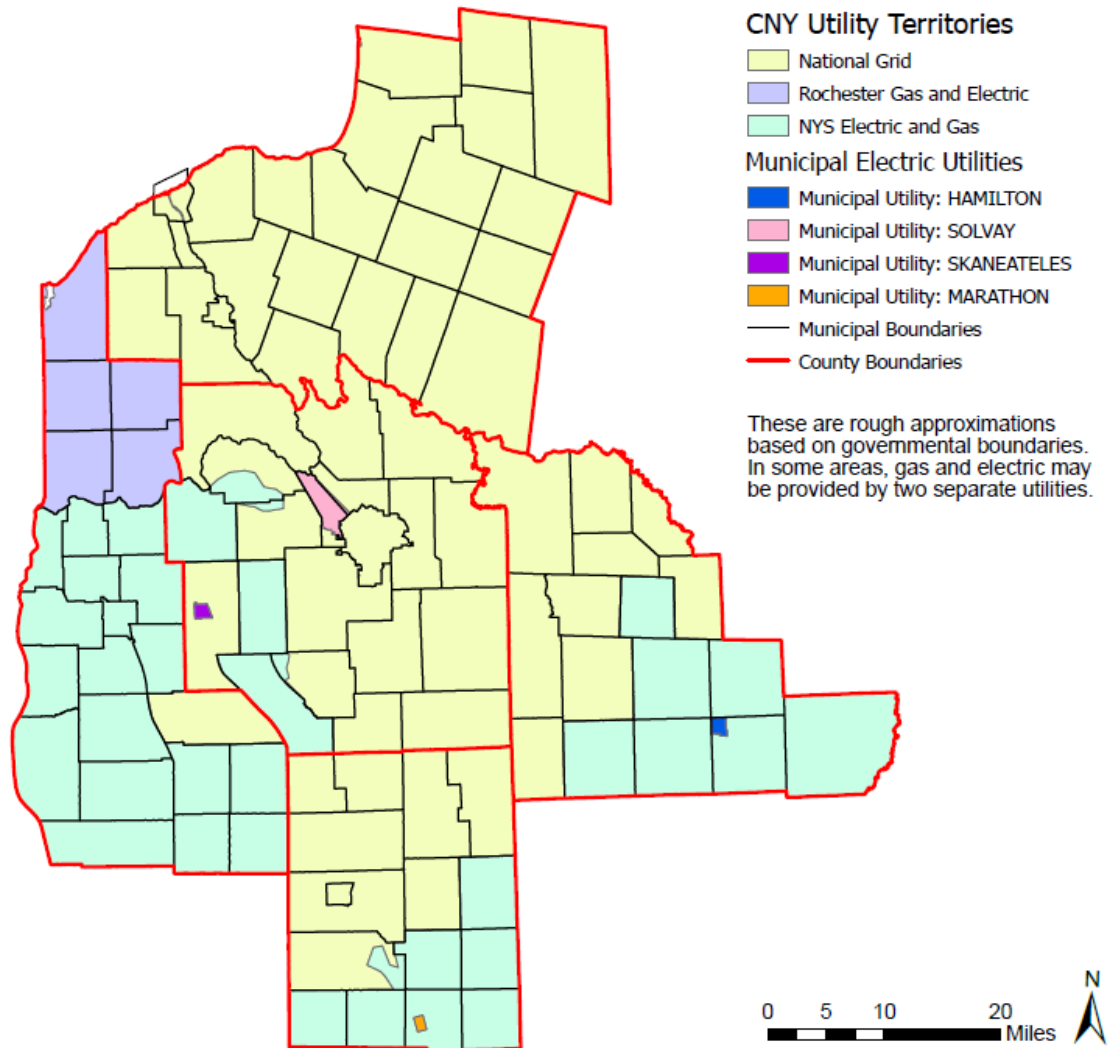
C. 3: LMI Households by Race in Central New York

Source: U.S. Census Bureau. (2021). American Community Survey (ACS) 5-year Public Use Microsample (PUMS) Estimates



Appendix D: Building and Sector Assessment

D. 1: CNY Utility Territories



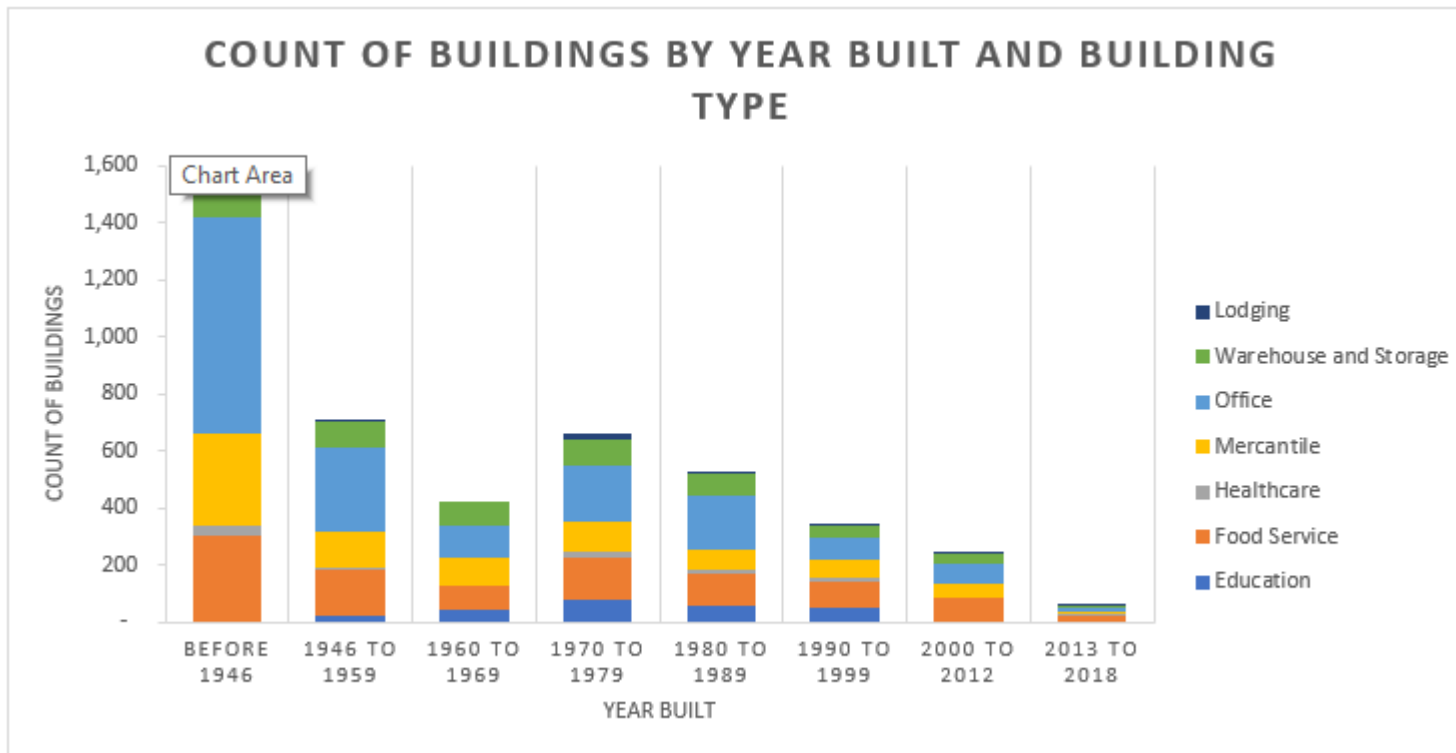
D.2: Commercial and Industrial Buildings in CNY

building_id samples included from the following geographies

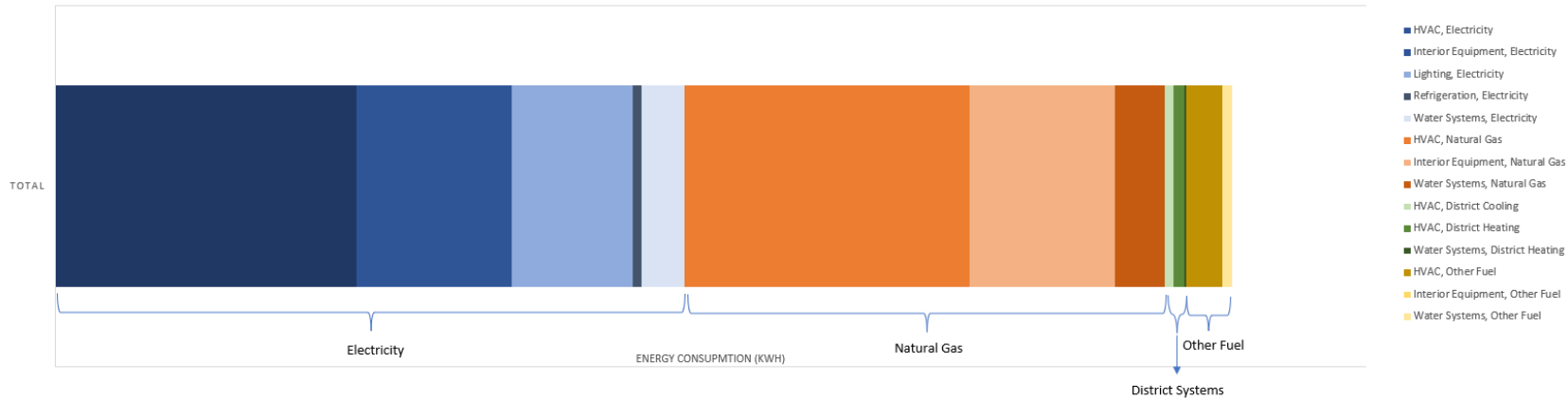
in.state	in.county_name	in.nhgis_county_gisjoin	Sum of weight
NY	NY, Onondaga County	G3600670	3,075
	NY, Cayuga County	G3600110	420
	NY, Oswego County	G3600750	558
	NY, Madison County	G3600530	278
	NY, Cortland County	G3600230	153
NY Total			4,484
Grand Total			4,484

Onondaga County has a much higher percentage of C&I buildings in CNY

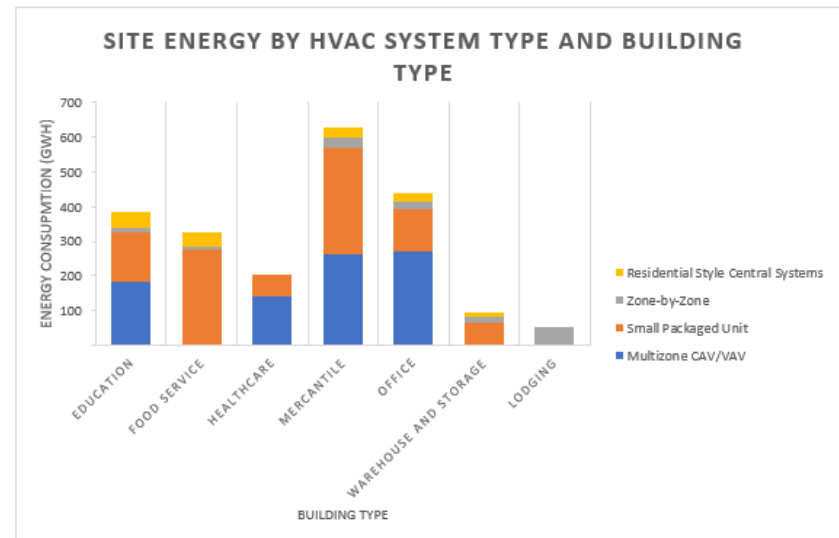
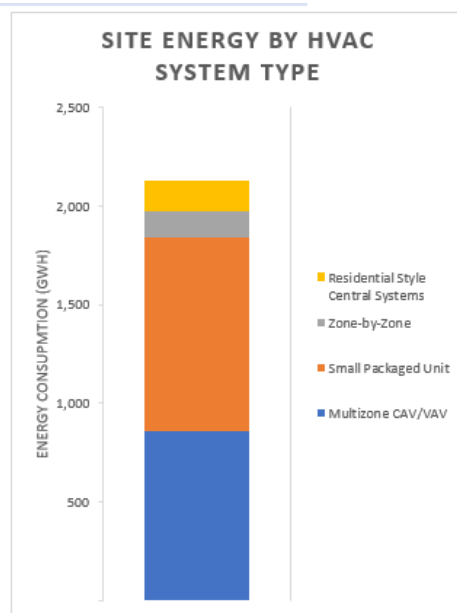
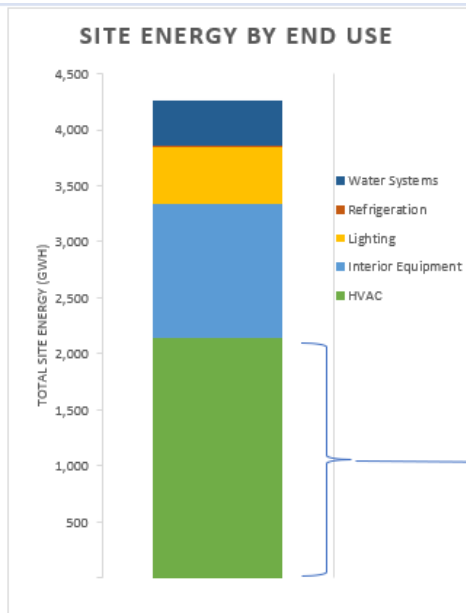
The following graphs are for all five counties combined.



SITE ENERGY BY END USE AND FUEL TYPE



*These bars need to be manually adjusted for each new set of data. Blue is electricity, orange is natural gas, green is District Systems and yellow is other fuel type.

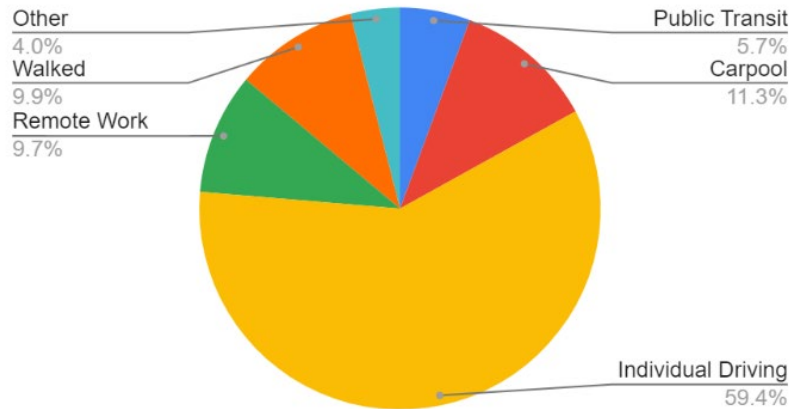


Appendix E: Workforce

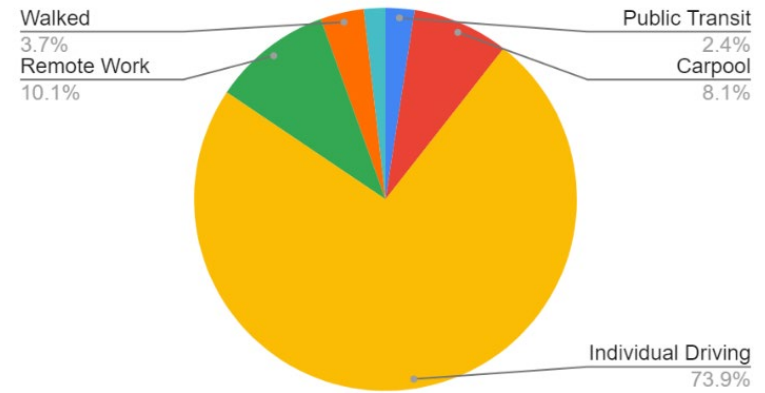
E. 1: Commuting Patterns By Region

	Public Transit	Carpool	Individual Driving	Worked From Home	Walked	Other
Syracuse	5.40%	10.80%	56.70%	9.30%	9.50%	3.80%
Onondaga	2.40%	8%	72.60%	9.90%	3.60%	1.80%
Oswego	0.70%	7.90%	79.40%	6.60%	3.10%	2.20%
Cayuga	0.60%	7.40%	80.30%	6.40%	3.70%	1.70%
Cortland	1%	11.30%	74.70%	6.30%	4.60%	2.10%
Madison	0.30%	6.20%	77.80%	8.70%	6.00%	0.90%

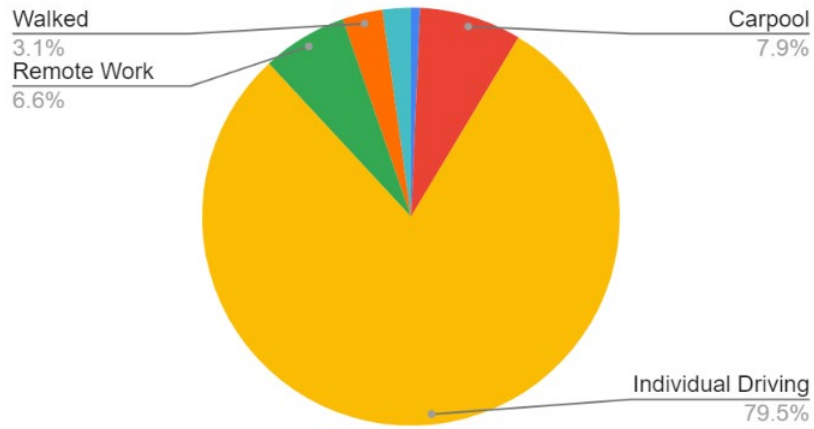
Syracuse



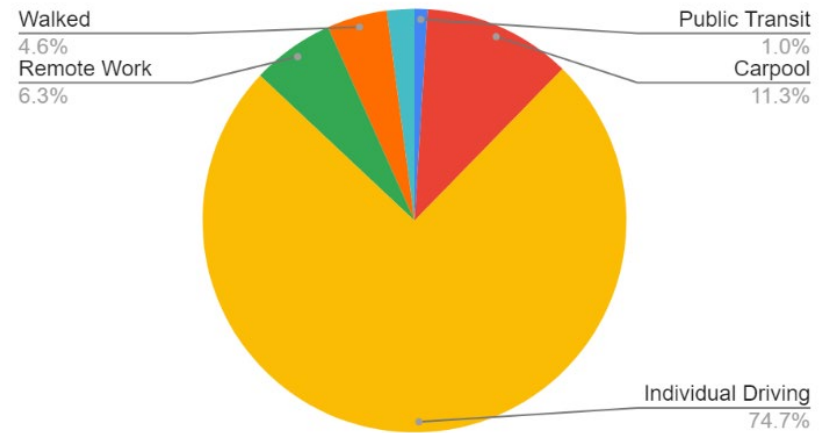
Onondaga



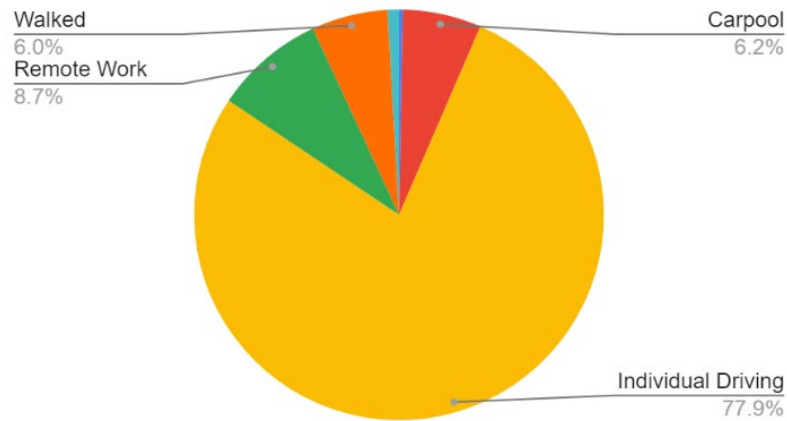
Oswego



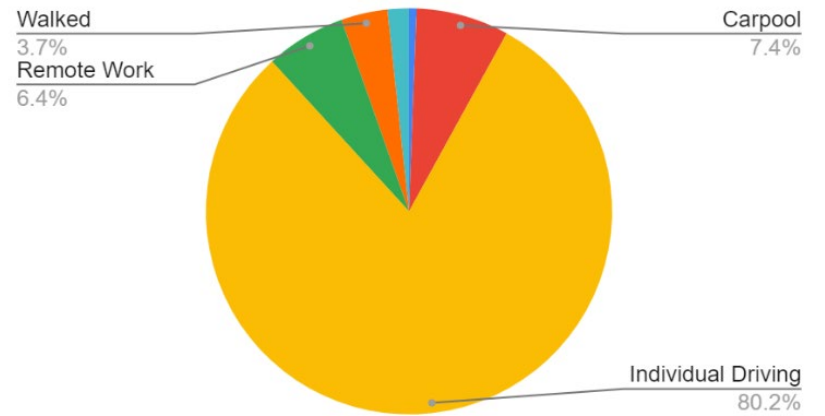
Cortland



Madison



Cayuga



E. 2: Clean Energy Jobs by County in CNY

Job Categories		Cayuga	Cortland	Madison	Onondaga	Oswego
Total Clean Energy Jobs	2022 Jobs #	496	187	226	3874	724
	NYS Rank	34	48	44	10	29
	2022 Growth %	1.80%	1.4%	0.7%	2.2%	1.4%
	NYS Growth Rank	37	43	53	31	45
Renewable Generation	2022 Jobs #	21	15	13	246	252
	2022 Growth %	0.10%	1.70%	0.50%	22.10%	N/A
Grid & Storage	2022 Jobs #	15	<10	<10	114	113
	2022 Growth %	2.3%	N/A	N/A	2.90%	2.20%
Energy Efficiency	2022 Jobs #	302	133	166	3003	272
	2022 Growth %	N/A	-0.60%	-0.10%	N/A	-0.10%
Clean Vehicles	2022 Jobs #	144	35	36	474	75
	2022 Growth %	7.60%	11.20%	8.20%	8.80%	13.80%
Biofuels	2022 Jobs #	15	<10	<10	38	12
	2022 Growth %	-10.70%	N/A	N/A	-10.70%	-10.70%

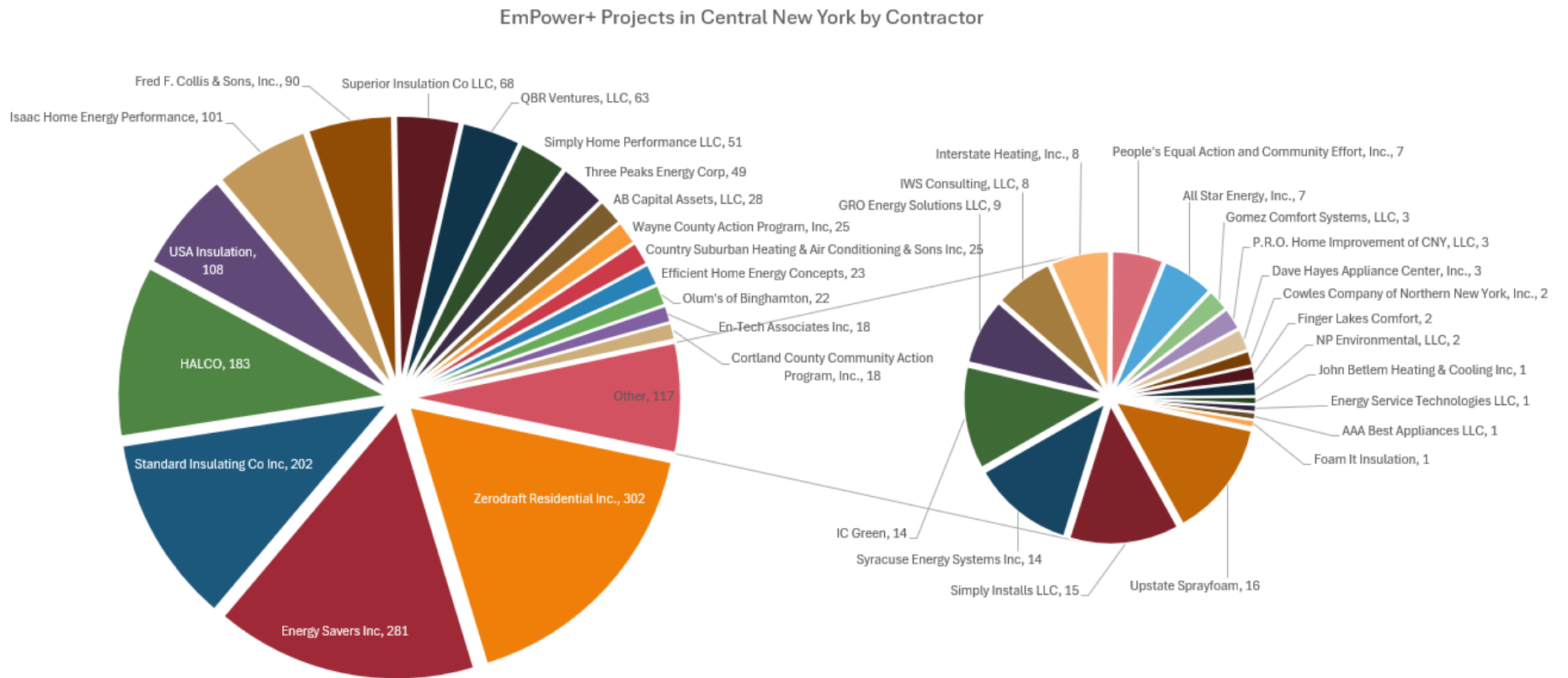
Clean Jobs America 2023

E. 3: NY Clean Energy Industry

Source: Clean Jobs America 2023

	NY Clean Energy Industry				
	Overall Clean Energy, 2021	Overall Clean Energy, 2022	Renewable Electric Power Generation	Building Decarbonization and Energy Efficiency	New York State's Labor Force
Female	25%	26%	28%	26%	48%
Male	75%	74%	72%	74%	53%
White	72%	72%	71%	72%	70%
Hispanic/Latin/a/x	15%	15%	16%	15%	17%
Black	8%	9%	10%	9%	17%
Asian	7%	8%	9%	8%	9%
Native American	2%	1%	1%	1%	1%
Pacific Islander	1%	1%	1%	1%	<1%

E. 4: EmPower+ Projects in Central New York by Contractor July 2023 - May 2024



E. 5: Workforce Development Program Participants

PROGRAM DATA PROVIDED BY NYSERDA WORKFORCE DEVELOPMENT AND TRAINING TEAM

WORKFORCE DEVELOPMENT AND TRAINING (PON 3982)

4 Green Power Systems, LLC	Edison Innovative Power	People's Equal Action and Community Effort, Inc.
AB Capital Assets, LLC	EMCOR Services Betlem	Simply Home Performance LLC.
All Temperature Systems Of Syracuse Inc	Finger Lakes Comfort Inc.	Simply Installs LLC.
Alternative Carbon Energy Systems, Inc. (ACES-Energy)	Fred F. Collis & Sons, Inc.	Steven Winter Associates, Inc.
Alternative Power Solutions of NY, LLC	Fulton Thermal Corporation	Sustainable Comfort, Inc.
Antares Group, Inc.	Geotherm Inc	Syracuse Energy Systems, Inc.
Aztech Geothermal, LLC	Halco Energy	Syracuse Heating and Cooling, Inc.
Barney Moravec, Inc	Heat and Cool Solutions LLC	Taitem Engineering, P.C.
BlocPower	John Betlem Heating & Cooling	Tioga Opportunities Inc.
Breathe Easy of CNY Inc.	L&S Energy Services, Inc	Upstate Spray Foam Insulation
Buffalo Energy, Inc.	Lake Country Geothermal, Inc.	Van Hee Mechanical
Buffalo Geothermal Heating, LLC	USA Insulation of Syracuse	Zerodraft Residential
D&D Motor Systems	Leo J. Roth Corporation	
Dailey Electric, Inc	Murray's Heating & Air Conditioning, LLC	
DEMCO New York Corp.	Next Generation Solar, LLC	
	NP Environmental LLC	

WORKFORCE DEVELOPMENT AND TRAINING (PON 4000)

4 Green Power Systems, LLC

AB Capital Assets, LLC

Alliance for a Green Economy (AGREE)

Alternative Carbon Energy Systems, Inc.
(ACES-Energy)

Alternative Power Solutions of NY, LLC

Antares Group, Inc.

Aztech Geothermal, LLC

BlocPower

Breathe Easy of CNY Inc.

Buffalo Energy, Inc.

Buffalo Geothermal Heating, LLC

CDH Energy Corporation

CenterState CEO

D&D Motor Systems

DEMCO New York Corp.

Edison Innovative Power

EMCOR Services Betlem

Finger Lakes Comfort Inc.

Fred F. Collis & Sons, Inc.

Fulton Thermal Corporation

Halco Energy

Heat and Cool Solutions LLC

L&S Energy Services, Inc

Lake Country Geothermal, Inc.

USA Insulation of Syracuse

Murray's Heating & Air Conditioning, LLC

Next Generation Solar, LLC

NP Environmental LLC

OnSite Solar, LLC

People's Equal Action and Community Effort,
Inc.

Simply Home Performance LLC.

Simply Installs LLC.

Steven Winter Associates, Inc.

Sustainable Comfort, Inc.

Syracuse Energy Systems, Inc.

Syracuse Heating and Cooling, Inc.

Taitem Engineering, P.C.

Tioga Opportunities Inc.

TRC Companies, Inc.

Van Hee Mechanical

Workforce Development Board Herkimer,
Madison & Oneida Counties, Inc.

NYSERDA CLIMATE JUSTICE FELLOWSHIP

Buffalo Geothermal Heating, LLC

Farm to Flame Energy

Fulton Thermal Corporation

USA Insulation of Syracuse

Murray's Heating & Air Conditioning, LLC

People's Equal Action and Community Effort,
Inc.

Simply Installs LLC.

State University of New York-SUNY Cortland

Syracuse Energy Systems, Inc.

Syracuse Heating and Cooling, Inc.

Taitem Engineering, P.C.

Workforce Development Board Herkimer,
Madison & Oneida Counties, I

E. 6: SUNY Morrisville Offshore Wind Training Institute



NEW YORK STATE | **NYSERDA**

RETC
SUNY MORRISVILLE
RENEWABLE ENERGY TRAINING CENTER

New York State Offshore Wind SUNY Morrisville Renewable Energy Training Center's Offshore Wind Technician Training

Dr. Ben Ballard, RETC Director
BallarBD@morrisville.edu
Ph: 315.684.6780
morrisville.edu/renewable-energy

SUNY Morrisville, Morrisville, NY
Renewable Energy Training Center



Program Description:

- **Wind turbine technician micro-credentials** → **Wind turbine technician 1-yr certificate** (10-15 participants per semester)
 - Low-residency, online, hybrid, HyFlex offerings (classes beginning summer 2024)
- **Embedded wind tech. training in Renewable Energy A.A.S. and B.Tech.** (15-30 participants per year, began spring 2024)
- **Outreach: K-12 STEM workshops** (30-60 participants/yr), **RE career exploration** (>300 participants/yr), **Teacher Professional Development** (K-12, BOCES; 20-40 participants/summer)
- **Contacts:**
 - Dr. Ben Ballard, RETC Director BallarBD@morrisville.edu 315.684.6780
 - Mr. Sam Doubleday, Outreach Coord., DoubleS@morrisville.edu 315.684.6299
 - morrisville.edu/renewable-energy

SUNY MORRISVILLE
EST. 1908

Timeline of Development

SUNY MORRISVILLE
EST. 1908



Photos: Tower Climbing Lab and Wind Lab at SUNY Morrisville's ACET Center

Potential for Partnerships, Assistance, Job Pathways and Collaborations

- **Outreach, Recruiting, Collaboration – Join Us!**
 - Education Opportunity Program (EOP)
 - Science of Technology Entry Program (STEP)
 - Collegiate Science & Technology Entry Program (CSTEP)
 - Syracuse Education Opportunity Center (EOC)
 - Central New York Regional Planning & Development Board
 - Greater Syracuse Works
 - NY for Clean Power
 - SUNY Clean Energy Consortium
- **Wind Industry Partners** (technical review, internships, outreach)
 - Orsted, Avangrid, Storke LLC, others welcome!
- **Articulation Opportunities**
 - HS/BOCES, community college, SUNY-SUNY institution, GWO providers

morrisville.edu/renewable-energy

Tower Climbing Lab at SUNY Morrisville's ACET Center



E.7: New York State Joint Apprenticeship Training Centers by Union

Source: Cornell University Climate Jobs Institute, 2024

Name	Union	Location	County
BAC Local 2 NY - Syracuse Training Center	International Union of Bricklayers and Allied Craftworkers (BAC)	Liverpool	Onondaga
North Atlantic States Carpenters Training Center Syracuse	United Brotherhood of Carpenters and Joiners of America (Carpenters)	Syracuse	Onondaga
IBEW Central New York JATC- Local 43	International Brotherhood of Electrical Workers (IBEW)	Clay	Onondaga
Insulators Local 30	International Association of Heat and Frost Insulators and Allied Workers (Insulators)	Syracuse	Onondaga
Ironworkers Local 60	International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers (Ironworkers)	Syracuse	Onondaga
IUOE Upstate New York Engineers - Training Fund	International Union of Operating Engineers (IUOE)	Syracuse	Onondaga
LiUNA Local 633 - JATC	Laborer's International Union of North America (LiUNA)	East Syracuse	Onondaga
Millwrights Liverpool Training Center	UBC Millwrights	Liverpool	Onondaga
NEIEP Local 62	National Elevator Industry Educational Program (NEIEP)	Syracuse	Onondaga
Roofers Local 195	United Union of Roofers, Waterproofers and Allied Workers (Roofers)	Liverpool	Onondaga
SMART Local 58 - JATC	International Union of Sheet Metal, Air, Rail and Transportation Workers (SMART)	Syracuse	Onondaga
UA Local 81 - Syracuse Training Center	United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada (UA)	Syracuse	Onondaga
UA Local 81 - JATC	United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada (UA)	Syracuse	Onondaga
UA Local 81 - Syracuse JAC	United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada (UA)	Syracuse	Onondaga
IUOE Local 158 - District 545 Training Center	International Union of Operating Engineers (IUOE)	Constantia	Oswego
IUPAT FTI of Western & Central New York	International Union of Painters and Allied Trades (IUPAT)	Fulton	Oswego
LiUNA Upstate New York Laborers' Education and Training Fund	Laborer's International Union of North America (LiUNA)	Oswego	Oswego
IUPAT FTI of Western & Central New York	International Union of Painters and Allied Trades (IUPAT)	Cortland	Cortland

E. 8: Related Workforce Development Programs in CNY

1. **The Future-Ready Workforce Innovation Consortium**, made up of more than 40 members across seven CNY counties (i.e. Syracuse University, Onondaga Community College, Le Moyne College, Manufacturers Alliance of CNY), focuses specifically on workforce-ready training and degree pathways tied directly to in-demand industry sectors. This includes pathways to degree and non-degree programs, technical training, certificates, and specialized unions, secondary schools, community colleges and other four-year institutions. The training will prepare students for the advanced-manufacturing industry through lessons on semiconductor production, including topics such as information technology, cybersecurity, artificial intelligence and machine learning.
2. **One Network for Advanced Manufacturing Partnerships (ON-RAMP)**, through NYS Empire State Development, is a network of four new development centers across Upstate New York, including one in Syracuse overseen by CenterState CEO, an economic development organization. ON-RAMP Centers will offer credentials and training related to advanced manufacturing and focus on providing opportunities for disadvantaged populations. The core principles are creating commitment to access and equity, development of active industry partnerships, creation of effective workforce pipelines, wraparound supports for program participants, and data-driven performance management.
3. **NYS DOT WorkSmart NY** is a 7-week hybrid (classroom and workshop) training program through Syracuse Educational Opportunity Center (EOC) that prepares students for various construction jobs. Training includes construction math, blueprint reading, introduction to power tools and hand tools, introduction to concrete and forming systems, flagging and OSHA-10 for construction. Students also participate in soft skills training, resume writing workshops and mock interviews before completing the program. Syracuse EOC has other career programs as well like their Build Ready Construction Training Program, Surge Advanced Manufacturing, ATTAIN Lab, and more.

Appendix F: Grants, Loans, Rebates, Credits, and Other Sources of Financial Assistance

F.1: A Selection of Relevant Residential Programs for EnergySmart CNY Referrals

Program Name	Eligibility Category	Type	Funding	Helps LMI Homes?	What does it cover?
1% Home Improvement Loan & Grant - Onondaga County	Residential	Income-based (Loan/ Grant)	Onondaga County & US Dept. of HUD	Yes	a. Exterior Repairs: Includes roofs, siding, doors, and window replacements. b. Emergency Repairs: Covers furnace and hot water tank replacements or repairs, plumbing, electrical work, code violations, and other life/safety issues.
ACH Grant	Residential	Grant	New York State Affordable Housing Corporation	Yes	Home repairs necessary for the health and safety of homeowners. Examples of qualifying repairs would include roof, electrical, bathroom and furnace.
Comfort Home	Residential - No income restriction	Installation Rebates	Comfort Home Program	It can, after EmPower+	a. Seal and Insulate Packages: Improving home comfort by sealing air leaks and upgrading insulation in ceilings, floors, and walls. b. High-Performance Windows: Installation of energy-efficient windows. c. Consultation: No-fee consultation with trained contractors to select the right improvement package. d. Heat Pump Options: Information on clean heating and cooling options and additional rebates for heat pump installations within 24 months of completing seal and insulate work.

CNY Regional Clean Energy Hub – Regional Assessment and Barriers Analysis

					e. Energy Savings: Helps offset future heating and cooling system costs, allowing for smaller, less expensive equipment and reducing energy bills.
Empower+ Low Income	Residential ≤ 60% SMI, Homeowner, Renter, Landlord	Income-based	NYSERDA	Yes	a. No-cost home energy assessment b. Insulation, air sealing, equipment efficiency, heat pump installation c. Monthly electric bill credit of between \$5-\$15 from community solar, if available.
Empower+ Moderate Income	Residential 60 to ≤ 80% S/AMI, Homeowner, Renter, Landlord	Income-based	NYSERDA	Yes	a. No-cost home energy assessment b. Insulation, air sealing, equipment efficiency, heat pump installation
Federal Tax Credit - Energy Efficient Home Improvements	Residential, Homeowner, some for Renters	Tax credit	Internal Revenue Service (IRS)	Yes, some moderate	Most items are 30% up to \$1,200/yr. (a few are less); for heat pump equipment 30% up to \$2,000; these incentives re-set each year, but you cannot roll over credits ex.) you get a HPWH and a GSHP and use your \$2K up for the GSHP, you do not get a 2nd \$2K for the HPWH, but could install it the next year; verify if 2nd property for some items or not
Federal Tax Credit – Ground Source Heat Pumps (GSHP)	Residential	Tax credit	Internal Revenue Service (IRS)	Yes, some moderate	Equipment, Installation costs, and certain electrical upgrades associated with geothermal heat pump system.
Federal Tax Credit - Residential Clean Energy Home Improvements	Residential, Homeowner, some for Renters	Tax credit	Internal Revenue Service (IRS)	Yes, some moderate	GSHP; Solar/battery storage; Small wind - some listed in this chart individually; 30% of cost
Federal Tax Credit - Solar	Residential	Tax credit	Internal Revenue Service (IRS)	Yes, some moderate	purchase community solar, onsite solar, battery storage
Finger Lakes Climate Fund	Residential	Income-based	Funded initially by the Park Foundation, mainly carbon offset donations made by individuals and businesses to the Finger Lakes Climate Fund	Yes	a. Air sealing b. Insulation c. Heat pumps d. Heat pump water heaters
GJGNY Financing - Smart Energy Loan	Residential, <120% AMI, Homeowner, Geo-Eligible Financing	Financing (Loan)	NYSERDA facilitated by Slipstream / EFS	Yes	a. Solar photovoltaic systems b. Ground source heat pumps c. Air source heat pumps d. Energy efficiency improvements (insulation, windows, and doors, HVAC systems, lighting, etc.)

CNY Regional Clean Energy Hub – Regional Assessment and Barriers Analysis

GJGNY Financing - Bridge Loan	Residential, Have tax liability	Financing (Loan)	NYSERDA facilitated by Slipstream / EFS	Yes, some moderate	
GJGNY Financing - On-Bill Recovery	Residential, Market Rate, <60% SMI, 60-80% AMI, Geo-Eligible Financing	Financing (Loan)	NYSERDA facilitated by Slipstream / EFS	Yes	a. Purchase and installation of solar photovoltaic systems. b. Ground source heat pumps. c. Air source heat pumps. d. Energy efficiency improvements.
HEAP - Clean and Tune (C&T)	Residential	Income-based	Federal funding, administered by NYS Office of Temporary and Disability Assistance (OTDA)	Yes	Heating system maintenance
HEAP - Cooling Benefit	Residential	Income-based	Federal funding, administered by NYS Office of Temporary and Disability Assistance (OTDA)	Yes	Cooling Assistance: Financial aid to purchase and install an air conditioner or a fan to help the home stay cool, subject to eligibility criteria.
HEAP - Emergency Benefit	Residential	Income-based		Yes	a. Restoring or preventing the shut-off of natural gas or electric heat. b. Providing emergency fuel for oil, kerosene, propane, wood, wood pellets, coal, or other deliverable heat sources. c. Necessary repairs or replacements for heating equipment.
HEAP - Heating Equipment Repair or Replacement Benefit (HERR)	Residential	Income-based		Yes	Repair or replacement of heating system
HEAP - Regular Benefit	Residential	Income-based		Yes	Utility Bill Reduction
Homes and Community Renewal (HCR) - Resilient Retrofits	Residential, <60% SMI, 60-80% AMI, Homeowner, ccASHP, <80% AMI, <120% AMI, <100% AMI	Loan/ Grant	NYS Homes & Community Renewal	Yes	a. Flood Mitigation: Measures to prevent water-related damage, including sealing spaces below flood elevation and raising mechanicals above flood levels. b. Energy Efficiency and Electrification: Upgrades to improve home energy use and transition to electric heating/cooling systems, such as installing insulation, high-efficiency appliances, and electric cold climate heat pumps. c. Onsite Generation: Addition of renewable energy solutions like solar panels or battery backup systems to complement resilience and efficiency upgrades.

CNY Regional Clean Energy Hub – Regional Assessment and Barriers Analysis

Independent Energy Efficiency Program (IEEP) Rebates	Residential and Commercial	Installation Rebate	Participating municipal electric utilities in collaboration with IEEP	Yes	a. Energy-efficient light bulbs, attic insulation, cold climate heat pumps, weatherization of homes b. Commercial refrigeration upgrades, purchase of EV, and facilitation of installation of charging station and many more..
Lead Hazard Reduction Program	Residential, <80% AMI	Income-based (grant)	Several different Federal and State agencies	Yes	a. Window and door replacement b. Exterior siding installation c. Porch repairs d. Other health and safety related repairs as needed, including addressing lead paint hazards
NYS Clean Heat - Air- to-Water ccASHPs	Residential, Commercial, Nonprofit etc.	Installation Rebates	NYS Public Service Commission regulated	Yes	Air to water cold climate air source heat pumps
NYS Clean Heat - ccASHP Full Load Heating (90-120%)	Residential, Commercial, Nonprofit etc.	Installation Rebates	NYS Public Service Commission regulated	Yes	Cold Climate Air Source Heat Pump (ccASHP)
NYS Clean Heat - GSHP Full Load Heating	Residential, Commercial, Nonprofit etc.	Installation Rebates	NYS Public Service Commission regulated	Yes	Ground Source Heat Pump (GSHP)
NYS Clean Heat - HPWH	Residential, Commercial, Nonprofit etc.	Installation Rebates	NYS Public Service Commission regulated	Yes	Air-to-Water Heat Pump Water Heaters (HPWHs)
NYS Dept. of Health - Healthy Neighborhoods Program	Residential, by referral.	Education and on-site visit	NYS Department of Health	Yes	During a visit, the home is assessed for environmental, health and safety issues. For problems or potential hazards identified during the visit, an outreach worker provides education (written and verbal), referrals and products to help residents correct or reduce housing hazards.
NYS Property Tax Exemption	Residential	Tax Exemption	NYS	N/A	Solar or wind energy systems, farm waste energy, micro-hydroelectric system, fuel cell electric generating, micro-combined heat and power generating equipment, electric energy storage, and fuel-flexible linear generator systems.
NYS Tax Credit - GSHP	Residential	Tax credit	NYS	Yes, some moderate	Installation costs, and qualified expenditures for lease payments made under a written agreement for geothermal energy system equipment.
Oswego Housing Rehab Program	Residential <80% AMI	Income-based (grant)	NYS Affordable Housing Corporation to the City of Oswego/ Administered by HHQ	Yes	Insulation, heating, plumbing, Roof, Carpentry, Masonry, replacement of windows and doors and exterior paintings

CNY Regional Clean Energy Hub – Regional Assessment and Barriers Analysis

Shape-Up for Veterans	Residential, Veteran, Homeowner, <80% AMI, municipalities	Grant	Onondaga County Community Development Office	Yes	a. Mechanical system repairs (water supply, plumbing, heating, electrical). b. Structural repairs (roofs, foundations, porches, stairs). c. Installation of safety and energy-related items (deadbolt locks, smoke detectors, grab bars, storm windows, insulation). d. Lead Hazard reduction (additional funds may be available if a child under six lives in or visits the home often and lead hazards are found).
Shape-Up Program - Safe Housing Assistance Program for the Elderly	Residential, Homeowners, Seniors, Located in Onondaga county outside Syracuse, <80%AMI	Age-based (deferred loan)	Onondaga County Community Development Office	Yes	a. Repairs: water supply, plumbing, heating, electrical. b. Structural repairs: roofs, foundations, porches, stairs. c. Safety/energy items: deadbolts, smoke detectors, grab bars, storm windows, insulation. d. Lead hazard reduction per HUD regulations. e. Extra \$10,000 for homes with children under six if lead hazards exist.
Solar for All	Residential, Homeowner, Renter, <60% SMI, power bill in their name	Utility Bill Assistance	NY State	Yes	Monthly electricity bill credits from community solar projects, reducing energy costs for eligible New Yorkers.
Syracuse Homeowner Assistance & Repair Program (SHARP)	Residential, Located in the City of Syracuse, Homeowner, <80% AMI, Building Owner	Income-based (grant)	US Dept of HUD's Community Development Block Grant Program (CDBG)	Yes	a. Structural Repairs: Including window and exterior door repair/replacement, step/railing repair. b. System Repairs: Addressing hot water heater issues, furnace repair, and electrical or plumbing emergencies.
USDA 504 - Single Family Housing Repair Loans & Grants	Residential	Financing (Loan)	USDA	Yes	a. Loans to use for repairs, improvements, or modernization of homes, and removal of health and safety hazards b. Grant exclusively for health and safety hazard removal for elderly homeowners.
Weatherization Assistance Program (WAP)	Residential ≤ 60% SMI, OR ≤ 200% of FPL, whichever is higher	Income-based	Federal funding, administered by NYS Homes and Community Renewal (HCR) to local service providers	Yes	a. Air sealing, insulation upgrades in walls, floors, and attics, duct improvement, heating system upgrades or repairs b. Energy-efficient lighting and appliance upgrades c. Window and door improvements
Zonolite Attic Insulation Trust	Residential, Homeowner, Renter, Landlord, commercial buildings	Financing	ZAI Trust Fund. Non-governmental, comes from a legal settlement	Yes	a. Reimbursement Contribution: Up to 55% of abatement costs for eligible claimants, subject to the "Allowed Value" ceiling. b. Vermiculite Abatement: Costs associated with the removal of Zonolite brand vermiculite insulation. c. Re-insulation Costs: Reasonable costs to replace the vermiculite insulation with new insulation, excluding upgrades or additional insulation beyond what's necessary for replacement. d. Fair Market Rental Cost: Potential reimbursement for fair market rental of certain equipment (e.g., HEPA vacuum) used in the abatement process, excluding purchase costs of such equipment.

F. 2: A Selection of Relevant Non-Residential Programs and Incentives for EnergySmart CNY Referrals

GJGNY Energy Study	Non-profit, Small business	Technical Assistance	NYSERDA	N/A	<p>a. Facility Evaluation: Includes a comprehensive walkthrough of the facility and interviews with site staff to identify energy-saving opportunities.</p> <p>b. Financial Analysis: Examination of past utility bills to assess current energy usage and costs, and fuel-neutral, unbiased assessment of both low-cost/no-cost and capital improvement opportunities for energy efficiency.</p> <p>c. Report Generation: Produces an energy study report detailing identified energy and cost-saving opportunities for the facility.</p>
Renew America's Nonprofits	Non-profit	Installation Rebates (grant)	Office of State and Community Energy Programs	N/A	<p>Energy efficient materials may include materials (including a product, equipment, or system) the installation of which results in a reduction in use by a nonprofit organization of energy or fuel.</p> <p>Examples include lighting upgrades, roof replacement with insulation, HVAC upgrades, and door or window replacements. Fuel-switching upgrades that will reduce both energy costs and projected carbon emissions will also be eligible. Prime recipients are encouraged to look for projects that package multiple improvements to deepen energy and cost savings and increase carbon reductions.</p>
NYS Clean Heat - Custom	Non-profit (Large), Commercial, full load	Installation Rebates	NYS Public Service Commission regulated	N/A	GSHP, HPWH, ASHP, VRF
Charge Ready 2.0	Commercial, Non-profit, Agricultural Producers	Installation Rebates	NYSERDA	Yes	<p>Provides incentives for EV charging infrastructure with these specifics:</p> <p>a. Incentives apply to Level 2 charging ports at public, private, and not-for-profit locations.</p> <p>b. Public facilities eligible must be in Disadvantaged Communities.</p> <p>c. Workplaces and multi-unit dwellings are eligible regardless of location.</p> <p>d. Additional rewards are available for promoting EV adoption at workplaces and MUDs.</p> <p>e. Eligible charging stations must be networked for data and payment processing.</p> <p>f. The program requires a five-year operational commitment for installed stations.</p>
Climate Friendly Homes - HCR	Multifamily housing that serves economically disadvantaged communities	Incentive	Administered by the Community Preservation Corporation (CPC) on behalf of the New York State Homes and Community Renewal (HCR).	Yes	<p>a. Electrification of heating systems (ccASHP, geothermal, VRF)</p> <p>b. Electrification of domestic hot water systems (HPWH). Upgrades to building envelope and ventilation systems</p>

CNY Regional Clean Energy Hub – Regional Assessment and Barriers Analysis

Affordable Multifamily Efficiency Program (AMEEP)	Multifamily <80% AMI, Landlord, Affordable Housing, 5+ Units	Financing (Incentives)	NYSERDA	Yes	Eligible Energy Efficiency Measures include windows, doors, appliance efficiency, insulation, light emitting diode (LED) lightbulbs, and water supply, among others. a. Comprehensive Pathway: Aimed at large-scale or whole-building retrofits; Offers higher incentives with a mid-project payment; Requires a minimum of 100 points for incentives, calculated per dwelling unit; Mandates an energy audit with available incentives to offset audit costs; Incentive cap at 85% of total project cost for eligible measures or \$1 million, whichever is lower. b. Non-Comprehensive Pathway: Suitable for smaller upgrades or projects below the 100-point minimum; Incentives based on installed equipment and/or energy savings.
IRA Section 48: Accelerated Depreciation	Commercial	Tax Incentives	IRS	No	a. Geothermal heat pump systems b. Installation costs including equipment and labor c. Heat pumps using the earth or groundwater for heating and cooling d. Energy-efficient upgrades to existing HVAC systems
Agriculture Energy Audit Program	Agricultural Producers, SBC Contributor	Technical Assistance	NYSERDA	N/A	a. Energy Audits: Offers free audits for farms to identify energy efficiency measures, conducted by assigned FlexTech Program Consultants. b. Greenhouse Benchmarking: Provides free benchmarking reports for greenhouse facilities, detailing energy-use intensity and comparisons with peers. c. Recommendations: Following audits, farms receive recommendations for energy efficiency upgrades and clean energy investments.

Appendix G: Community Conversations Report



From February to August in 2023, Greater Syracuse Works (GSW) Counselor created three bi-monthly reports with findings and data from conducting outreach in communities gathering information about the current state of clean energy workforce in our region.

Overview

The goal of these community conversations was to provide a complete assessment of the region’s clean energy landscape and develop recommendations for inclusion of Disadvantaged Communities (DACs) into the clean energy transition. The GSW Counselor connected with low income and disadvantaged community populations located in the City of Syracuse. We wanted to know the:

- Understanding and awareness of clean energy,
- Awareness of available funding programs,
- Interests in clean energy careers and workforce opportunities.

Methodologies

The GSW Counselor interacted with the community by tabling at events, speaking at churches, and being present at places where there could be one-on-one conversations with disadvantaged

community members like laundromats and libraries. During these conversations, the goal was to have the individual fill out a survey to gain insight of our objectives. For this in-person outreach, we provided options of filling out the survey together right then-and-there, or individuals could scan a QR code to respond to the survey on their own. By using these different methods of data collecting, we found that providing the QR code was ineffective, as it was often that most people did not follow-through and submit the survey after the conversation.

From survey collection to conversing with folks directly at events or at gathering places like churches and laundromats, in total, there are an estimated 700 individuals who were engaged in conversations about energy efficiency and clean energy workforce opportunities. It was found that priority populations living in the city were receptive to holding conversations in places like the local libraries, gas stations, laundromats, community centers, churches, and events compared to reaching out digitally like through an email.

Survey Analysis

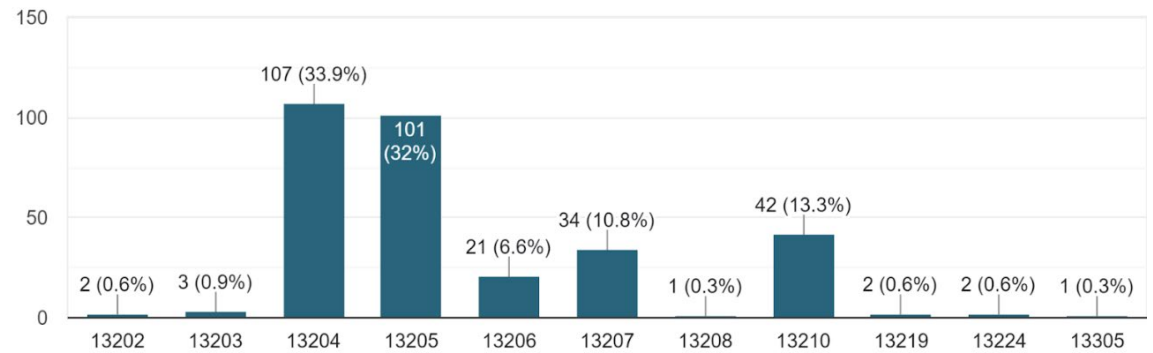
A total of 317 responses were collected from March 27 to April 26, throughout nine different zip codes. The zip codes surveyed were 13202, 13203, 13204, 13205, 13206, 13207, 13208, 13210 and 13224.

The highest number of responses were collected from residents living in 13204, 13205 and 13210 zip codes.

- 13204: about 75% of the zip code area is DAC,
- 13205: about 75% of the zip code area is DAC,
- 13210: < 50% of the zip code area is DAC.

Zip code

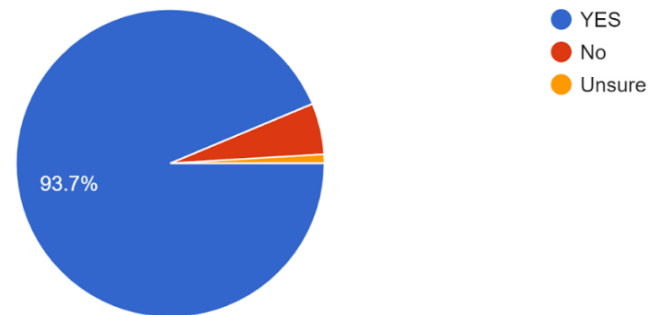
316 responses



When asked is the respondent knows what clean energy is, 93.7% of respondents selected that they do know what clean energy is, but not all are able to identify clean energy sources and technologies.

Do you know what clean energy is?

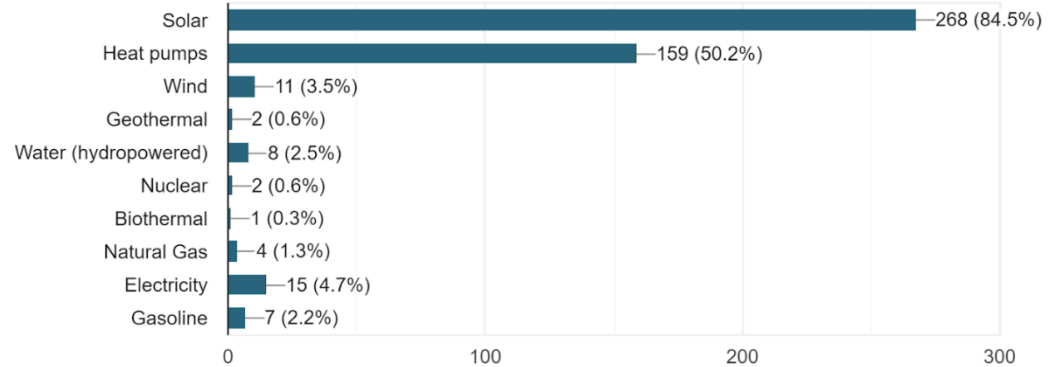
317 responses



We found that the most well-known sources of clean energy are solar and heat pumps. There were a few people who selected incorrect answers like natural gas and gasoline.

Which of these do you think are sources of clean energy? (You can pick more than one)

317 responses

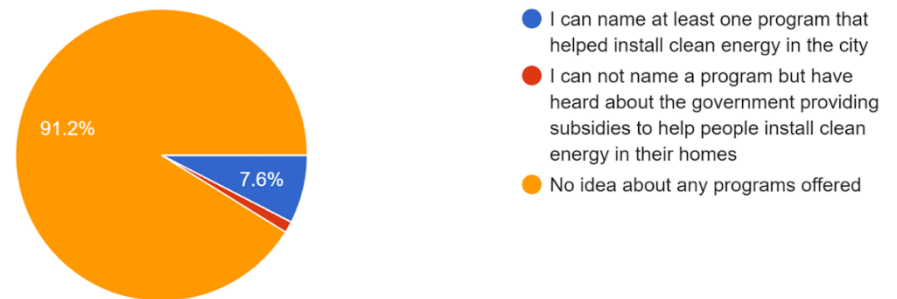


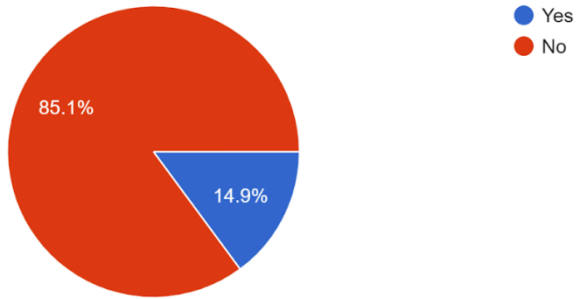
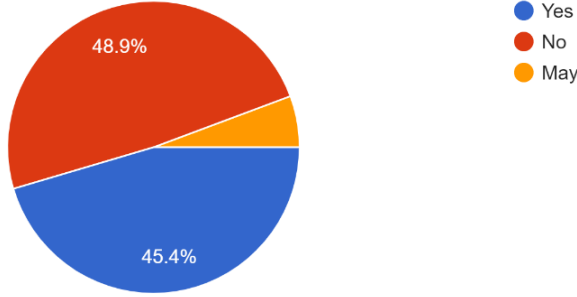
When asked if the respondent knows of any programs that can help them use clean energy/be more energy efficient, 91.2% selected that they have no idea about any programs offered.

When asked if the respondent would like more information about clean energy and available government programs, 65% of the respondents selected yes.

Do you know there are programs that can help you use clean energy/be more energy efficient?

317 responses



<p>When asked if homeowners would be interested in installing solar panels or heat pumps, 85% of the respondents selected No.</p>	<p>HOMEOWNERS ONLY: If you own your home, are you interested in installing solar panels or heat pumps? 309 responses</p>  <p>A pie chart with two segments. The larger segment is red and labeled '85.1%'. The smaller segment is blue and labeled '14.9%'. A legend to the right shows a blue circle for 'Yes' and a red circle for 'No'.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Yes</td><td>14.9%</td></tr><tr><td>No</td><td>85.1%</td></tr></tbody></table>	Response	Percentage	Yes	14.9%	No	85.1%		
Response	Percentage								
Yes	14.9%								
No	85.1%								
<p>The survey then asked if the respondents have considered working in the clean energy industry. There was almost a 50/50 split, with nearly half of respondents selecting No, 45% of respondents selected Yes, about 5% selected maybe.</p> <p>Many respondents had never considered working in the clean energy industry. 41.5% of respondents would like more information about clean energy jobs.</p>	<p>Have you considered working in this industry? 317 responses</p>  <p>A pie chart with three segments. The largest segment is red and labeled '48.9%'. The second largest is blue and labeled '45.4%'. The smallest is yellow and unlabeled. A legend to the right shows a blue circle for 'Yes', a red circle for 'No', and a yellow circle for 'Maybe'.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Yes</td><td>45.4%</td></tr><tr><td>No</td><td>48.9%</td></tr><tr><td>Maybe</td><td>5.7%</td></tr></tbody></table>	Response	Percentage	Yes	45.4%	No	48.9%	Maybe	5.7%
Response	Percentage								
Yes	45.4%								
No	48.9%								
Maybe	5.7%								

As a follow-up question, we received 22 responses on the types of training/education they would be interested in. The options that were given to select:

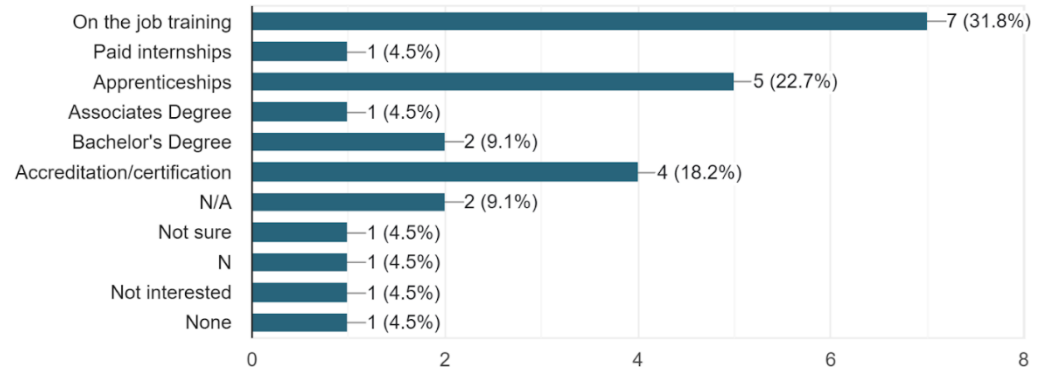
- on-the-job training
- paid internships
- apprenticeships
- associate’s degree
- bachelor’s degree
- accreditation/certification

The top three answers that were selected were on-the-job training, apprenticeships, and accreditation/certifications.

A total of 23 respondents provided contact information to receive more information about jobs and/or clean energy programs. The following summarization of the data shows different patterns and data found through the surveys.

What types of training would you be interested in? Pick all that apply

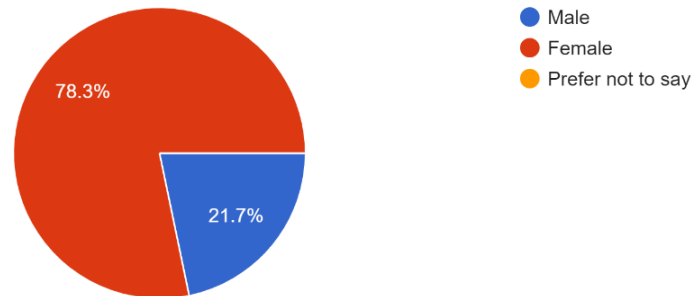
22 responses

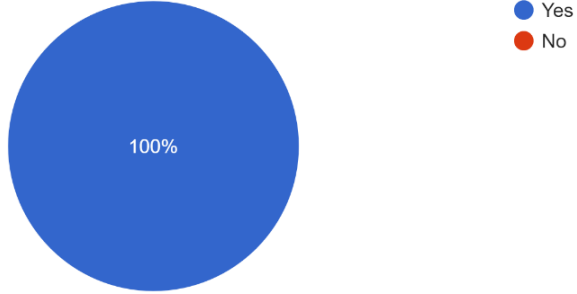
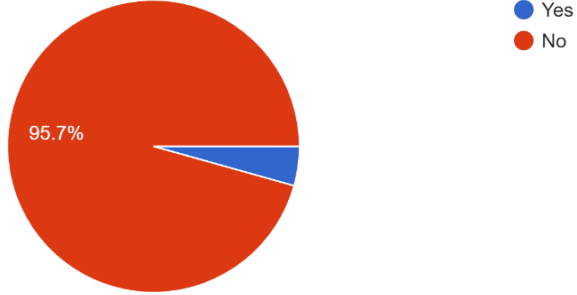


Of the responses, a majority (78%) were females, with a smaller percentage (22%) of males.

Gender

23 responses



<p>It was found that 100% of respondents wanted follow-up information about weatherizing their homes.</p>	<p>Would you like a follow up about weatherizing your home? 23 responses</p>  <p>A pie chart with a single blue slice representing 100% of the responses. A legend to the right shows a blue dot for 'Yes' and a red dot for 'No'.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Yes</td><td>100%</td></tr><tr><td>No</td><td>0%</td></tr></tbody></table>	Response	Percentage	Yes	100%	No	0%
Response	Percentage						
Yes	100%						
No	0%						
<p>Out of 23 responses, only 4.3% of respondents selected that they would like more information about clean energy jobs and training.</p>	<p>Would you like to get more information about jobs and training in this field? 23 responses</p>  <p>A pie chart with a large red slice representing 95.7% and a small blue slice representing 4.3%. A legend to the right shows a blue dot for 'Yes' and a red dot for 'No'.</p> <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Yes</td><td>4.3%</td></tr><tr><td>No</td><td>95.7%</td></tr></tbody></table>	Response	Percentage	Yes	4.3%	No	95.7%
Response	Percentage						
Yes	4.3%						
No	95.7%						

Summary

Consistently, we find that folks ask similar questions. These questions are often generated from lack of trust and limited awareness which becomes a barrier for members of disadvantaged communities and/or priority populations to take advantage of the available resources that are currently available for energy efficiency improvements to their home or interest in joining the clean energy workforce. It was found that visiting the same places regularly helps build the trust needed to make these connections.

Gathering information through conversations revealed that post-pandemic, some low-to-median individuals as well as individuals living in disadvantaged communities have been displaced and are living with family members until they find a place of their own. When presenting information on the opportunities they may very well qualify for, they express it is not their priority. They feel they need stable housing before trying to seek housing improvement opportunities. For rental properties, tenants have expressed that they do not want to go through the effort to improve the property owner’s building because of the poor relationship with their landlord and the landlord’s neglect to provide quality housing or improvements to the building.

It was also found that respondents have concerns regarding their lack of education and knowledge for clean energy and energy efficiency. This lack of knowledge could directly result in them not receiving the available opportunities to improve the energy efficiency of their home. Respondents spoke about the opportunities that were presented as if they would only be for people in higher-income areas. Additionally, respondents expressed concerns about not understanding the eligibility and an assumption that these energy efficiency improvement opportunities would be for higher-income folks.

Common Questions Asked

<p>Questions regarding EmPower+ Grant:</p> <ul style="list-style-type: none"> • Does it cost? • Is this a loan? • Will this mess with my HEAP grant next year? • What are the requirements to receive this? • Is this for homeowners only? • Does it cost my landlord? • Will I need to provide tax information? 	<p>Questions regarding solar panels:</p> <ul style="list-style-type: none"> • Do they cost? • What are the requirements to receive them? • Who pays for it? • Are they only for homeowners? • Can they move with me if I move to a different rental property? • How do they work?
--	--

<p>Questions regarding heat pumps:</p> <ul style="list-style-type: none">• What are heat pumps?• Will it save me money?• Can they get installed at rental properties?• Do the landlords have to say yes?• Does this go through National Grid?	<p>Questions regarding employment?</p> <ul style="list-style-type: none">• Where are the jobs?• Do you need a license or degree?• What if I don't have any experience?• Will they train me? Will I get paid for the training? Hiring?• When will they be?• Does training guarantee a job?
--	---

Appendix H: AGREE Community Survey



CENTRAL NEW YORK REGIONAL CLEAN ENERGY HUB

Making Energy Improvements to Your Home

EnergySmart CNY is a NYSERDA-supported project of the CNY Regional Planning and Development Board, Alliance for a Green Economy, and Greater Syracuse Works, serving as your Regional Clean Energy Hub.

We are working to connect our community with the growing clean energy opportunities, including jobs, funding for energy efficiency improvements to homes or buildings, solar and heat pumps where appropriate.

This 10-minute survey will enable us to more effectively help you and other Central New Yorkers. In appreciation for your time, we are offering a **chance for CNY residents to win one of 6 gift cards, each worth \$50!**

This survey may be completed anonymously, or you have the option to leave your contact information if you wish to be entered in the drawing or have further assistance from our energy advisors. Your contact information and associated responses will be kept confidential and not shared with anyone outside of the EnergySmart CNY team. Published findings of the survey will be aggregated and anonymous.

Thank you! Let's get started.



You can also take the survey online →

Page 1 of 8

Tell us about your situation

These final questions let us know about your energy situation and your background. Optionally, this section will collect your name, phone number, and email address, in case you want to learn more about energy programs. It's also so we can send you the gift card!

Are you a renter or do you own your home?

- Renter
 Homeowner

How many units are in your building?

- Single family home
 2 - 4 units
 5 - 50 units
 More than 50 units

How do you heat and cool your home? (Select all that apply)

- Gas Furnace
 Oil Furnace
 Propane Furnace
 In window/through wall AC units
 Electric Fans
- Electric Baseboard
 Space Heaters
 Central AC
 Cross Ventilation
 I don't know
 Other

If you chose "Other," let us know why

Page 5 of 8

What kinds of energy and home improvements interest you the most?

This helps us understand your priorities and concerns with energy and home improvements.

Assuming that you could make all the improvements you wanted, regardless of costs, what would you do? (check all that apply)

- Have my home's energy-use assessed and get improvement ideas
 Get new energy-saving appliances (stove, lights, washer, dryer, etc.)
 Weatherize my windows
 Replace my windows
 Upgrade my insulation and seal air leaks in my home
 Replace my furnace with a cold climate heat pump
 Replace my furnace with a geothermal heat pump
 Get energy-saving air conditioner(s)
 Install a heat pump water heater
 Install solar panels
 Enroll in a community solar program
 Install an Electrical Vehicle (EV) charger
 None of the above
 Other

Page 2 of 8

What is the main language spoken in your home?

- English
 Spanish
 Mandarin
 Other

If you chose "Other," let us know which language

How many people reside in your home?

- 1 (just me)
 2
 3
 4
 5
 6 or more

What is your annual household adjusted gross income?

- Less than \$20,000
 \$20,000 to \$39,999
 \$40,000 to \$49,999
 \$50,000 to \$79,999
 \$80,000 to \$100,000
 More than \$100,000
 Decline to state

Page 6 of 8

Do you know or suspect your home has any of the following issues? (check all that apply)

- Structural concerns
 Knob and tube wiring
 Mold or moisture issues
 Asbestos around ductwork or in attic insulation
- Broken windows
 Lead paint
 Holes in walls
 Broken heating systems
 Other

How Renters & Homeowners Can Reduce Energy Bills & Usage

There are New York State programs that can help both renters and homeowners reduce their energy use and utility bills, improve their heating systems, and get power from the sun. These programs are free or low-cost for income-eligible households. But there are also programs for all income levels.

Which of the following programs have you heard about? (Select all that apply)

- EnPower+
 Comfort Home
 Weatherization Assistance Program
 Community Solar
 Home Energy Assistance Program (HEAP)
 NYS Clean Heat
 Inflation Reduction Act Tax Credits and Rebates
 None of the Above
 Other

Page 3 of 8

What is your age?

- Under 18 - 24 years
 24 - 44 years
 45 - 64 years
 65 years and older
 Prefer not to say

How would you describe your race or ethnicity? (Select all that apply)

- Native American, American Indian, or Alaska Native
 Asian or Asian American
 Black or African American
 Hispanic, or Latina, Latino, Latinx, or Spanish Origin
 Native Hawaiian or Other Pacific Islander
 Middle Eastern
 White
 A mix of two or more races
 Prefer not to say

If you don't see yourself in the list provided, please self-describe:

What is your highest level of formal education?

- Less than high school
 High school diploma or equivalent
 Some college
 Associate degree
 Bachelor's degree
 Graduate or Professional degree
 Decline to state

Page 7 of 8

Have you applied for any of these programs?

- Yes
 No

Do you know anyone who has applied for these programs?

- Yes
 No

Where Do You Learn About Energy and Programs?

Providing this information, will help us spread knowledge and news to more people if we have a good idea of where those people are turning to for info.

Where do you get your information about making improvements? (Select all that apply)

- Television, TV
 Radio
 Friends
 Family
 Church, Synagogue, Mosque, Temple
 Work
 Public Events
 Newspapers
 Newsletters
 Social Media
- Flyers/Mailers
 Websites (NYSERDA, your utility's, etc.)
 Utility Companies
 HVAC or building contractors
 Non-profit or community-based organizations
 None of the above
 Other

From the list above, which is your main source of information?

Page 4 of 8

I want more information about energy programs

Yes ___ No ___

Zip Code _____

Please share your contact info to receive more information and/or to enter to win a \$50 Gift Card.

Name: _____

Telephone: _____

Email: _____

Thank you for sharing your experience!

If you have any questions or concerns, please reach out to us - advisor@energysmartcny.org or visit EnergySmartCNY.org

Use the QR Code to visit our website:



Page 8 of 8

The following tables represent survey responses by question. Unless otherwise noted, the actual number of responses are indicated (out of a total of 349 respondents).

Section One: Improvements

Assuming that you could make all the improvements you wanted, regardless of costs, what would you do? (select all that apply)		Do you know or suspect your home has any of the following issues? (select all that apply)	
Envelope Improvements	185	Structural concerns	59
Replace Windows	163	Knob and tube wiring	30
Energy Efficient Appliances	162	Mold or moisture issues	94
Energy Assessment/Audit	135	Asbestos around ductwork or in attic insulation	38
Weatherize Windows	123	Broken windows	50
Solar Panels	129	Lead paint	43
Energy efficient AC	112	Holes in walls	38
Upgrade furnace to heat pump	99	Broken heating systems	28
Heat Pump Water Heater	91	Other	52
Community Solar	85	None of the above	42
Geothermal heat pump	68		
EV charging station	61		
None of the above	24		
Other	15		

Section Two: Programs

<i>Which of the following programs have you heard about?</i>	
Home Energy Assistance Program (HEAP)	252
Weatherization Assistance Program	135
Community Solar	128
Inflation Reduction Act	89
EmPower+	66
NYS Clean Heat	52
Comfort Home	47
None of the Above	42

<i>Have you applied for any of these programs?</i>	
Yes	128
No	219

<i>If yes, how far did you go?</i>	
Applied, but did not qualify	3
Applied, but did not hear back	5
Applied and approved, but challenges prevented the work from being done	4

Applied and am currently in the program	25
Applied and benefitted from the program	33

<i>Let us know why you did not apply</i>	
Unsure if I am eligible	75
Unsure if it is within my budget	37
I did not know about the programs	30
I did not know how to apply	21
My home is already energy efficient	17
I am afraid of being scammed	8
I don't want people coming to my house	5
Rent covers my utilities	5
Other	26

<i>Do you know anyone who has applied for these programs</i>	
Yes	128
No	219

<i>If yes, were they generally satisfied with their experience</i>	
Yes	37
I don't know	29
No	3

<i>In what way can these programs be improved? (Open ended question)</i>	
Responses	32
Common themes*	
Need for authoritative and transparent information sources	6
Single clearing house	4
Simplified applications	5
Lower costs, partial programs, more upfront savings	6

* As grouped after the fact by the survey administrators

Section Three: Information Sources

<i>Where do you get your information about making improvements? (select all that apply)</i>	
Television, TV	105
Radio	55
Friends	152
Family	95
Church, Synagogue, Mosque, Temple	20
Work	50
Public Events	87
Newspapers	71
Newsletters	54
Social Media	126
Flyers/Mailers	93
Websites (NYSERDA, your utility's, etc.)	128
Utility Companies	84
HVAC or building contractors	28
Non-profit or community-based organizations	115
None of the above	15
Other	19

Section Four: Demographics

<i>Bldg Type</i>	<i>Renter</i>	<i>Homeowner</i>
Single-family home	36	251
2 - 4 units	34	9
5 - 50 units	5	1
> 50 units	9	0
Total	85	263

<i>How do you heat and cool your home? (Select all that apply)</i>	
Gas Furnace	189
Oil Furnace	36
Propane Furnace	33
In window/through wall AC units	94
Electric Fans	93
Electric Baseboard	31

Space Heaters	40
Central AC	67
Cross Ventilation	32
I don't know	7
Other *	92

* Heat pumps (and mini splits) and wood (pellet) stoves were frequently cited in the "Other" category.

<i>What is the main language spoken in your home?*</i>	
English	341
Spanish	5
Other	2

* Note: this survey was administered in English

<i>How many people reside in your home</i>	
1	77
2	140
3	79
4	41
5	23
6 or more	17

<i>What is your annual gross adjusted income?</i>	
< \$20,000	60
\$20,000 to \$39,999	76
\$40,000 to \$49,999	34
\$50,000 to \$79,999	61
\$80,000 to \$100,000	36
>\$100,000	51
Decline to state	27

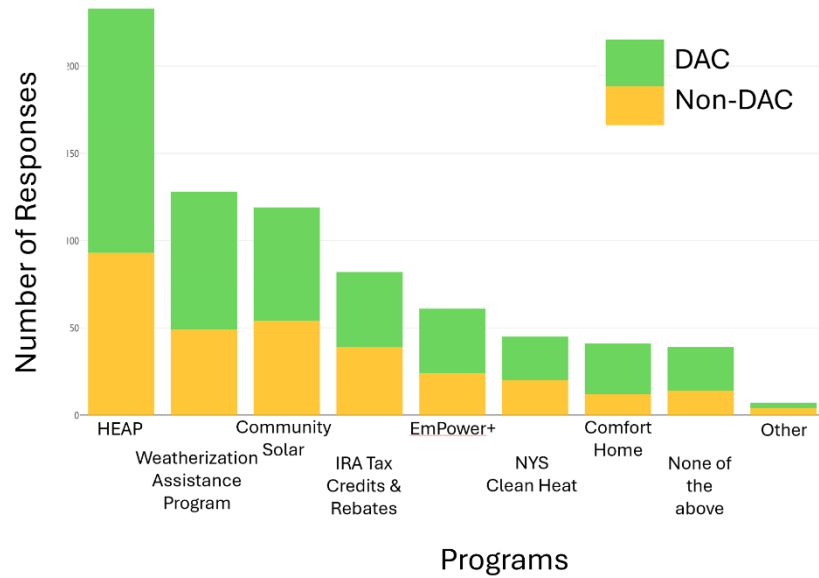
<i>What is your age?</i>	
18 – 24	13
25 - 44	86
45 - 64	118
65 or older	121
Prefer not to say	9

<i>How would you describe your race or ethnicity?</i>	
Native American, American Indian, Alaska Native	8
Asian or Asian America	13
Black or African American	29
Native Hawaiian or Other Pacific Islander	2
Hispanic, or Latina, Latino, Latinx, or Spanish Origin	13
Middle Eastern	3
White	260
A mix of two or more	16
Self-describe*	5
Prefer not to say	19

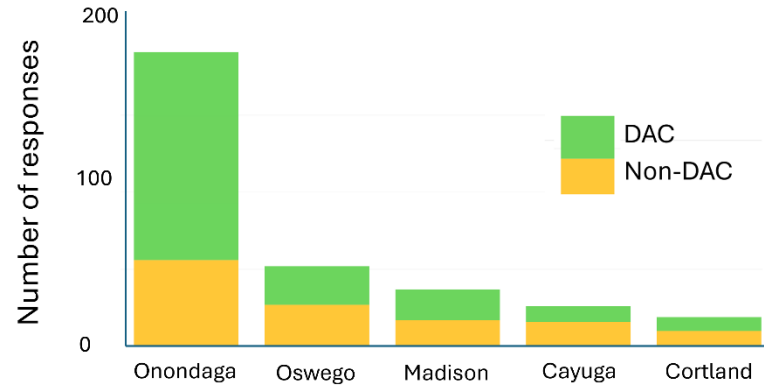
* Two wrote “European American” and 3 wrote “Mediterranean”

<i>What is your highest level of formal education?</i>	
Less than high school	11
High school diploma or equivalent	75
Some college	57
Associate’s degree	31
Bachelor's degree	69
Graduate or professional degree	96
Decline to state	9

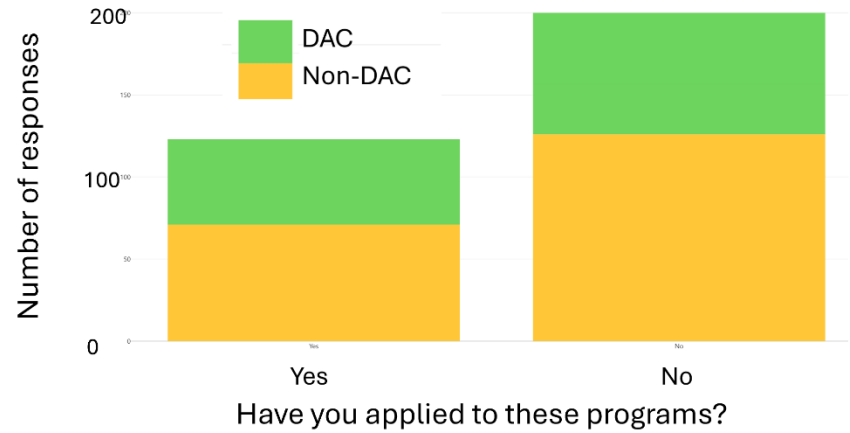
Program Awareness, by DAC v. Non-DAC Status



DAC v. Non-DAC Status, by County



Application to Programs, by DAC v. Non-DAC Status



Appendix I: Contractor Survey 2024

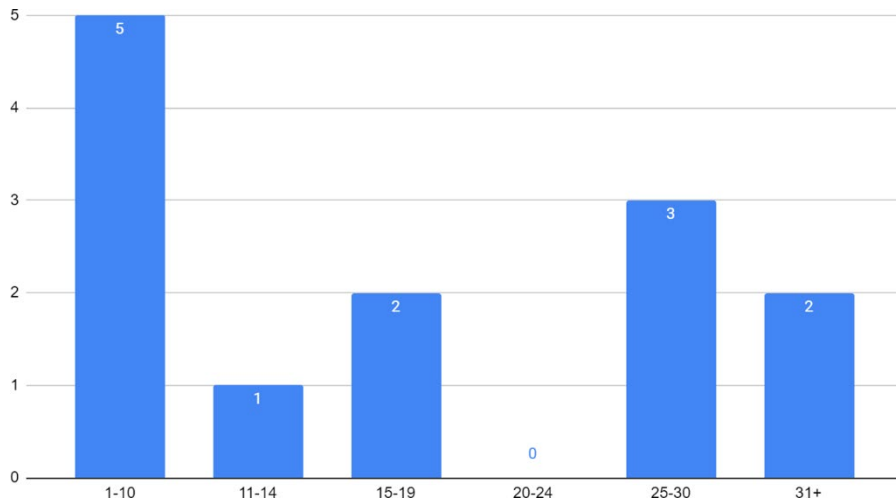
Methodology

NYSERDA’s Regional Clean Energy Hub for Central New York, EnergySmart CNY, emailed surveys to local clean energy companies to gather information on the clean energy workforce in our region. The information gathered assists in referring customers as well as potential employees and supports the strategy of development to grow the clean energy economy in the Central New York region.

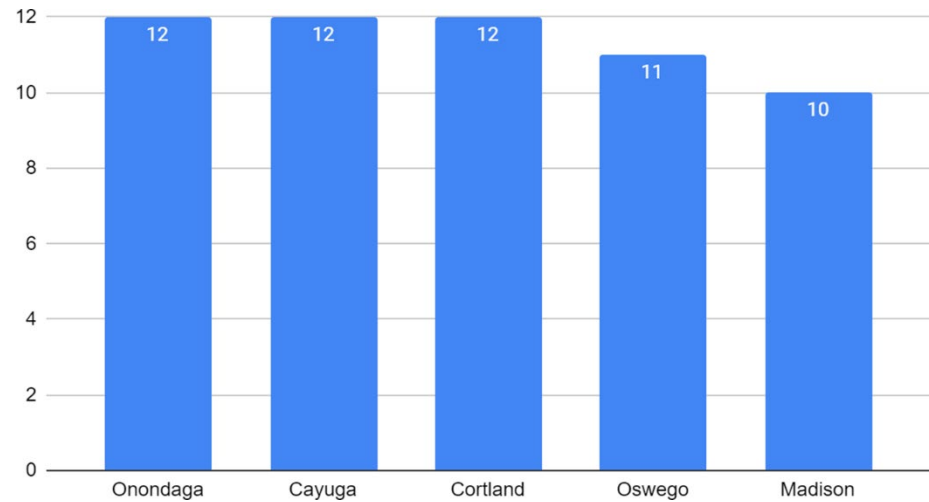
There were 13 surveys received from both smaller size and larger size companies with employee count ranges from 1-10 employees to 31+ employees. The companies who submitted the survey are: Kozy Heating & Air Conditioning, Halco Energy, Dailey Electric, Renaissance HVAC, NP Environmental, American Plumbing, Heating & Cooling, Syracuse Energy Systems, Lake Country Geothermal, Nickels Energy Solutions, Gomez Comfort Systems, Zerodraft, Energy Savers and Simply Installs Heating & Air Conditioning.

Survey Results

WHAT IS YOUR CURRENT STAFF COUNT?



WHICH COUNTIES DOES YOUR COMPANY SERVE?



[NYSERDA'S WORKFORCE PROGRAM PARTICIPATING EMPLOYERS LIST](#)
(OF THE 13 BUSINESSES WHO SUBMITTED THE SURVEY)

On-the-Job Training (PON 3982):

- Halco Energy
- Dailey Electric
- NP Environmental
- Lake Country Geothermal
- Zerodraft
- Energy Savers
- Simply Installs

Clean Energy Internship Program (PON 4000):

- Lake Country Geothermal

Not on list:

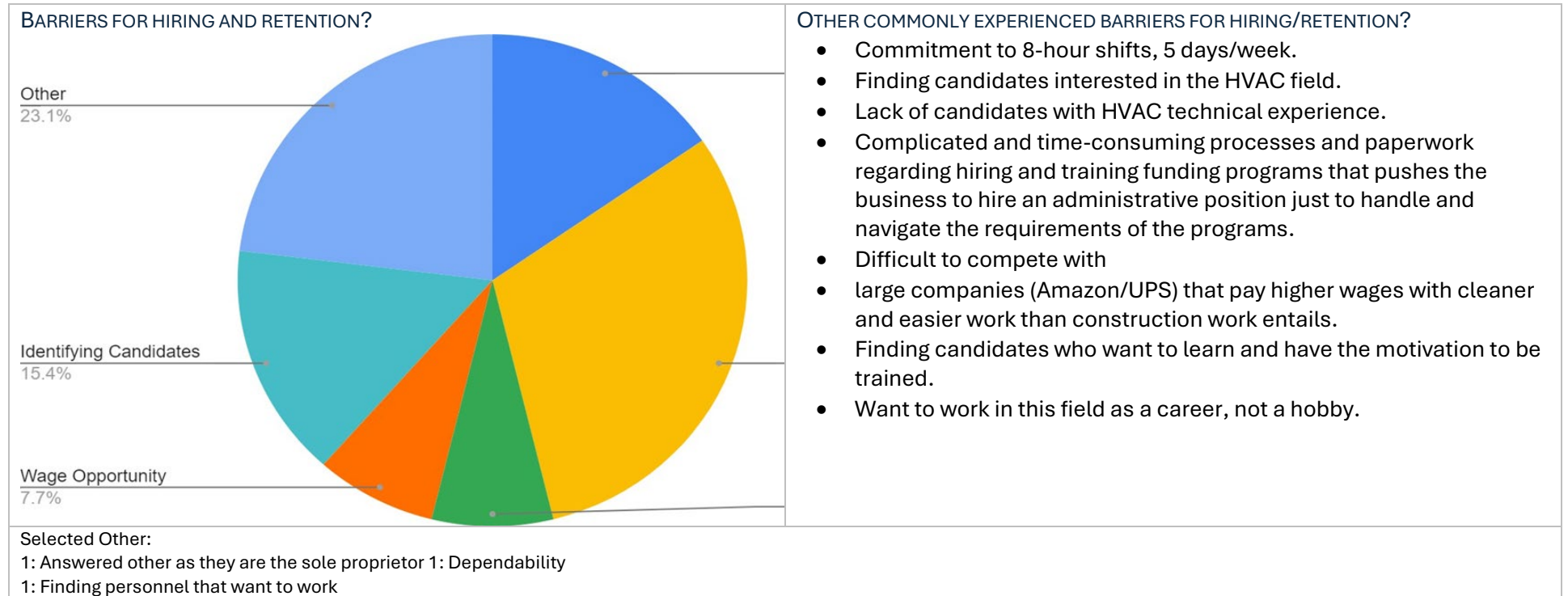
- Kozy Heating & Air Conditioning
- Renaissance HVAC
- American Plumbing, Heating & Cooling
- Syracuse Energy Systems
- Nickels Energy Solutions
- Gomez Comfort Systems

Not on currently on the Participating Employers List but answered Yes to providing NYSERDA funded on-the-job training: Kozy Heating & Air Conditioning, American Plumbing, Heating & Cooling, Syracuse Energy Systems, and Nickels Energy Solutions

Data Discrepancies

When answering 'What programs have you worked with?':

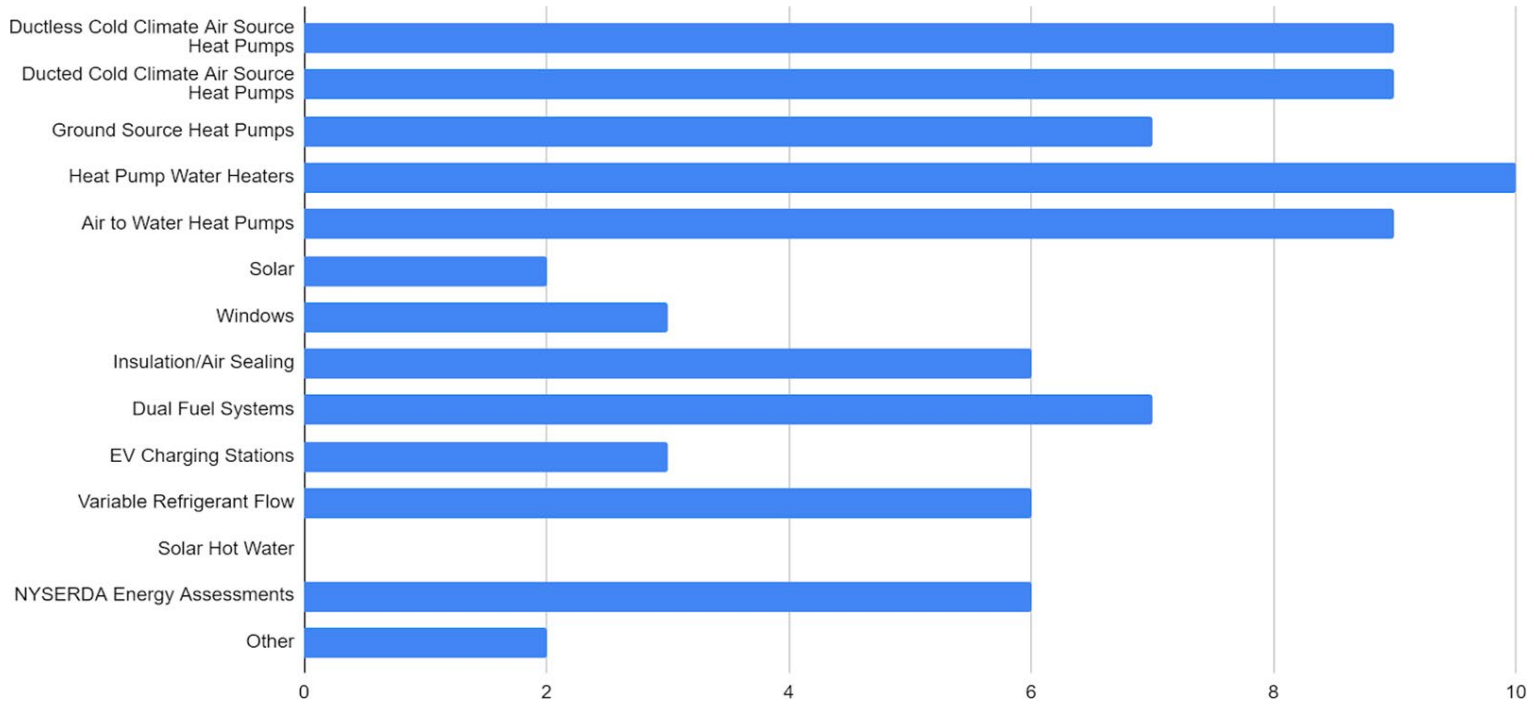
- Halco Energy, NP Environmental and Nickels Energy Solutions all selected that they *have* worked with the NYSERDA Internships (PON 4000), but they are *not* currently listed on the NYSERDA Workforce Program Participating Employers List as approved for PON 4000.
- Lake Country Geothermal did *not* select having worked with the NYSERDA Internships, but they *are* listed on the Participating Employers List for PON 4000.
- Syracuse Energy Systems selected having worked with the NYSERDA On-the-Job Training (PON 3982), but they were *not yet an approved employer* until after this survey response was submitted.



WHAT ARE YOUR REQUIREMENTS FOR AN ENTRY-LEVEL POSITION?

- Clean and valid driver's license
- Clean background check
- Reliable transportation
- High school diploma/GED
- Ability to follow direction.
- Welcoming personality and ability to have a good relationship with other team members
- Desire to learn
- Dependability and commitment
- Mechanical, construction and/or electrical experience
- HVAC experience
- Ability to develop understanding of insulation materials and equipment, and sidewall and attic installation techniques with provided training
- Ability to read and comprehend technical documents
- Physically able to bend, lift 50 lbs., crawl in confined spaces, climb ladders, and use power and hand tools

WHAT TYPES OF WORK DO YOU PERFORM?



Other: 2

1: plumbing, electric, battery storage, basement waterproofing, healthy home

1: commercial geothermal

ISSUES/CONDITIONS YOU FACE WHEN DEALING WITH OLDER HOMES?

The housing stock in CNY has many very old homes that offer all kinds of challenges, but we are prepared to tackle them.
None that can't be dealt with. We retrofit them all the time.
Nothing that we don't overcome.
Winterization upgrades- Homes with boilers are not candidates for geothermal. Can do air source heat pumps but folks do not like the line sets on the sides of their homes.
Many logistical challenges.
Access for distribution, and cost barriers.
Electrical work.
NYSERDA funding doesn't support fuel changes. Also, the cost to meet the NYSERDA guidelines for air source heat pumps.
Electric panels need to be upgraded, rafters need to be structurally reinforced, etc.
Asbestos
Vermiculite, Knob and Tube, if the house is full of it then we have to walk away.
Knob and Tube wiring, wet basements, asbestos and lead. Getting extra funding for corrections so the home can be insulated.
Typically leaky, older single-pane windows, larger sizes require multiple ODUs, older home construction was not nearly as regulated with standards as they are now, they were not designed to be easily cooled with ductwork. We still encounter asbestos in older houses.

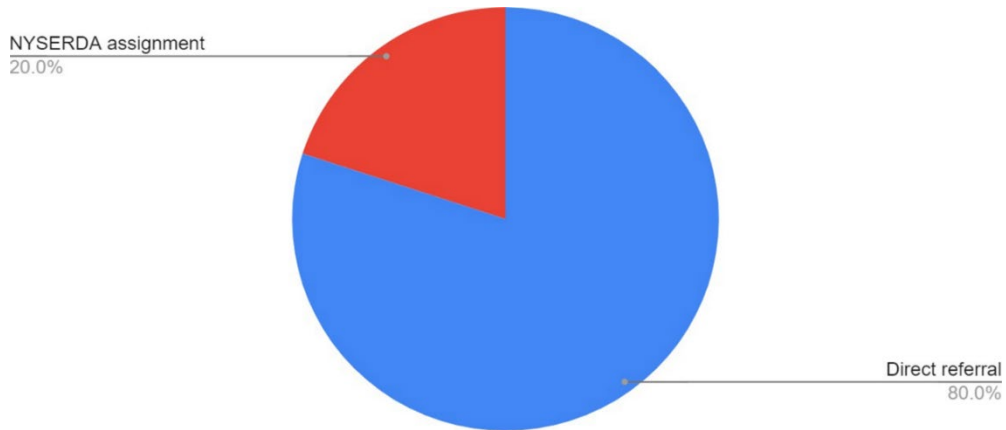
WHAT ARE THE CHALLENGES YOU HAVE EXPERIENCED IN WORKING WITH NYSERDA PROGRAMS?

Navigating the paperwork is a challenge.
A lot of paperwork.
Paperwork and getting different approvals depend on the reviewer being new or experienced.
Jumping through the hoops to comply for the rebate.
Getting through the rebate program.
Too much bureaucracy without reality check whether it's adding value for the time spent.
New portal and system were not developed to support the demands to meet new states or the federal goals for IRA goals.
The application process takes too much time. The NYSERDA solar incentive gets weaker over time. Now, for small projects I don't even use NYSERDA rebate because the incentive is not worth the effort.
Changes are never smooth, and the expected timeline is always longer than expected. Exceptions are not made so LMI homes are rejected for inappropriate reasons. Not providing low interest loans for windows. Taking too much authority away from our account managers, so they cannot make real time decisions without having to ask someone else.
The ever-changing nature of the programs and the large number of resources that are required by us contractors to make the changes causes pain. We strive to become as efficient and effective as possible with the NYSERDA programs, but when they change, we need to restart our processes all over again. We understand the need to evolve and change programs, but they should be kept to a minimum and be as streamlined as possible.
Consistency and communication.

The size of the system needed to meet minimum requirements.

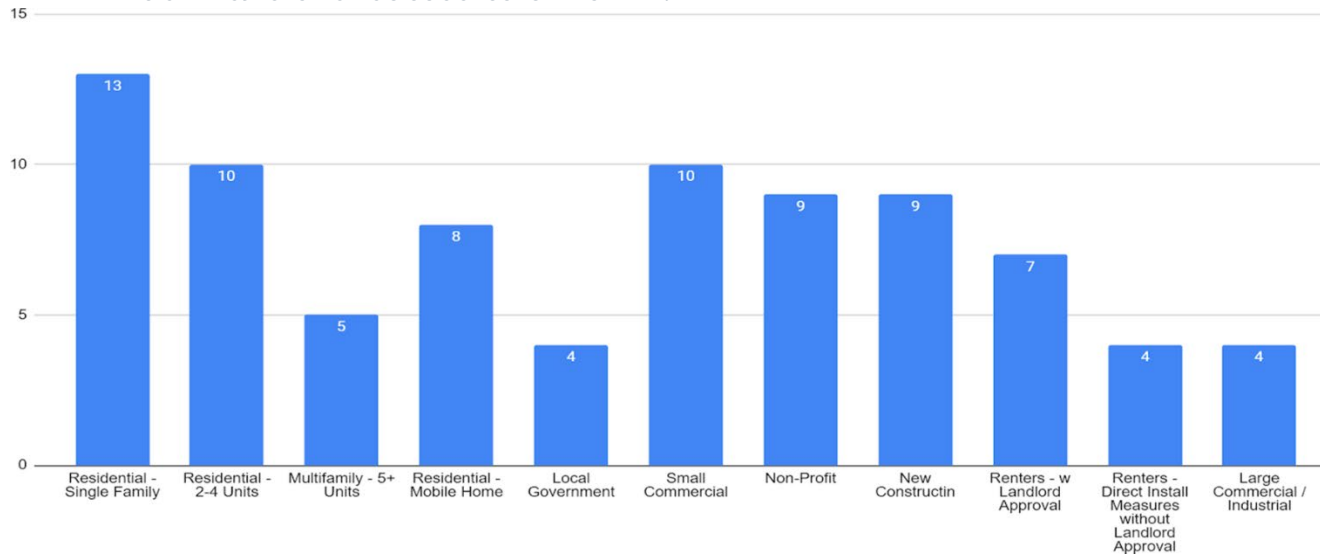
We have had good luck with NYSERDA programs- We underutilize them and should be more familiar with them and how to offer to the customers.

HOW DO YOU PREFER TO RECEIVE LEADS FOR PROGRAMS LIKE EMPOWER+?

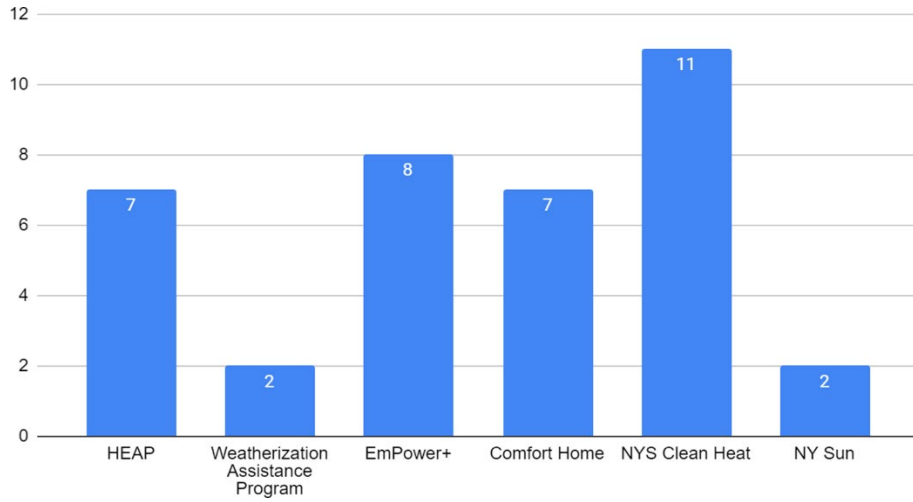


Direct referral is much more preferred than receiving leads through NYSERDA assignment.

WHAT TYPES OF PROJECTS DO YOU SUCCESSFULLY SERVE?



WHICH PROGRAMS DO YOU PARTICIPATE IN?



WHICH FINANCING OPTIONS DO YOU OFFER TO YOUR CUSTOMERS?

