Regional Assessment & Barriers Analysis

Queens & Staten Island Regional Clean Energy Hub

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CLEAN ENERGY HUB OF QUEENS AND STATEN ISLAND

NEW YORK STATE | Regional Clean Energy Hub
Partnering Organization

Acknowledgements

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Contents

I. Executive Summary

The Queens and Staten Island Regional Assessment and Barriers Analysis (RABA) reveals entrenched barriers to home energy upgrades and green employment across the region. These barriers manifest in inequitable program impacts, with disadvantaged communities (DACs) receiving far fewer benefits from the New York State Energy Research and Development Authority's (NYSERDA) programs.

Despite these barriers, the Hub and NYSERDA have opportunities to improve program uptake and equity, especially in DACs, by better listening to what communities need and tailoring approaches in response. RABA findings draw from extensive public engagement, data analysis, and secondary research, and the combined expertise of the Hub team.

Key Takeaways

- **Baseline Regional Characterization and Baseline Assessment of Clean Energy Program Participation**

Sociodemographics
Queens and Staten Island DACs are among the most ethnically diverse communities in the state, and are home to over a third of the region's residents. More than 60% of DAC residents in Queens and more than 40% in Staten Island speak a language other than English at home. The median income in DACs is not a living wage.

Building and Sector Assessment
There is a high proportion of 1-4 unit buildings in both boroughs, though Queens' building stock is more varied. Many homes are older and have maintenance problems, and also subject to escalating environmental hazards. Residents face very high housing and energy costs, and low- and moderate-income (LMI) residents are particularly struggling. Renters make up a majority of DAC residents in Queens, and almost half in Staten Island.

Clean Energy Workforce
The region's green economy is small but growing, driven by strong climate policies and investment. Nearly half of jobs in the green economy are in building decarbonization, but other sectors, like offshore wind, are projected to grow. White workers are overrepresented in green sectors and disproportionately work in higher-paying jobs. The green economy offers lower barriers to entry and better salaries than other high-demand fields. Expanding training programs will be key to helping workers get jobs while enabling the industry to diversify.

Baseline Assessment of Clean Energy Program Participaton
NYSERDA residential programs have had highly inequitable impacts, and are not meeting the equity goals of the Climate Leadership and Community Protection Act (CLCPA). Disadvantaged communiteis with lower incomes, lower English proficiency, more apartments and more renters are the most under-resourced populations within each borough.

• Barriers

Information Overload and Misinformation
Residents face an overwhelming amount of information from various sources, including misinformation and scams, particularly in immigrant and elderly communities.

Knowledge Gaps
Awareness of clean energy technologies and programs is unevenly distributed, with marginalized communities being less informed. The process of going through incentive programs is very complex and confusing, requiring research and time commitment that DAC communities struggle to prioritize.

Language and Cultural Barriers
The linguistic and ethnic diversity of Queens and Staten Island poses challenges for outreach, and NYSERDA has not made enough effort to address these barriers.

Complex Building Stock
Queens' and Staten Island's building stock is older and more complex than in most communities statewide. Homes often need health and safety repairs that are not covered by existing programs.

Inadequate Incentive Programs
Current LMI incentive programs have overly restrictive qualifying criteria and do not meet low-income families' needs. Upgrades can still be too expensive after incentives are applied.

Poor Options for Renters
Renters have few options to substantially retrofit their homes. Renters receive fewer benefits than building owners when homes are upgraded.

• Opportunities

Community Networks and Partnerships
Existing trusted community-based organizations (CBOs) and electeds have reach into the region's diverse communities and are interested in getting more involved in the green economy. Word of mouth is a powerful outreach method that can be leveraged.

Wide Interest and Low Program Adoption
There is wide interest in both home energy upgrades and green workforce opportunities, but existing programs have low participation. There is wide untapped demand.

Improved Technology and Opportunities
Funding from the Inflation Reduction Act (IRA) and other sources, policies like Local Law 97, and improved technologies are expanding access to home energy upgrades and the green economy.

• Recommendations

Launch Marketing Campaigns
The Hub and NYSERDA should launch multilingual campaigns to promote Hubs and available incentives, demystify technologies and programs, and dispel misinformation, targeting DACs.

Build Partnerships
The Hub should partner with CBOs, contractors, and green employers to strengthen its network.

Simplify and Expand Programs
NYSERDA should identify ways to simplify programs, develop strategies and programs to help renters and people with home repair needs, and use new funding streams to expand access.

Learn from the Hub
NYSERDA should learn from the Hub about the unique qualities and diversity of the region and tailor programs and outreach in response.

Support and Expand the Hub
NYSERDA should ensure that the Hub is equipped to help clients navigate the green economy through investment in training and marketing, and provide the Hub with more funding commensurate with the task of helping the region's vast and diverse DAC communities access the green economy.

II. Baseline Regional Characterization

Baseline Regional Sociodemographics

See Appendix A for a more detailed discussion of the topics covered here.

Over a third (36%) of Queens residents, and 29% of Staten Island residents, live in DACs.[4] DACs are found throughout Queens, but are concentrated in Western and Central Queens (in neighborhoods like Corona and Long Island City), Southwestern Queens (in neighborhoods like Richmond Hill), and the Rockaways (Map 1). DACs are concentrated in Staten Island's North Shore, in neighborhoods like Stapleton, St. George, and Port Richmond (Map 2).

Table 1. Population, Age, and Sex[1,2]

		Queens	Queens DACs	Staten Island	Staten Island DACs
Total Population		2,393,104	850,109	493,194	141,077
Age	Under 18	21.9%	21.6%	22%	22.6%
	18-64	60.8%	64.8%	61.7%	63.5%
	65+	13.6%	13.6%	16.3%	13.9%
Sex	Male	48.8%	49.5%	48.8%	48.8%
	Female	51.4%	50.5%	51.2%	51.2%

Only 25% of Queens residents are white alone, and only 16% of DAC residents are white, compared to 55% of NYS residents.

• Race & Ethnicity

Queens is the most diverse county in the state. Only 25% of Queens residents are white alone, and only 16% of DAC residents are white, compared to 55% of New York state (NYS) residents. The proportion of Hispanic, Asian, Black, and white populations is fairly evenly-split (Chart 1). DACs have a significantly larger Hispanic population (39%) and a significantly smaller white population than Queens as a whole. Queens is segregated, with many ethnic enclaves, as shown in Map 1. Queens' population is 47% foreign-born, of whom 59% are U.S. citizens.[5]

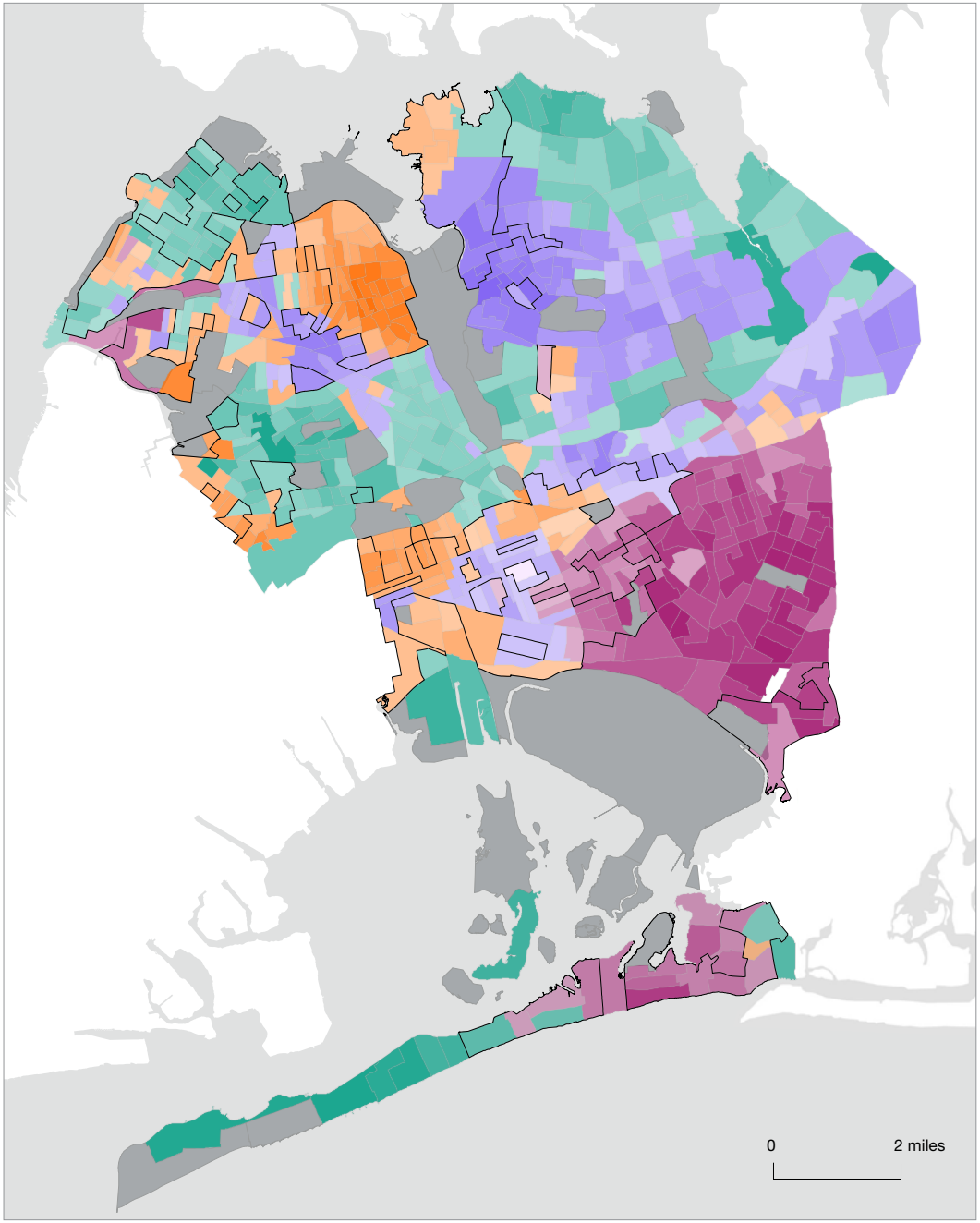
Staten Island has a higher share of non-Hispanic white residents (60%) than statewide (55%) (Chart 2)**, but in DACs this share falls to 30%.** The DAC population is 32% Hispanic, 25% Black, and 11% Asian. Staten Island's communities of color are predominantly located on the North Shore (Map 2). Black and Hispanic residents are the predominant race/ethnicity in most neighborhoods of color in Staten Island, but other, smaller ethnic populations, like Sri Lankans, also make up an important part of the North Shore community.[6] Staten Island's population is 24% foreign-born, of whom 68% are U.S. citizens.[7]

• Language

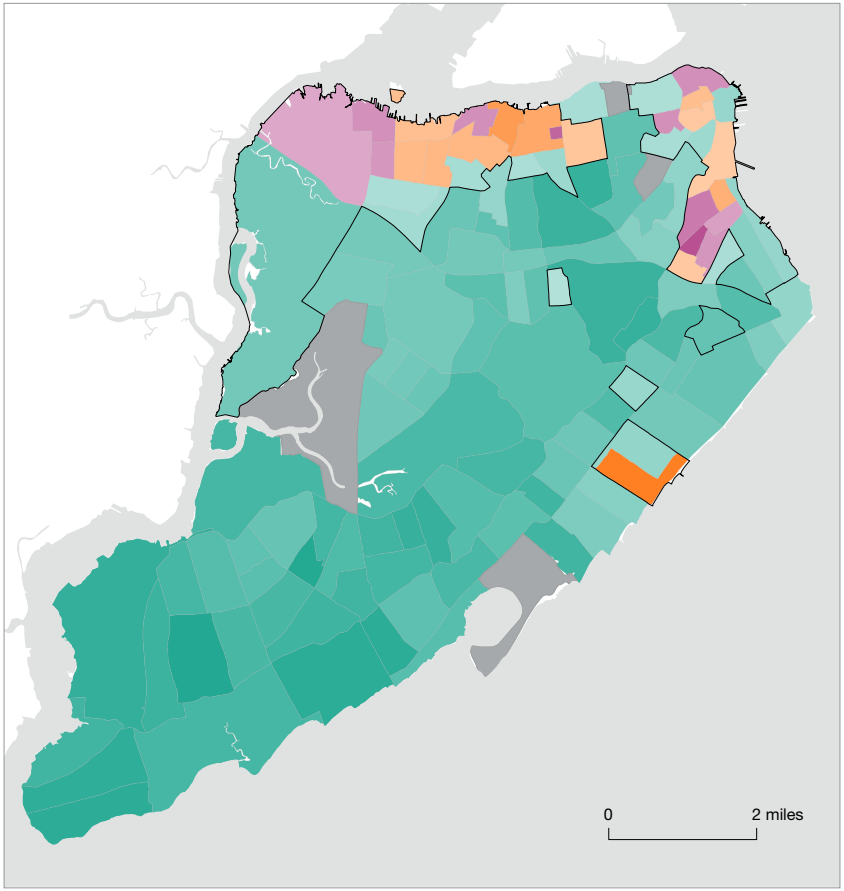
More than half of Queens residents speak a language other than English at home, including more than 60% of DAC residents. This is compared to 30% of all NYS residents. In DACs, about a third of the population speaks Spanish at home (Table 2). A third of this group are limited-English speaking. Half of DAC Asian American and Pacific Islander (AAPI) language-speaking households are limited-English speaking, and nearly a third of other Indo-European language-speaking households (this group likely includes predominantly South Asian language speakers [9,10]) are limited-English.

A third (34%) of Staten Islanders, and 41% of DAC residents, speak a language other than English at home. Of Spanish-speaking households, 16% have limited English proficiency, constituting 4% of DACs' population. Meanwhile, 26% of Other Indo-European language speaking households and 44% of AAPI language speaking households have limited English proficiency, together comprising 6% of DAC population.

Map 1. Predominant Race by Census Tract, Queens[2]



Map 2. Predominant Race by Census Tract, Staten Island[3]



- White alone, not Hispanic or Latino
- Hispanic or Latino
- Black or African American alone, not Hispanic or Latino
- Asian alone, not Hispanic or Latino
- American Indian or Alaskan Native alone, not Hispanic or Latino
- Two or more races, not Hispanic or Latino
- Native Hawaiian and other Pacific Islander alone, not Hispanic or Latino
- Some other race, not Hispanic or Latino

Strength of predominance

- 0-13
- 13-97
- 97-100
- DACs

Charts 1 & 2. Race & Ethnicity, Queens (left) and Staten Island (right)[8]

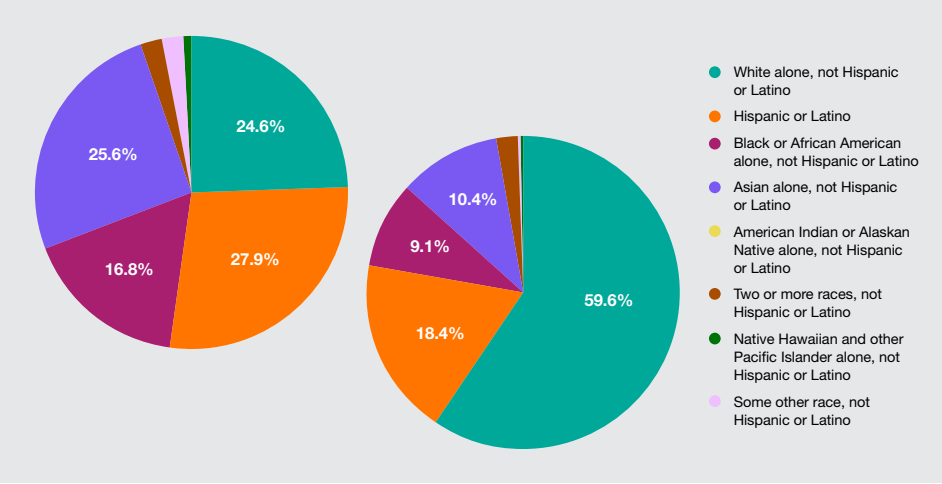


Table 2. Household Language and Limited English Proficiency by Household[11]

Household Language	Queens DACs	Queens	Staten Island DACs	Staten Island	NYS
Spanish	11.1%	6.7%	3.5%	1.5%	3.6%
Other Indo-European Languages	4.3%	4.1%	3.0%	2.8%	2.0%
Asian and Pacific Island Languages	6.3%	6.7%	2.6%	2.2%	1.7%
Other Languages	0.4%	0.3%	0.2%	0.1%	0.3%

• Income

Queens' median household income (MHI) is not a living wage. In 2021, the borough's MHI was $75,866, which is only 82% of the Self Sufficiency Standard (SSS) for a family of two adults and two children. This means that a typical family of that size was $16,000 short of meeting its basic needs. Median household income is lower for people of color than white people (see Appendix A page 49). For DAC residents, MHI was 70% of SSS, more than $27,000 short.[14]

While MHI is slightly higher than SSS in Staten Island as a whole, in the borough's DACs, median MHI was only 74% of SSS, $23,000 short.[15] Table 3 shows Queens & Staten Island residents' income by its ratio to the poverty line.

Table 3. Ratio of Income in 2020 to Poverty Level[16]

Household Language	Queens	Staten Island DACs
Doing Poorly (Under 1.00)	11.4%	10.3%
Struggling (1.00 to 1.99)	17.5%	12.1%
Poor or Struggling (Under 2.00)	28.9%	22.4%
Doing Ok (2.00 and Over)	71.1%	77.6%

• Education & Employment

The majority of people in Queens and Staten Island DACs have a high school education or lower. Educational attainment is lower in Queens and Staten Island than in the rest of the state (Table 4). Queens' labor force participation rate is 64%, comparable to city and state rates. The Queens unemployment rate is 7%, higher than the state's 6% rate. Staten Island's labor force participation rate is 60%, lower than the city and state rates of 63%. Staten Island's unemployment rate is about 3.5%, significantly lower than city- and state-wide.[17]

Table 4. Share of population with a high school or less than high school education[18]

Queens	Queens DACs	Staten Island	Staten Island DACs	NYC
44%	53%	41%	50%	38%

• Transportation

Just 29% of workers residing in Queens, and 28% in Staten Island, have jobs in the borough.[19] Manhattan, Brooklyn, and Nassau County are the three most common counties where residents of the region work outside of their own. Average commute time is 44 minutes in Queens and 45 minutes in Staten Island, compared to 33 minutes in NYS. 46% of Queens residents take public transit to work, compared to 25% of NYS residents. Over a third (37%) of Queens households, and 46% of the borough's DAC households, lack access to a car. The majority of Staten Island residents drive to work, but 37% of DAC residents and 27% of all Staten Island residents take public transit, compared to 25% of NYS residents. Almost a third (29%) of households in Staten Island DACs lack access to a car, despite the borough's limited public transit network.[20]

Building and Sector Assessment

See Appendix B for a more detailed discussion of the topics covered here.

Table 5 shows buildings by land use, including small and large residential, small and large commercial, mixed use, and industrial uses. The Hub is focusing on small (1-4 unit) residential buildings, which are the focus of this section.

Table 5. Land Use Overview[21]

Buildings by Land Use	# of Buildings, Queens	% of Total Buildings, Queens	# of Buildings, Staten Island	% of Total Buildings, Staten Island
Residential	424,607	91.7%	132,626	93.2%
1-4 Unit	**396,132**	**85.6%**	**125,655**	**88.3%**
5+ Units	28,404	6.1%	6,936	4.9%
0 Units or Blank	71	0.0%	35	0.0%
Commercial*	6,986	1.5%	2,391	1.7%
Small (>25,000 ft²)	6,194	1.3%	2,124	1.5%
Large (<25,000 ft²)	569	0.1%	233	0.2%
0 Commercial sq. ft. or Blank	223	0.0%	34	0.0%
Mixed use (residential + commercial)*	15,573	3.4%	2,258	1.6%
1-4 Unit (residential)	**12,333**	**2.7%**	**2,069**	**1.5%**
5+ Units (residential)	2,647	0.6%	136	0.1%
0 Units or Blank	593	0.1%	53	0.0%
Industrial	4,248	0.9%	877	0.6%
All Other Land Use Types	11,392	2.5%	4,162	2.9%
Total	*462,806*	--	*142,314*	--

• Small Residential

Over half (52%) of residential units in Queens, and 47% in DACs, are in 1-4 unit buildings, compared to 16% of units in New York City (NYC). In DACs, about two-thirds of these buildings are 2-, 3-, and 4-unit buildings (Chart 3). Single-family (1-unit) buildings are concentrated in Eastern Queens, while 3- and 4-unit buildings are found more often in Western and Central Queens. Two-unit buildings are common throughout the borough. Of 1-4 unit buildings in Queens, 93% were built before 1990 (Chart 5).

One- to four-unit buildings make up 82% of total residential units in Staten Island, and 66% in DACs. The majority of 1-4 unit buildings in Staten Island are single-family homes (Chart 4). Two-unit buildings are also common, making up 30% of total 1-4 unit buildings in DACs. Buildings with 3 and 4 units, while less common, are concentrated in DACs. Of 1-4 unit unit buildings in Staten Island, 73% were built before 1990 (Chart 6).

Owners of one- to-four unit homes are particularly burdened by high energy costs, with an average annual energy cost of $4,224 in Queens, almost double the state average, and $3,803 in Staten Island.

• Household Energy

The average LMI resident of Queens and Staten Island is energy cost-burdened, spending 6% and 7% of their income on energy costs in each borough, respectively. The average LMI owner of a 1-4 unit home spends even more, 9% and 8%. Average annual energy cost is $2,699 in Queens and $3,369 in Staten Island, more than $1,000 higher than that of NYS (Table 5). Owners of 1-4 unit homes are particularly burdened by high energy costs, with an average annual

energy cost of $4,224 in Queens, almost double the state average, and $3,803 in Staten Island. Of owner-occupied housing units in Queens, 79% use utility gas for heating, 12% use fuel oil, and 5% use electricity. Of owner-occupied housing units in Staten Island, 89% use utility gas for heating, 4% use fuel oil, and 4% use electricity.[25]

Chart 3. Breakdown of 1-4 Unit Buildings, Queens[22]

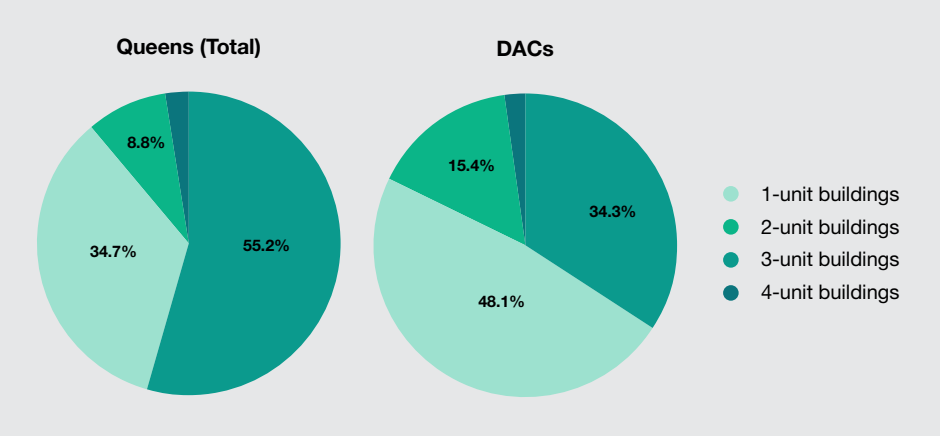


Chart 4. Breakdown of 1-4 Unit Buildings, Staten Island[23]

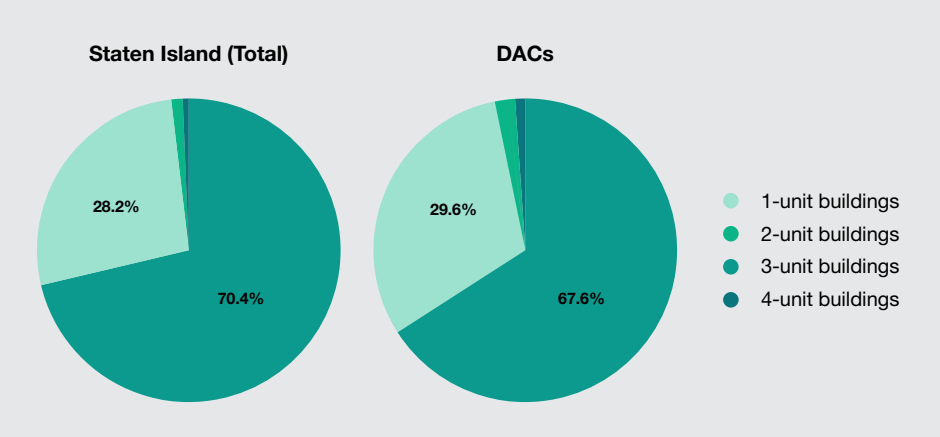


Chart 5. Age of 1-4 Unit Buildings, Queens[24]

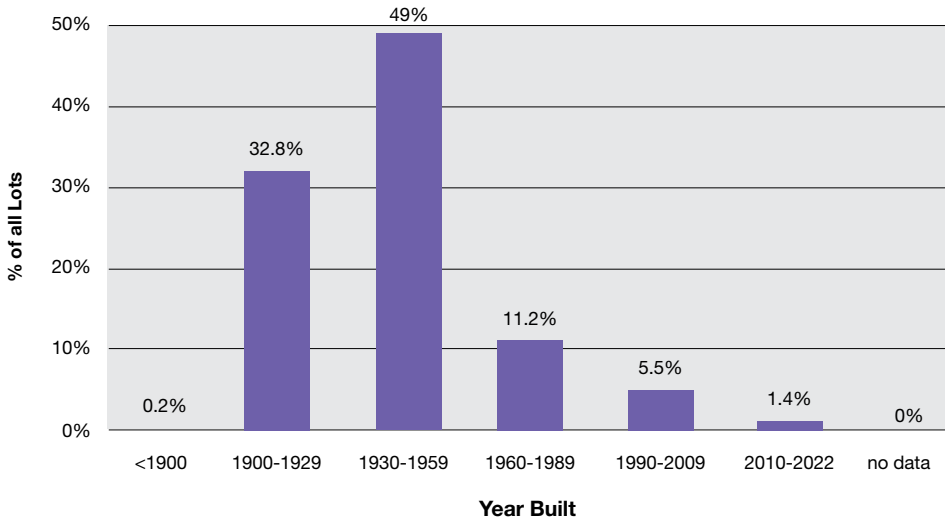


Chart 6. Age of 1-4 Unit Buildings, Staten Island[24]

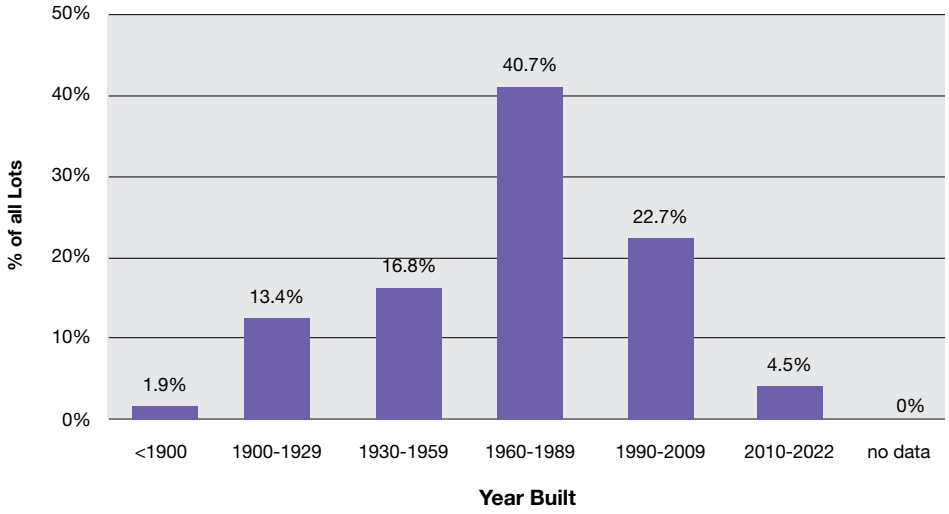


Table 6. Energy Costs, NYS vs. Queens & Staten Island[26]

	Annual Energy Cost		Energy Burden	
	All	**LMI**	**All**	**LMI**
NYS	$2,391	$2,014	2%	6%
Queens	$2,699	$2,384	3%	6%
QN Owner-Occupied 1-4s	$4,224	$4,069	4%	9%
Staten Island	$3,369	$2,973	3%	7%
SI Owner-Occupied 1-4s	$3,803	$3,554	3%	8%

• Household Maintenance

An estimated 41% of occupied housing units in Queens and 29% in Staten Island have at least one maintenance problem. A smaller proportion of units—10% in Queens and 4% in Staten Island—have 3 or more.[27] An estimated 15% of units in Queens and 13% in Staten Island have used supplemental heating. Mold, heating breakdowns, and holes in the wall are other common maintenance issues. Maintenance problems are generally more prevalent in affordable housing, rental units, and older buildings.[28] These numbers only cover maintenance issues tracked by the NYC Housing & Vacancy Survey, and not other common ones like deficient roofs.

• Housing Vacancy

NYC is in the midst of a housing crisis: the majority of households citywide are rent-burdened.[29] Low vacancy rates are a primary indicator of this crisis. According to 2021 American Community Survey (ACS) estimates, the vacancy rate was 2.2% in Queens (lower than city- and state-wide) and 3.5% in Staten Island.[30] More recent data suggests that housing is even more scarce today: the 2023 Housing and Vacancy Survey shows that the citywide vacancy rate for rental units has decreased dramatically since 2021 from 4.5% to 1.4%. Among lower-cost units, vacancy rates are even lower.[31]

• Housing Tenure

Queens is majority renter, while Staten Island is majority homeowner. In Queens DACs, 68% of occupied units (and 52% of 1-4 units) are home to renters, compared to 46% in NYS as a whole. Meanwhile, 69% of Staten Island units and 51% of DAC units (and 66% of 1-4 units in DACs) are owner-occupied.[32] Queens and Staten Island homeowners are racially diverse. Black, Asian, and Hispanic homeownership rates are higher than at the city and state levels. There are still wide disparities in homeownership by race. In Queens DACs, only 20% of Hispanic residents own their home, compared to 37% of non-Hispanic white residents and 42% of Asian residents. In Staten Island DACs, only 35% of Hispanic and Black residents own their home, compared to 65% of non-Hispanic white residents and 77% of Asian residents.[33]

• Climate & Environmental Hazards

Queens and Staten Island face substantial and growing climate and environmental hazards relating to heat, flooding, air pollution, and more. Southeast Queens neighborhoods like Jamaica, St. Albans, Hollis, and Rockaway Beach are among the highest risk neighborhoods for heat vulnerability in the city.[34] Coastal flooding is already a regular occurrence throughout the Rockaway peninsula and in neighborhoods along the eastern shore of Staten Island.[35] Stormwater flooding is an increasing risk throughout both boroughs, reaching neighborhoods that have previously not experienced flooding.[36] It is compounded by substandard housing conditions, as evidenced by the tragic deaths of multiple residents of illegal basement apartments in Central Queens during Hurricane Ida in 2021.[37] Finally, both indoor and outdoor air pollution contribute to health issues like asthma. Almost a quarter of adults in the Rockaways have asthma, the second highest rate in the city. Southeast Queens and the North Shore of Staten Island also have higher than average rates of asthma.[38]

Regional Clean Energy Workforce

Queens' and Staten Island's green economies are small but growing. **NYSERDA estimates that in 2022 Queens had 13,309 clean energy jobs and Staten Island had 2,551.**[39] The City of New York estimates that the city as a whole had 133,000 "green economy" jobs across 21 sectors in 2021, representing 3% of all jobs citywide and $16 billion in earnings.[40] Nearly half of these jobs are in building decarbonization, among which roughly half are in heating, ventilation, and air conditioning (HVAC), a third are in ENERGY STAR, efficient lighting and water conservation, 11% are in green building management and operations, and 6% are in advanced materials and insulation. Approximately 9% of green economy jobs are in energy, of which 37% are in solar, 20% are in hydropower, 16% are in on-shore wind, and the remainder are in other sub-sectors.[41] The citywide clean energy workforce landscape aligns with statewide trends; building decarbonization and energy efficiency represented nearly three-quarters of all clean energy jobs in the state in 2022.[42]

Green jobs have grown approximately 5% per year between 2016 and 2021, driven primarily by 1) local climate policy, including new buildings and energy regulations, 2) government investment in infrastructure projects and green technologies, 3) consumer demand for sustainable products, and 4) increased private investment in clean energy. The City projects ongoing rapid growth in the green economy to 400,000 jobs (or 7% of all jobs) by 2040, many in the subfields of buildings and finance and consulting. The majority of these jobs will be in existing professions adopting sustainable practices and an estimated 30% will be in new jobs. (Other estimates for job growth include the State Just Transition Working Group's projection that the city will see an increase of 43,000 green jobs by 2030, and Green Economy Network's projection of 90,000 new green jobs between 2021 and 2030). Statewide, each job directly created by the clean energy industry is estimated to generate an additional job through indirect and induced employment.[43]

Offshore wind will be an important green industry for NYC, particularly in Staten Island, in the coming years. Arthur Kill Terminal on Staten Island is being developed into an offshore wind assembly and staging port, which is projected to create 500 to 600 jobs during construction and over 100 permanent jobs, while spurring significant indirect job creation.[44] Citywide, the industry is projected to create up to 13,000 jobs.[45]

White workers are overrepresented in green sectors as compared to the overall workforce, and disproportionately work in higher-paying jobs. In 2020, 72% of green economy workers statewide identified as white, 15% as Hispanic, and 8% as Black.[46] Black, Hispanic, and Asian workers are overrepresented in lower-paying jobs, including building trades jobs. Women are also underrepresented in the green economy, particularly in building trades, where they hold less than 2% of jobs, as well as in design and engineering jobs. Overall, 75% of clean energy jobs in New York State are held by men.[47]

The green economy offers lower barriers to entry and better salaries than many other high-demand fields. **The majority of annual projected job openings in clean energy occupations are typically open to those with a high school diploma or equivalent.**[48] These green jobs generally pay better and are more secure than other jobs open to people with similar levels of education. For example, many building trades jobs that do not require a college degree have average salaries above $73,000.[49] Some fast-growing buildings trades jobs, such as roofers, solar installers, maintenance/repair workers, and construction workers, have slightly lower median annual salaries ($52,000-$54,000). The City's Green Economy Action Plan prioritizes education, training, and outreach for those occupations in the green economy that pay living wages of $63,000 per year or more. Many of these jobs do not require significant new skills training. Approximately a third of projected job openings in clean energy require a bachelor's degree or higher, like engineers, managers, and sales representatives.[50]

Some green jobs do require technical training. Expanding training programs while lowering barriers to participation will be key to helping green businesses find workers and workers get jobs, while enabling the industry to diversify. There are a variety of existing workforce programs in Queens and Staten Island offering training in numerous sectors of the green economy. Of particular note are programs at the City University of New York's (CUNY) LaGuardia Community College (in Queens) and the College of Staten Island. Both campuses are investing in offshore wind and other green economy training programs.[51] [52] In Queens, the Ravenswood Training Center will retrain former fossil fuel workers for offshore wind jobs.[53] Nonprofits like Green City Force and Solar One and businesses like Soulful Synergy and the Willdan Clean Energy Academy also offer green jobs training.

Important policy changes are underway at all levels of government that will significantly expand the green economy. Notably, the federal (IRA) will add an estimated $34 billion to NYS's green economy through 2030 and expand the market for building retrofits.[54] Compliance with Local Law 97 is projected to create more than 40,000 green jobs and expand the city's annual building retrofit market to $20 billion, more than 13 times larger than its size in 2021.[55] Finally, the State's upcoming Cap and Invest Program is projected to fund between $4 to 8 billion in statewide decarbonization investments annually and create over 28,000 green jobs by 2030.[56]

Regional Partners

Only a small selection of key partners is listed here. Find a full list of potential partners in Appendix C. Neither the following list nor Appendix C are intended to be exhaustive.

Civic Institutions and Community Centers: Secular gathering places like schools, hospitals, community centers, and libraries that people are already connected to and frequent in their day to day lives.

Hub collaboration:
Outreach partners. Potential hosts of energy education and workforce programs. Certain community institutions, particularly CUNY, offer workforce and other sustainability programming that the Hub can plug into.

Key partners:
Queens Public Library • New York Public Library • CUNY (esp. LaGuardia & College of Staten Island) • Public schools • Jewish Community Center of Staten Island • Senior centers (including Elmcor in Queens) • Eastern Queens Alliance • New York City Housing Authority (NYCHA) Community Centers

Religious Congregations: Mosques, churches, temples, synagogues, etc. Regular meeting places for particular cultural communities that may be hard to reach in other ways. Congregants trust their congregations to give them accurate information. Some congregations are connected to social services programs.

Hub collaboration:
Outreach partners. Potential of energy education and workforce programs. Congregations may also be interested in assistance with retrofitting their physical spaces.

Key partners:
Muslim American Society • Green Faith • Catholic Charity Network • Staten Island Ministerial Alliance

Cultural or Immigrant Organizations: Secular groups that provide services or programming to benefit a particular ethnic/cultural group or work primarily with immigrants.

Hub collaboration:
Outreach partners, client referrals. Potential hosts of energy education and workforce programs. These organizations are often skilled at working with non-English speakers and people from different cultural backgrounds, and can help the Hub reach and tailor its messaging to communities they serve.

Key partners:
Pride Center of Staten Island • Chhaya • Make the Road • Bait-ul Jamaat • New Immigrant Community Empowerment • YMCA New Americans Initiative

Housing Organizations: Organizations providing or helping people find or stay in affordable housing, or organizations working to repair or retrofit housing.

Hub collaboration:
Outreach partners, client referrals. Potential hosts of energy education programs. Certain housing organizations administer important home repair or retrofit programs, like HomeFix and Weatherization Assistance Program (WAP). The Hub can work with individual residents to navigate the landscape of existing housing programs and organizations. The Hub can also help organizations build their own capabilities interfacing with home retrofit programs.

Key partners:
Neighborhood Housing Services of Jamaica • Neighborhood Restore • Northfield Community LDC • Center for NYC Neighborhoods • Adapt Community Network • Margert Community Corporation • Association for Energy Affordability • HANAC

Social Services Organizations: Organizations providing a range of services to disadvantaged communities including food, legal and administrative assistance, afterschool programs, etc. These groups often offer wide ranging services that can also encompass housing and workforce related programs.

Hub collaboration:
Outreach partners, client referrals. Potential hosts of energy education and workforce programs. The Hub can turn to these organizations when clients need wraparound services that are outside of its scope.

Key partners:
Food pantries • Queens Legal Services • Commonpoint Queens • Central Family Life Center • Nonprofit Staten Island

Environmental Organizations: Organizations working on environmental or sustainability issues. Includes resiliency or disaster preparedness organizations.

Hub collaboration:
Outreach partners. Pre-existing community solar, home retrofit, and green workforce programs that the Hub can plug into. Technical expertise on home retrofits. Potential to partner or collaborate on future energy education programs and community campaigns.

Key partners:
Solar One • Urban Green Council

• RETI Center • Resilience/disaster relief groups (see Appendix C)

Workforce Development Organizations: A mix of nonprofit and for-profit organizations offering green workforce training, general remedial education, and English language learning programs. Some organizations focus on particular communities, such as youth, NYCHA residents, justice involved people, or immigrants.

Hub collaboration:
Client referrals. Preexisting green workforce programs that the Hub can plug into. Potential to partner or collaborate on future workforce programs. English learning and remedial education programs are essential wraparound services that many clients may need before being able to work in the green economy.

Key partners:
NYC Employment and Training Coalition • Green Economy Network • HOPE Program • Green City Force • Soulful Synergy • Solar One • Willdan • TMI Waterfront • La Colmena • Nontraditional Employment for Women • Interstate Renewable Energy Council • Energy Economic Development Corporation

Economic Development Organizations: Organizations that promote business interests and economic growth. Some organizations are very involved in promoting the growth of the green economy, especially offshore wind in Staten Island, and green job training programs.

Hub collaboration:
Outreach partner for work involving small businesses and green employers.

Key partners:
NYC Economic Development Corporation (EDC) • Staten Island EDC • Queens Chamber of Commerce • Business Improvement Districts

Contractors: Companies that install green home upgrades like solar panels, heat pumps, weatherization, etc. Other types of contractors, like electricians and plumbers, are also important in home repairs and retrofits.

Hub collaboration:
Client referrals. Having a strong network of trusted contractors will streamline the home retrofit process for clients. Contractors are also a potential green employer. Potential to educate contractors on low-income programs and new technologies.

Key partners:
Minority- and/or Women-Owned Business Enterprises (MWBE) and other companies owned by people of color and women, especially those from DACs in NYC • See Appendix C for key contractor partners

Major Green Employers: Companies that work in renewable energy, building decarbonization, sustainable manufacturing, recycling/composting, etc.

Hub collaboration:
Potential employers for clients seeking to work in the green economy.

Key partners:
Offshore wind companies at Arthur Kill Terminal (potentially Attentive Energy One) • See Appendix C for other potential green employer partners

Other businesses: Various other private businesses not directly involved in the green economy.

Hub collaboration:
Various, see description of key partners.

Key partners:
Small landlords (potential clients for retrofitting affordable rental housing) • Local/ethnic media (outreach partners in hard-to-reach communities) • Neighborhood gathering places (businesses like barbers, cafes)

City Government: Mayor's offices, executive agencies, and other branches of city government.

Hub collaboration:
Various, see description of key partners.

Key partners:
NYC Accelerator (offers assistance to large buildings in decarbonizing) • NYCHA (outreach partner for workforce programs) • Community boards (outreach partners) • NYC Department of Housing Preservation and Development (HPD) (administers the HomeFix home repairs program) • NYC Department of Small Business Services (SBS) (outreach partner for small businesses)

Local Elected Officials

Hub collaboration:
Outreach partners.

Key partners:
State Assembly members • State Senators • City Councilors • US Representatives • Borough Presidents

Utilities: Electricity and gas utilities.

Hub collaboration:
Outreach partners. Line of communication to streamline incentive application and retrofit processes. Potential green employers.

Key partners:
ConEd • National Grid

Regional Assets

Hub team organizations have a long history in Queens and Staten Island DACs, and these communities know that the Hub organizations are helpful, trustworthy partners. Hub organizations have extensive experience working with and engaging diverse communities in different languages. People already know to turn to them for help for many housing, workforce, and other needs.[57]

The seven Hub team organizations are collectively very experienced in all aspects of the Hub's work. The Hub is an extension of the housing counseling, retrofits, workforce development, and business development work that Hub organizations have been doing for many years.

- Programs like Electrify NYC (run by KC3, NHSQ, N4SF) and EnergyFit (run by Pratt Center) have given the Hub organizations experience counseling residents through the home upgrade process, helping with financing and repairs, and connecting with contractors.
- Youth WINS and New Women New Yorkers run successful programs to help DAC residents upgrade their workforce skills and connect with jobs.
- BOC Network has extensive experience helping small businesses with capacity building/financing/education.[58]

Hub team organizations have existing relationships with other organizations throughout Queens and Staten Island that can expand the reach of outreach and wraparound services. Hub organizations also take part in coalitions such as Operation Urban Sustainability in Queens, which further expand their reach.[59]

Queens and Staten Island have established civic engagement and information infrastructure.

- Local elected officials often offer strong constituent services and programming.
- Community Boards also play an important role in relaying information about programs to the community.
- Established community-based organizations play leadership roles in sharing information about public policy and programs in their communities.
- Queens and Staten Island are also host to a range of public and shared spaces that are essential for community gatherings and outreach, including parks, libraries, Older Adult Centers, and schools.[60]

Many organizations throughout Queens and Staten Island have complementary missions and expertise to the Hub's own, focusing on housing counseling, repair, and retrofits, green economic development, job training, and more. (See Regional Partners section).

- These organizations run a number of useful events that the Hub can plug into, such as Staten Island EDC's Forum for a Sustainable Future, Chhaya's annual housing fairs, and the Queens Borough President's Queens Climate Expo.
- Queens and Staten Island residents have access to green job training programs in their boroughs and citywide.
- Partnerships will be especially useful in connecting clients to wraparound services such as social and legal services, remedial education, language learning, and accessing financing.[61]

City and State government, including institutions like EDC, CUNY, and the Mayor's Office, are aligned in developing the local green economy, especially in key industries like offshore wind.[62]

III. Baseline Assessment of Clean Energy Program Participation

Baseline Assessment of Regional Clean Energy Programs

For a list of home retrofit and green programs, see Appendix D. See Appendix E for the full results of this analysis.

Overall, Queens received about $55 million and Staten Island about $39 million in NYSERDA residential and multifamily funding from January 2018 to August 2023.[63] As shown in Table 6, this works out to $24 per person in Queens and $83 per person in Staten Island. This inequity can be explained by the greater prevalence of single-family homes and homeowners in Staten Island, the borough's smaller immigrant population, and its higher median income (discussed below). Queens, which has more multifamily buildings, renters, immigrants and non-English speakers, and lower incomes, is especially poorly served by NYSERDA programs. However, neither borough is being adequately served by NYSERDA, especially in DACs.

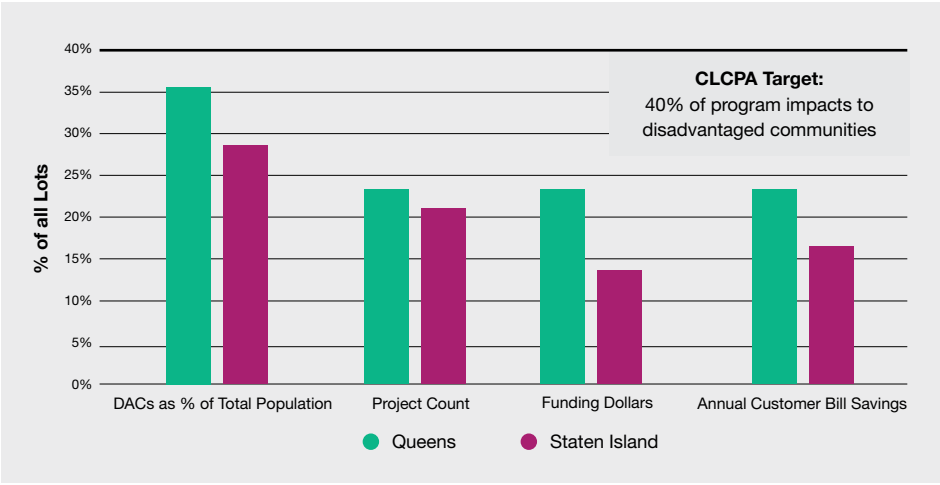
The CLCPA mandates that at least 35% of program impacts, with a target of 40%, flow to DACs and LMI households.[65] As shown in Chart 7, NYSERDA is far from meeting this target by almost every metric. In Queens, 36% of people live in DACs, but less than a quarter of NYSERDA projects, funding, and customer bill savings flow to DACs. In Staten Island, 29% of people live in DACs, but only 21% of projects and 13% of funding dollars flow to DACs. In total, 14% of projects in Queens and 3% of projects in Staten Island have been through LMI programs. In Queens, 36% of NYSERDA funding has been spent on LMI programs, and in Staten Island only 5% has. Only 9% of bill savings have flowed to LMI customers in Queens, and only 2% in Staten Island. So even though Staten Island is better served by NYSERDA programs overall, its DAC and LMI communities are especially poorly served by NYSERDA.

Map 3 shows Queens census tracts by the amount of NYSERDA Residential and Multifamily funding they have received per person. The bottom five neighborhood tabulation areas (NTAs) in Queens by NYSERDA funding per person, including Edgemere, Corona, Far Rockaway[67], and Woodside, are all poor neighborhoods

Table 6. NYSERDA Funding Dollars Per Person by Borough[64]

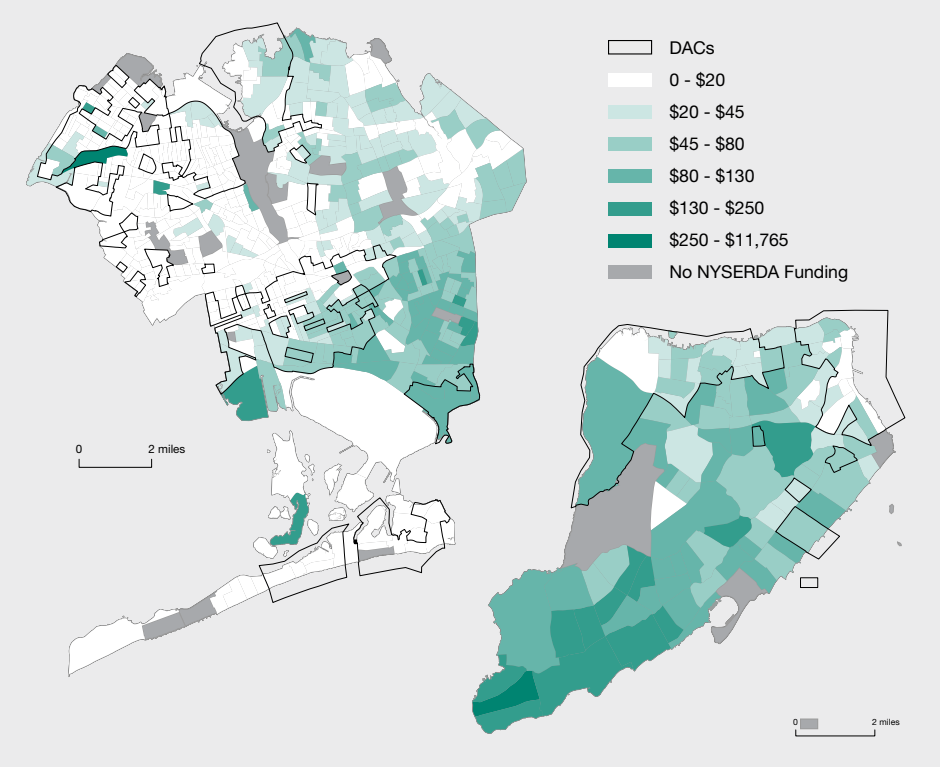
Queens	$24
Staten Island	$83

Chart 7. NYSERDA DAC Program Impacts as a Percentage of Total, Queens & Staten Island[66]



of color, and have received less than $4 per person in NYSERDA funding. Census tracts in most of Western and Central Queens, home to most of the borough's DACs, have received less than $20 per person. Meanwhile, the top five NTAs in Queens, including Laurelton, Rosedale, and St. Albans, are also neighborhoods of color, but are made up predominantly of middle-class homeowners.[68] They have received upwards of $80 per person. In the top five neighborhoods, people save between $130 and $174 per year on utility bills due to NYSERDA programs, versus only $4 to $11 in the bottom five.

Maps 3 & 4. Census Tracts by NYSERDA Dollars per Person, Queens (top) and Staten Island (bottom)[64]



As shown in Map 4, the story is similar in Staten Island. Census tracts in much of the wealthier, whiter South Shore have received over $100 per person, whereas tracts on the North Shore, where DACs are concentrated, have mostly received less than $50 per person. The bottom five NTAs in Staten Island are all on the North Shore and include Stapleton, Clifton, New Brighton, and St. George. People in these neighborhoods save between $42 and $93 on yearly energy bills due to NYSERDA programs. The top five NTAs are all on the South Shore and include Tottenville, Huguenot, Eltingville, and Oakwood Beach. In these neighborhoods, people save an average of $137 to $223 per year on energy bills. The top five NTAs are all high income, predominantly White and English speaking, and predominantly homeowners. The bottom five NTAs show the opposite trends.[69]

Chart 8 plots every Queens and Staten Island NTA by median household income and NYSERDA Residential/Multifamily Funding. In general, NYSERDA spends more money and delivers more benefits to people in high income neighborhoods.

Our analysis found similarly inequitable results when NTAs were plotted by other metrics:

- The more limited English proficiency households there are in a neighborhood, the less NYSERDA funding it gets.
- The more single-family detached homes there are in a neighborhood, the more NYSERDA funding it gets.
- The more renters there are in a neighborhood, the less NYSERDA funding it gets.

Overall, this analysis reveals program impacts to be distributed very inequitably in Queens and Staten Island. NYSERDA's programs distribute money away from DACs, low-income people, people of color, non-English speakers, renters, and apartment dwellers. Money and benefits accrue to high income and white people, English speakers, homeowners, and single-family home residents.

Chart 8. Queens & Staten Island NTAs by Median Income and NYSERDA Residential Program Funding[70]

• Existing NYSERDA Community Campaigns

NYSERDA has not implemented any community campaigns in Queens or Staten Island.

IV. Stakeholder and Community Engagement

Close to 300 people were engaged during RABA development through interviews, focus groups, and a resident survey. Feedback from public engagement formed the backbone of the Barriers and Opportunities Chapter, as well as the Regional Partners and Regional Assets sections of the Baseline Regional Characterization.

Interviews & Focus Groups

See Appendix F for a list of External Organization Interviews and Focus Groups.

Pratt Center interviewed other Hub partner organizations to get their feedback on potential partners, assets, barriers, opportunities, and recommendations. These partner organizations also helped to identify external organizations focused on environmental, housing, and workforce issues in DACs to interview. Interviews allowed us to hear from experts about partners, barriers, and opportunities. Of the ten external organizations that were interviewed, eight are nonprofits, one is a for profit business, and one is a government office. Pratt Center also held four focus groups that corresponded with Hub partner organizations' existing programs and communities. Participants in the ENYC, Immigrant Women, and Youth Focus Groups were given a $50 incentive.

• Key Takeaways: Interviews & Focus Groups[71,72,73]

Outreach and communication

- Outreach and resources available to non-English speaking and immigrant communities for NYSERDA programs has been severely inadequate.
- Many organizations throughout Queens and Staten Island are already involved in the green economy, housing, workforce development, and/or offer other useful wraparound services.
- Even for organizations focusing on these issues, it is difficult to keep track of the rapidly changing environment and help their communities access these opportunities.

Home energy upgrades

- Residents are not aware of what options exist to upgrade their homes, how upgrades can benefit them, and what programs can help them get these upgrades.
- Many residents are interested in upgrades, but available programs do not meet their needs financially.
- The process of getting home energy upgrades is time consuming, confusing, and riddled with barriers that deter many interested residents, even those who are willing and able to pay upfront costs.
- NYC's built environment presents unique challenges to retrofits that NYSERDA programs seem to ignore.

Workforce

- There is wide interest in clean energy jobs that are higher paying, hands on, and offer the opportunity to learn and help one's community.
- Most community members know little about what the green economy actually entails and how to enter it.
- Some are deterred from green jobs due to common perceptions (some inaccurate) about the industry, such as that it is not diverse, it requires technical skills, or that it is dominated by manual labor jobs.

Survey

The Hub designed and fielded an online survey for Queens and Staten Island residents. The survey was offered in English and Spanish (due to funding limitations, the Hub could not translate it into more languages to match the region's diverse population). It was open for about two months. Hub organizations promoted the survey through email blasts, social media posts, phone calls, tabling, and flyering. The survey focused on outreach methods, home energy upgrades, and green workforce topics. A summary of survey results can be found in Appendix G.

The survey received 262 total responses, with 196 coming from Queens and 66 from Staten Island. Spanish survey takers made up 11% of respondents. Of respondents, 56% were renters and 35% were homeowners (the rest had other housing situations). Almost two-thirds of renter and homeowner respondents lived in a 1-4 unit home. Of respondents who gave their income, 58% had a household income of less than $60,000 per year. Two-thirds of survey respondents were

women. In Queens, the survey overrepresented Hispanic residents (about half of survey takers who shared their race/ethnicity were Hispanic, compared to 39% of Queens DAC residents) and undercounted Asian residents (9% vs. 24%). In Staten Island, the survey overrepresented Black residents (36% vs. 25%) and undercounted Hispanic (21% vs. 32%) and white (15% vs. 30%) residents.[74]

• Key Takeaways: Survey[75]

Outreach

- Word of mouth and personal networks are the most important sources that respondents rely on for important information. Internet searches and social media are other important sources.

Home Energy Upgrades

- The majority of respondents are open to a wide array of upgrades, but most people don't know about the full range of upgrades available to them and the programs that can help them pay for these upgrades.
- Knowledge is inequitably distributed: people of color, low-income people, and renters are less likely to know about technologies and programs.
- Some of the most important technologies, like heat pumps, and programs such as Empower+, are the least well known.

Workforce

- There is wide interest in working in the green economy, especially but not exclusively in less technical or manual labor heavy sectors. People of color, low income, and renter communities are particularly interested.
- Most people are passively interested or open to working in the green economy, rather than actively planning to work in it.
- There is also strong interest in job training programs, especially for general job skills applicable within the green economy, but people don't know where to find relevant job training programs.

V. Barriers and Opportunities

Barriers

1. Barriers to Residential Program Implementation

Public organizations like NYSERDA, and the programs it offers, have limited name recognition and are not well promoted. (1.1)

- Marketing has been very limited. Most people find out about clean energy opportunities through web searches, meaning they are only reaching people who are already interested and motivated.[76]

People don't know about what technologies and programs exist to upgrade their homes. (1.2)

- As shown in Chart 9, less than a quarter of respondents to the RABA survey had heard of heat pumps/mini splits, heat pump water heaters, and air sealing. There were 8 other technologies that less than half of people had heard of, and only 3 that more than half of people had heard of.[77]
- As shown in Chart 10, there was no clean energy incentive program that more than half of RABA survey respondents had heard of, and only 2 programs that more than 20% of people had heard of. More than a third of respondents had not heard of any of the programs. Only 12% of people had heard of the EmPower+ program. None of the three most known programs were NYSERDA programs.[78]
- There are knowledge disparities of clean energy technologies and programs across racial, income, educational, housing tenure, and other lines (see Barrier 3.2).

Non-environmental benefits of home energy upgrades, like lower energy bills and healthier, more comfortable homes, are not well known or publicized. People can be skeptical of the benefits of clean energy technologies. (1.3)

- Respondents to the RABA survey ranked lowering utility bills and improving indoor air quality as the most effective motivators to getting a clean energy upgrade.[81]
- Messaging has focused too much on helping the environment, not enough on personal benefits.[82]
- Technologies have improved greatly in recent years, and people may have out of date ideas about their utility.

Chart 9. Knowledge of Clean Energy Technologies[79]

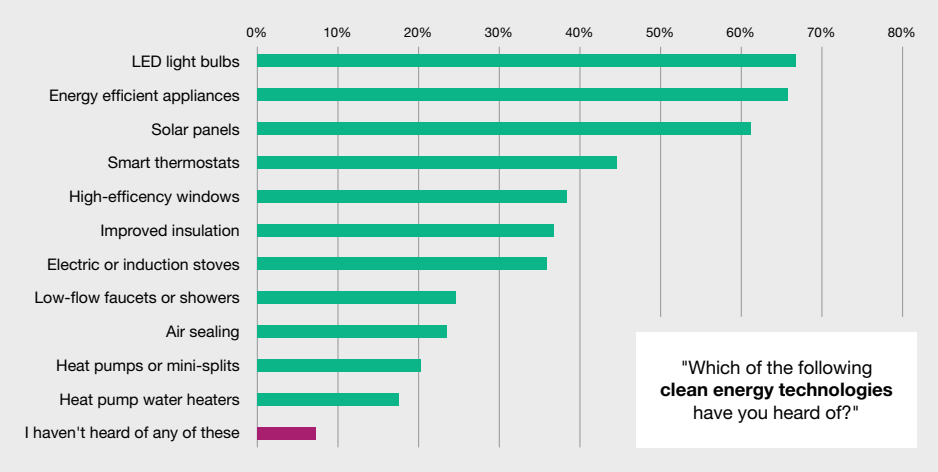
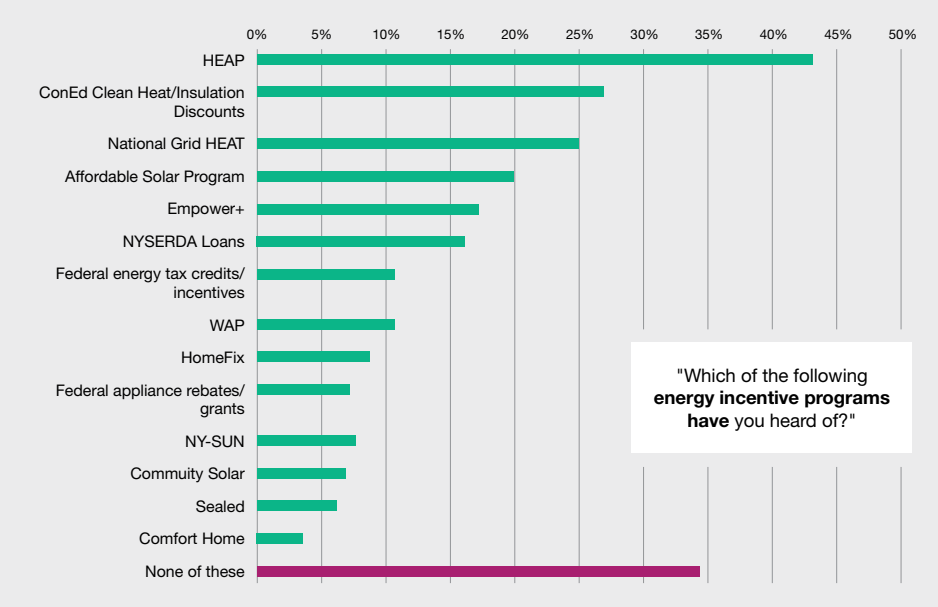


Chart 10. Knowledge of Home Energy Incentive Programs[80]



- Misinformation about clean energy technologies and programs is spreading, eroding trust in claims from reputable sources (see Barrier 3.1).

NYC has an older residential building stock than most of the state, and its building typologies are very unique not only statewide but nationwide, making retrofits more complicated and costly.[83] (1.4)

- Of buildings in Queens, 79% were built before 1960.[84]
- Older homes often need weatherization and electrical upgrades before being able to handle other upgrades.
- Design features of some older or more urban building typologies, such as low ceiling heights, masonry walls, small rooms, pipes wrapped in asbestos, and lead paint, present further challenges to green upgrades.[85]

Homes often have structural or health and safety problems that must be addressed before installation of clean energy upgrades, and these fixes are not covered by home retrofit incentive programs like EmPower+.[86] Programs that do cover repairs, like HomeFix, are vastly underfunded to meet the need for repairs. (1.5)

- Solar installations often require a roof replacement, and weatherization often requires lead/mold/asbestos abatement. Many interviewees cited funding for roof repairs/replacements as a particularly urgent need.[87]
- Of occupied housing units, 41% in Queens and 29% in Staten Island have at least one maintenance issue.[88] This only includes maintenance issues tracked by one survey, and not other common ones like deficient roofs.
- Affordable housing, rentals, and older buildings are more likely to have problems, and residents of these housing types are lower income and have less resources to deal with the problems.
- RABA survey respondents with household incomes less than $30,000 were much more likely to rank home maintenance issues as an important barrier to making a home energy upgrade.[89]
- Repair funding through the HomeFix, RESTORE, and Affordable Housing Corporation (AHC) programs is sporadically available and difficult to access. These programs come nowhere close to meeting demand for repairs from people who qualify for them.[90]

Many homes in Queens and Staten Island are overcrowded, have illegal basement units, or are not up to code in other ways. These circumstances discourage occupants from engaging with government or contractors. (1.6)

- An interviewee mentioned a contractor participating in the Electrify NYC program who intimidated families for having too many people per room, refused to take jobs and told NYSERDA that this was the reason.[91]
- Immigrant families are especially likely to have these types of housing situations.

Homeowners have competing priorities vying for their time and money. (1.7)

- Median incomes in NYC, especially in DACs, do not match the cost of living and housing prices. People are stretched thin paying for day-to-day expenses.[92]
- MHI in Queens DACs is only 70% of the borough's Self Sufficiency Standard, and MHI in Staten Island DACs is 74% of the borough's SSS (see page 21).[93]
- LMI 1-4 unit homeowners spend 8-9% of their income on energy costs in Queens and Staten Island, much higher than the 2% average for all NYS residents.[94]
- Flooding and other climate hazards are adding to the maintenance needs that homeowners must prioritize.[95]

It is difficult to find accurate information on how much upgrades will cost, how much incentive residents will get, and how much long-term savings will be in advance, making financial planning difficult. (1.8)

- Many resources citing estimated costs are based on non-NYC costs, which are much lower.[96]
- Quotes often vary widely between contractors.
- High inflation means that many estimates that are only a few years old are likely out of date.
- Project scopes and budgets often balloon if complications, such as finding undiscovered leaks, lead paint, and required energy service upgrades, arise. This is especially common in older buildings with maintenance issues.[97]
- Incentive programs often come with poorly explained caveats that result in residents receiving less than they expect to. For example, strict qualifying criteria for the HEAR Rebates being offered through EmPower+ mean that few people qualify, but residents would not know this from looking at the webpage advertising them.

Middle income people do not qualify for more generous incentives, but many can't afford market options. (1.9)

Many homeowners can't afford home upgrades even after incentives are applied. (1.10)

- This is especially true for upgrades like heat pumps or solar that usually run into the tens of thousands of dollars.
- As shown in Table 7, "I can't afford the upfront cost of the upgrades I'm interested in" was the biggest barrier to installing an upgrade for respondents to the RABA survey.

Spotlight: Inadequate LMI Incentive Programs

Incentive programs do not provide enough help to surmount cost barriers for low-income households and are not structured in a way that meets their needs. (1.11)

- **Eligibility for the EmPower+ Low Income Incentive, WAP, and Home Energy Affordability Program (HEAP) programs is set at 60% of State Median Income (SMI). Using SMI rather than Area Median Income (AMI) to determine eligibility excludes hundreds of thousands of LMI NYC residents who are over the income limit but face very high costs of living.[98] (1.11.1)**
    - The IRA defines low income as under 80% of AMI, which is currently the income limit for the EmPower+ Moderate Income Incentive.[99]
- **Many tax credits, including those from the IRA and the NYS Solar Tax Credit, are nonrefundable, meaning that low-income people with low or no tax liability cannot fully benefit from them.[100] (1.11.2)**
- **Tax credits and some rebates require residents to pay upfront and be refunded later. Most low-income people do not have the on-hand capital to bridge this gap in time. (1.11.3)**
- **NYSERDA's loan programs aren't attractive to many low-income families who are often turned off by the conditions or hesitant to take out a loan at all.[101] (1.11.4)**

The process of getting a home retrofit is very complex and confusing. Customers must develop extensive knowledge on a variety of technologies, programs, and procedures to navigate the process.[102] (1.12)

- Of RABA survey respondents, 80% said there was at least one home energy technology that they wanted but didn't know how to access or afford.[104]
- Incentive programs are confusing. Multiple programs do similar things (for example, WAP, EmPower+, and Comfort Home), and it is unclear which can be stacked, what each program covers, and what caveats apply.[105]
- Incentives, qualifying criteria, and regulations have been changing quickly (for example EmPower+ Home Energy Affordability Rebates (HEAR) Rebates, rules around stacking it with Clean Heat). It is easy to find out of date information.
- There is no centralized, consistently updated source of information where people can get accurate, authoritative information about every step of the retrofit process and the options available to them.[106]
- Project scopes from contractors are hard to interpret and often don't explain what each item is, making it difficult for customers to understand what is happening in their homes.[107]
- Subcontractor agreements contain complex legal language that people cannot easily understand on their own.[108]

The time and effort required to successfully upgrade your home - with self-education, program applications, communication with agencies and contractors, and installation - can add up to "a full-time job" for months.[109] (1.13) As shown in Table 7, RABA survey respondents ranked "The process of receiving upgrades is daunting/complicated" as the third biggest obstacle to getting a home upgrade.[110]

- Residents often have to apply to multiple funding sources across levels of government to pay for an upgrade, and applications for these programs are often very long and duplicative.
- Accessing and submitting documents, like utility records, is challenging for customers and organizations to navigate, especially for people who are not tech-savvy.[111]
- It can be very difficult and time consuming to find a quality contractor.

Table 7. Home Upgrade Barriers[103]

How big of an obstacle would these be to making a home energy upgrade? (Scale of 1-5)

I can't afford the upfront cost of the upgrades I'm interested in	4.2
I cannot make the upgrades I'm interested in on my own as a renter (only asked to renters)	4.1
The process of receiving upgrades is daunting/complicated	4.0
I don't know what kinds of upgrades, technologies, and programs exist and what it is possible for me to do	3.8
Other home repairs or upgrades are a bigger priority for me (only asked to homeowners)	3.6
I don't want people coming into my home to install upgrades	2.3

- NYSERDA published lists of contractors claiming to cover certain areas/offer certain services are very inaccurate and outdated.[112]
- Customers in Staten Island often encounter problems getting contractors who claim to work throughout NYC to accept jobs.[113]
- Contractors often specialize in particular types of work (for example, solar contractors working only on pitched roofs) that limit available choices.[114]
- Customers can be distrustful of contractors, and feel that they often do subpar work or otherwise take advantage of customers.[115]
- Contributors to this perception: genuine bad actors (few and far between), customers' unrealistic expectations about pricing, customers doing work out of order (for example, installing heat pumps before weatherizing, leading to an oversized/malfunctioning system), contractors being very busy, program design stopping contractors from addressing structural/health and safety needs.[116]
- Customers are asked to make many technical decisions, such as choosing between versions of the same technology, that are beyond their comfort zone. Contractors can be too busy to guide them through this process.[117]

When residents encounter problems, it is difficult to get assistance. Customer service and response speed are issues for many agencies and contractors. (1.14)

- Focus group participants cited not being able to get in touch with anyone as a reason they abandoned projects.[118]
- There is a perception that employees helping people navigate programs are not knowledgeable or well-trained.
- This is exacerbated by poorly explained and constantly changing program details, which it is difficult for even energy advisors to keep up with (Barrier 1.12).[119]

Spotlight: Poor Options for Renters

For renters, both the options for upgrades and the potential benefits of them are greatly reduced. (1.15)

- Of occupied housing units in DACs, 68% in Queens, and 49% in Staten Island are occupied by renters.[120]
- As shown in Table 7, RABA survey respondents who were renters ranked "I can't make the upgrades I'm interested in on my own as a renter" as the second biggest barrier to making a home upgrade.[121]
- Renters have little agency to make large changes to their homes. There are few options available to renters, and few renters know about the options that are available.[122]
- Renters have little leverage to get their landlords to make upgrades, and may fear eviction or rent increases if they complain about utility bill issues or ask for an upgrade.
- Retrofits are more complicated in buildings with renters. Getting access to the unit from the tenant and figuring out financing, including verifying income eligibility, is more complicated in rentals.
- Split incentive: the benefits of home energy upgrades in rental housing are split between occupants and owners, giving each side less of an incentive to make the upgrade.[123]
- Renters may not live in their unit long-term, swaying the calculation of construction hassle vs. long term benefits.
- Buildings over 25,000 square feet are required to sharply cut their carbon emissions by NYC's Local Law 97, giving landlords a strong incentive to make upgrades. But smaller rental buildings have no such mandate. Most rental buildings in Queens and Staten Island are under 25,000 square feet.[124]

Community solar, one of the primary options available to renters, is too small to meet demand for the program, is poorly promoted, and has faced extensive implementation problems. (1.16)

- Only 7% of RABA survey renters had heard of community solar.[125]
- The NYSERDA Community Solar webpage is confusing and clunky to use, and many of the projects it lists have no spots left for new subscribers.
- The 10-20% discount that community solar offers to customers is much lower than the savings available to homeowners that install solar on their own roofs.
- Thousands of community solar customers have had difficulties getting ConEd to apply their solar credits to their accounts, and these problems persist despite efforts by the State to fix them.[126]

Because it is common for renters to pay for electricity but not gas, electrifying energy systems often raises renters' energy bills. (1.17)

- Electrifying more rental units has the potential to worsen already high levels of energy cost burden unless paired with rate reforms or affordability programs.[127]

Home energy upgrades are less accessible for some groups. In the RABA survey, Black, Hispanic, and very low-income respondents gave higher scores to most of the barriers listed in Table 7.[128] (1.18)

Small home retrofits, especially through LMI programs, can be complicated and time consuming for contractors to navigate, discouraging them from participating. (1.19)

- The amount of paperwork associated with LMI programs, including EmPower+, is a powerful disincentive to participating. As a result, some choose not to work with people using these programs.[129]
- Some rebate programs pay contractors after work is done, complicating cash flow considerations.
- Homeowners can have unrealistic expectations about costs, project scopes, and incentive amounts.
- Retrofits are more complicated and more expensive in NYC, discouraging contractors from working here.[130]

2. Barriers to Participating in Workforce

People don't know much about the green economy, its branches, or workforce programs, and there is a lack of clarity about what it encompasses. (2.1)

- It is difficult to find comprehensive, reliable information about the field, paths into it, types of jobs, and necessary skills/qualifications for these jobs.[131]
- Many people associate the green economy with solar and other renewables, but do not know about other parts of the field, such as building decarbonization.
- People do not know about specific companies that are hiring within the field, or job training programs that can help them get skills and find a job.
- As shown in Table 8, few people know about existing green job training programs.
- Many people do not realize how green jobs help individuals and communities, not just the environment.[132]
- In the RABA survey, Hispanic, Black and Asian respondents, women, and people with lower levels of education were more likely to indicate that they wanted more information about the green economy.[133]

Untrue perceptions about the green economy deter people from being interested. (2.2)

- One common perception is that the green economy is dominated by jobs requiring manual labor. Another is that the green economy is very scientific/technical, and that it requires extensive training to work in it. Respondents to the RABA survey were generally less interested in these types of jobs.[134]
- As shown in Table 8, many RABA survey respondents were worried that they did not have the right skills to work in the green economy or participate in a training program.

Table 8. Job Training Obstacles[135]

How big of an obstacle would these be to participating in a green job training program? (1-5 scale)	
I don't know how to find a green job training program	4.2
I'm worried I don't have the right skills	4.1
Travel time	4.0
Work schedule / inability to take time off work	3.8
Childcare or other caretaking responsibilities and/or cost	3.6

The green economy is dominated by white men, particularly in higher paying roles, which discourages women and people of color from learning about or participating in the industry and contributes to disparities in employment and income. (2.3)

- Green economy workers are predominantly (75%) male.[136] Construction is particularly dominated by men. In the RABA survey, women were significantly less likely to be interested in working in manual labor and technical trades.
- Almost three-quarters (72%) of green economy workers identify as white.[138]
- No one in a focus group of youth of color knew anyone working in the clean energy industry. Participants also had little knowledge of what the green economy comprises.[139]

Green job training programs can be difficult to participate in, especially for low-income people and non-English speakers. (2.4)

- Programs are time consuming and often cost money, presenting challenges especially to those with a full-time job or a family. Free programs have an opportunity cost when there are no stipends provided.[140]
- Programs are often offered only in English.
- Many workers need general job skills in addition to more specialized skills. This includes educational remediation (for example core literacy, writing, and math skills).[141]
- When asked about skills they are interested in gaining/improving, respondents to the RABA survey ranked general skills, like getting a driver's license and basic computer skills, highest.[142]

- Because many green jobs haven't yet arrived, it is difficult to know what to train for - both for potential participants and for organizations designing programs.[143]

Existing training programs are not always meeting the needs of the industry. (2.5)

- There is a lack of coordination between workforce training programs and the actual needs of the green energy industry, and green job openings often require specific skills that are not covered in general training programs.[144]

Immigrants, people of color, low-income people, unhoused people, justice involved people, people without a car, and other marginalized groups experience general systemic barriers to employment.[145,146] (2.6)

- Some of these barriers include the high cost of childcare, lack of access to transportation, the digital divide, discrimination, and bias.[147]
- In Staten Island, 29% of DAC households lack access to a vehicle despite the borough's poor public transit network.[148]

3. Barriers to Community Campaign Implementation

There is an overwhelming amount of information about clean energy initiatives available from many different sources, not all trustworthy. People don't know where to turn for accurate information.[149] (3.1)

- Self-interested private sector companies are often the loudest promoters of clean energy upgrades.
- Misinformation and scams about clean energy home upgrades are spreading. These scams can be financially devastating and also erode trust in legitimate programs.
- Solar scams among elderly and immigrant neighborhoods in Queens are a particular issue.[150]

Knowledge of clean energy opportunities is inequitably distributed, and outreach to some groups is harder than others. There has not been sufficient effort to close these information and outreach gaps. (3.2)

- The RABA survey found that people of color, low-income people, renters, and people with lower levels of education know less about clean energy technologies and programs, and that young people and seniors are less likely to attend community events.[151]
- Of DAC residents, 53% in Queens and 50% in Staten Island have a high school diploma or less.[152]
- Of DAC households, 12% in Queens and 18% in Staten Island do not have internet access, and older people are also less likely to have or know how to use the internet to find out about opportunities.[153]

NYC communities are far more diverse ethnically and linguistically than typical communities in other parts of the state, and NYSERDA has not invested enough in multilingual, culturally competent outreach. (3.3)

- Of DAC households, 22% in Queens and 9% in Staten Island have limited English proficiency, compared to 8% of NYS households.[154]
- NYC agencies routinely translate materials into up to 11 languages, but NYSERDA materials are often only available in English and sometimes Spanish.[155]
- Enabling non-English speakers to participate in clean energy programs requires deep investment in multilingual events, applications, one on one assistance, and more, not just translating flyers.[156]
- Cultural differences may require different approaches to outreach and messaging in different communities.
- Historically-marginalized communities often lack trust in government institutions and require increased investment of time to gain their trust.[157]

Queens and Staten Island span both a much more diverse and a much larger population than most of the other Hubs, but the Hub has not been given commensurate funding to conduct adequate outreach across all of these communities. (3.4)

4. Barriers to Engaging Partners

Community organizations doing complementary/overlapping work are often splintered, without much of a chance to coordinate or help each other. (4.1)

- CBOs can be territorial, stymying efforts to streamline resources and share information and best practices.
- The large number of organizations offering similar clean energy programs or expertise can be confusing for people trying to access home upgrades or green careers.[158]

Just as residents do, organizations and businesses also struggle to gain and retain expertise on the clean energy economy. (4.2)

- It is difficult to find information about how to get involved, funding opportunities, and how to position themselves to offer useful services within the green economy. [159]

- Constantly changing regulations, incentive programs, technologies, funding streams, and staff hinder efforts to build institutional capacity.
- The green economy is still nascent. Many projects that will create jobs have yet to arrive, and there are many unknowns about what these projects will end up looking like and the impacts they will have.
- Pivoting to the green economy requires significant capacity building, and it is difficult to find programs to help with this process.[160]

Public sector green economy programs are often complicated and cumbersome to participate in. (4.3)

- Contractors feel that many programs require them to fill out unmanageable, duplicative paperwork.[161]
- Public sector agencies can move on a very slow timeline, which adds costs, makes project planning and scheduling difficult, and further discourages participation. [162]
- These problems are especially difficult for smaller/MWBE contractors and small community organizations with less back-office capacity to navigate.[163]

MWBEs, other small businesses, and community organizations in DACs often struggle to find opportunities, lack trust in institutions, and have smaller networks. (4.4)

- MWBE (both certified and other minority and women owned businesses) struggle to be respected. Racist, negative stereotypes mean they have to jump through more hoops to get projects and earn trust.[164]

Opportunities

1. Opportunities for Residential Program Adoption

There is wide interest in sustainable home upgrades. (2.1)

- As shown in Table 9, survey respondents ranked almost every energy upgrade motivator as very effective.
- There was no technology that more than a quarter of survey respondents indicated definitely not wanting.
- When asked about what technologies people did want, survey respondents ranked LED lightbulbs, energy efficient appliances, high efficiency windows, improved insulation, and solar panels highly.[165]

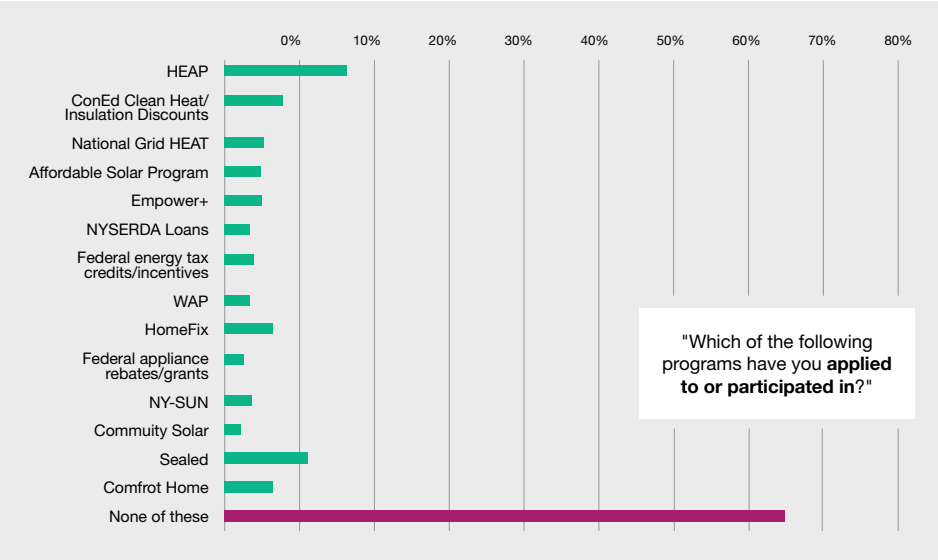
Few people in Queens and Staten Island have participated in existing energy incentive programs available to them (Chart 10). This low participation signals that with the right program design and support, there are huge opportunities to enroll more people. (2.2)

- Of RABA survey respondents, 75% have not participated in any listed program. Only 5% of respondents have participated in EmPower+. Only 36% of those with a household income less than $30,000 have applied to HEAP.[167]

Table 9. Clean Energy Motivators[166]

How much do these benefits of making a home energy upgrade appeal to you? (1-5 scale)	
Lowering my utility bills	4.6
Improving indoor air quality	4.6
Preparing my home to withstand natural disasters and avoid power outages	4.5
Making my home's temperature more comfortable	4.4
Fighting climate change/improving the environment	4.4
Making needed home repairs like a roof replacement or mold/lead abatement as part of the upgrade	4.1
Getting my tenant to stop complaining about being cold/hot (only asked to homeowners)	3.1

Chart 11. Participation in Home Energy Incentive Programs[168]



Significant funding is becoming available to expand home energy upgrades for LMI and DAC residents. (2.3)

- NYS was awarded $250 million to expand solar in LMI communities through the Solar for All program.[169]
- The federal government recently awarded $20 billion to a network of "green banks" that will focus on expanding green energy investment in DACs nationwide.[170]

Clean energy technologies are becoming better adapted to the urban environment through increased market interest and strategic government investment. (2.4)

- The new Gradient and Midea America window heat pump, developed with NYCHA, has the potential to make installing heat pumps in older NYC apartment buildings dramatically cheaper and simpler.[171]

3. Opportunities for Participating in Workforce

Green jobs offer higher pay than many other jobs open to people with lower levels of formal education. (3.1)

- On average, energy efficiency jobs pay about $2 per hour more than the national average hourly wage, and clean energy production jobs pay about $5 more.[172]
- More than 50% of the annual projected job openings in clean energy occupations typically require no more than a high school diploma or equivalent.[173]
- The industry's growth prospects and competition for workers means there is room for career growth.[174]

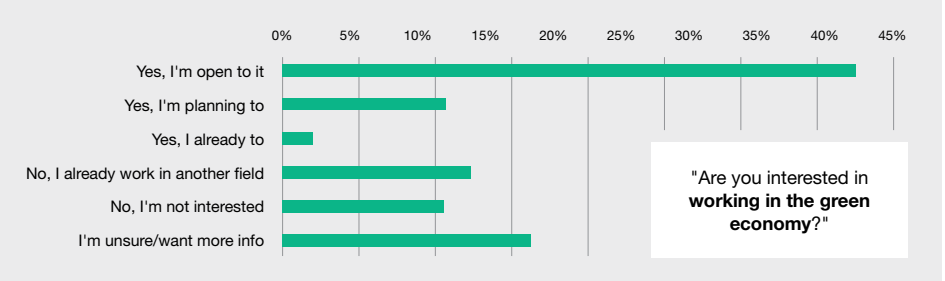
Most people, including those who are currently underrepresented in green careers, are interested in working in the green economy. (3.2)

- As shown in Table 10, people are interested in higher paying jobs that offer the potential to learn, help their communities and the environment.
- As shown in Chart 11, over three quarters of RABA survey respondents said they were interested, open to, or already working in the green economy.
- Of RABA survey respondents, 13% already worked in or were actively planning to work in the green economy, 42% were interested and open to it, and 22% said they wanted more information.
- RABA survey respondents from low-income communities of color and renters, groups that have received less benefits from NYSERDA, are more likely to want to work in the green economy.

Table 10. Green Jobs Motivators[178]

How much would the following encourage/enable you to participate in a green jobs training program? (1-5 scale)	
Possibility of earning better wages and benefits	4.7
Learning new skills	4.6
Doing work that helps my community and the environment	4.5
Stipend (payment) for participation	4.5
Hearing positive experiences from people who completed the program	4.4
Online option (no in-person requirement)	4.3
Someone I trust recommending the program	4.3
Free childcare during the program	3.4

Chart 12. Interest in the Green Economy[179]



- Black, Hispanic, and Asian respondents were open to working in a wider array of green economy sectors, including the more technical and manual labor-intensive sectors.[175]
- Focus group participants felt more excited about clean energy jobs than other jobs that they mentioned being available to them (retail, restaurants, home health care, etc.).[176]
- This enthusiasm extends to job training programs: 72% of RABA survey respondents were interested in formal green economy job training. Younger people and renters were particularly interested in green jobs training.[177]

The clean energy sector has the potential to diversify significantly by including more women, people of color, and other underrepresented groups. (3.3)

Green industries are expanding rapidly in the region. (3.4)

- The green economy is growing faster than the overall economy in NYS.[180]
- Major government policies and legislation such as the IRA and Local Law 97 are accelerating growth.[181]
- Offshore wind, which is being planned for the Arthur Kill Terminals, promises to bring thousands of jobs to Staten Island.[182] Solar and building decarbonization are also growing quickly throughout the city.[183]

There are opportunities to expand existing training programs and create new ones that are more inclusive and accessible. (3.5)

- Leveraging community-based organizations for outreach and training can enhance participation from marginalized communities.
- Programs that integrate wraparound services (e.g., childcare, transportation, stipends) can help overcome participation barriers.

3. Opportunities for Community Campaign Adoption

Communications channels outside of existing NYSERDA and private sector marketing offer opportunities to increase the reach and effectiveness of outreach. (1.1)

- Existing trusted CBOs in Queens and Staten Island that have their own audiences and can be outreach partners, and many are interested in getting more involved in environmental issues.[184]
- Some local elected officials have been champions of the green economy and have strong local networks.[185]
- Word of mouth, especially from within one's own community, is a powerful motivator. In the RABA survey, 56% of respondents said they often turn to personal networks for important information.[186]

Queens & Staten Island homeowners are very diverse. Black, Asian, Hispanic, and NHPI homeownership rates are higher in Queens and Staten Island than at the City and State level. Home retrofits have the potential to advance racial and housing justice outcomes. (2.2)

4. Opportunities for Engaging Partners

There are synergies between existing housing and financial counseling programs and clean energy advising. (4.1)

- Housing and financial counseling can help people understand what they can afford and create a plan for how to pay for upgrades.[187]

Educational institutions are creating pathways into the green economy that the Hub can connect to. (4.2)

- CUNY's LaGuardia Community College (in Queens) and the College of Staten Island are investing in offshore wind and other green economy training programs.[188]

VI. Recommendations

This chapter presents recommendations for the Queens/Staten Island Hub, NYSERDA, and other agencies to pursue in response to RABA findings. The recommendations are organized on a timeline:

A. Short term: recommendations for the coming year, through mid-2025

B. Medium term: recommendations for the remainder of this Hub contract, through mid-2026

C. Long term: recommendations stretching beyond the end of this Hub contract

A. Short Term

• Residential Program Adoption

Create a consumer-facing NY State Clean Energy Hubs website that offers centralized information about the types of programs and technologies available in the state and directs to individual Hubs' websites. When necessary, work with Hubs to create their own standalone websites. (Implementers: NYSERDA, Hub)

- The current NYSERDA website lacks resources to help people learn about technology options, and information on incentive programs is buried in a drop down. Also, many people do not know about NYSERDA, and thus do not know to look at its website.
- NY State Energy Advisor only lists some programs and its quiz format, while helpful in some contexts, presents a barrier to finding information in others.

Ensure that energy advisors are provided the tools to offer helpful and timely assistance and stay on top of programs by investing in robust, continuous training. (Implementers: NYSERDA, Hub)

Create communications materials that explain how programs work in easy to understand, graphical ways, like timelines, checklists, etc. Use a mix of outreach methods to reach different audiences. (Implementers: NYSERDA, Hub)

- The RABA survey found that social media reaches more young people and renters. Community events reach more low-income people and people of color. People with lower levels of formal education are more likely to attend religious services.[189]

Launch a campaign to combat misinformation and scams surrounding clean energy upgrades, including solar scams. Work with the Hubs to identify and punish scammers and companies with bad business practices. (Implementers: NYSERDA, Hub)

Support Hubs in building relationships with local contractors. Vet and update lists of contractors working in certain programs/geographies more thoroughly and frequently to ensure that they are accurate. (Implementers: NYSERDA, utilities, Hub)

Support and train contractors on how to navigate rebate/incentive program processes, and about the opportunities of working in DACs. Focus on expanding the number of contractors working in Queens and Staten Island DACs. (Implementerss: NYSERDA, Hub)

Utilize new revenue sources like the IRA and Cap & Invest to make incentives for home upgrades more generous, especially for LMI residents: provide larger incentives, more grants, less loans, and less stringent eligibility criteria. (Implementer: NYSERDA)

- Make it easier to qualify for measures like HEAR heat pump funds, which currently has restrictive criteria making it difficult for many interested LMI homeowners to qualify.

Work with Hubs to develop a strategy for assisting renters and helping them access programs available to them. (Implementers: NYSERDA, Hub, NYS Homes and Community Renewal (HCR), NYC Department of Housing Preservation and Development (HPD))

- Possibilities: engage small landlords, helping them make upgrades while ensuring tenants also benefit. Create a toolkit and support for tenants organizing to get their landlord to make changes.

Make program applications more user friendly and accessible to people with limited tech access or knowledge. Design forms in plain language and reduce paperwork burden where possible. Ensure that people can fill out on their

phones. Be able to assist people with a computer, scanner, and tech support at Hub organization offices. Field test with Hub partners. (Implementers: NYSERDA, Hub)

• Participating in Workforce

Build relationships with major green workforce organizations and employers citywide to offer wider workforce options beyond Queens and Staten Island. (Implementers: NYSERDA, Hub)

Identify, build awareness, and make referrals to existing training programs that meet employers' needs, with a focus on those that provide wraparound services like a stipend, necessary tools, transportation, childcare, and food. (Implementers: NYSERDA, Hub)

Support the Hub in hosting green career fairs and career exploration workshops that incorporate certifications/training programs. (Implementers: NYSERDA, Hub)

Continue to support and expand initiatives to increase the participation of women, people of color, and other underrepresented groups in the clean energy workforce. Create mentorship and support networks to retain and advance underrepresented workers in the green economy. (Implementers: NYSERDA, Hub)

• Community Campaign Implementation

Launch targeted awareness campaigns to promote the Hubs, residential incentive programs available to LMI households, and career opportunities in the clean energy sector. Target marketing in DACs. (Implementer: NYSERDA)

- There is currently very limited knowledge of these programs. Only 12% of RABA survey respondents had heard of EmPower+.[190]
- Partner with trusted community organizations to disseminate information and build interest.

Significantly increase monetary investment and staffing for multilingual outreach and translation services that are available for Hub organizations to utilize, not just for marketing but also for providing all Hub services. Utilize a trans-language approach, in which programs are provided entirely in other languages rather than being translated from English.[191] (Implementers: NYSERDA, Hub)

- In Queens and Staten Island, Spanish, South Asian languages, and Chinese are the most spoken languages.[192]
- NYC government translates materials into 11 languages.[193]

Co-brand the Hub with the existing, trusted CBOs that are a part of it and emphasize their role in its activities and programs. (Implementers: Hub)

Harness word of mouth and cultivate trusted messengers: document and highlight DAC community members' positive experiences with home upgrades and green jobs through events, building tours, etc. Compensate these community members for their help. (Implementers: NYSERDA, Hub)

Meet people at the events and locations they already visit (e.g. street fairs, religious services, schools, community centers, hair salons, parks, bodegas). (Implementer: Hub)

Support the Hub in offering incentives to those who attend Hub events, like free food, money, giveaways, games, and child care. (Implementers: NYSERDA, Hub)

Conduct in person program intakes at Hub events. (Implementers: Hub)

• Engaging Partners

Continue to build a network of partners to amplify the Hub's reach: make connections between climate, housing, and workforce organizations. Cultivate a referral network in which clients are directed to other organizations to access wraparound services, and those organizations refer to the Hub for the services it provides. (Implementes: Hub)

Partner with culturally embedded CBOs when designing and conducting outreach campaigns to ensure that a diverse variety of audiences are engaged. (Implementers: NYSERDA, Hub)

B. Medium Term

• Residential Program Adoption

Overhaul community solar: expand it, improve its cost saving benefits, work out kinks with utilities applying credits, and automatically enroll and notify batches of LMI renters. (Implementers: NYSERDA, utilities)

Use 80% AMI to define low-income for all NYSERDA programs, including to define eligibility for the EmPower+ low-income incentive, to reflect differences in cost of living across the state and match the federal IRA definition.[194] **Increase funding for EmPower+, Affordable Solar programs to reflect expanded eligible population.** (Implementer: NYSERDA)

Identify ways to dramatically expand access to funding for structural/health and safety repairs in 1-4 unit buildings that are necessary to go along with LMI home energy upgrades. (Implementers: NYSERDA, HCR, HPD, NYS Department of Health (DOH), NYC Department of Health and Mental Hygiene (DOHMH))
Possibilities:

- Expand EmPower+ to directly cover these repairs.
- Dramatically expand HPD's HomeFix so that it is a year-round, adequately funded program.
- Launch a new statewide program to cover these repairs open to anyone eligible for EmPower+.

AHC's RESTORE program could serve as a model. It offers up to $20,000 in grants for home repairs to elderly homeowners making less than 100% AMI.[195] **An expanded version could serve homeowners of all ages.**

- An estimated 42% of owner-occupied housing units in NYC have at least one maintenance problem.[196] Many of these units could be expected to benefit from such a program.

Work with Hubs to codesign more programs allowing renters to benefit from the clean energy economy. Examples could include helping renters get induction stoves and energy efficient appliances, better engaging landlords and helping residents do the same. (Implementers: NYSERDA, HCR, HPD, DOH, DOHMH)

Address the problem of electrification increasing renters' utility costs by reforming utility rate structures or creating a new energy affordability program for renters living in electrified units. (Implementers: NYSERDA, utilities, Department of Public Service (DPS), Public Service Commission (PSC))

Explore ways to prequalify more residents to LMI programs. (Implementers: NYSERDA, Office of Temporary Disability Assistance (OTDA), NYS Human Resources Administration (HRA))

- Bring back and expand geo-eligibility programs to cover residents of DACs.
- Coordinate with agencies administering low-income benefits programs to prequalify and notify recipients to EmPower+.

Increase transparency around how much customers can expect energy upgrades to cost, how much incentive they will qualify for, and how much they can expect to pay out of pocket. (Implementers: NYSERDA, Hub)

- Work with Hubs to gather and publicize information about typical pricing for popular upgrades in different areas of the state.
- Make qualifying criteria and caveats for incentives like HEAR rebates, nonrefundable federal tax credits clearer.

• Participating in Workforce

Work with Hubs to launch a public awareness campaign to educate communities about what the green economy is, combat misconceptions, showcase the breadth of opportunities, highlight success stories, explain the importance of green jobs for the environment and economy, and demystify paths to entering these careers. (Implementers: NYSERDA, Hub)

Work with clean energy employers and workforce development programs to establish robust follow-up systems to track the hiring, retention, and advancement of priority populations, as well as the career progression of participants in certification and training initiatives. (Implementer: NYSERDA)

Collaborate with local educational institutions to create seamless pathways from education to employment in the green economy. Engage employers in the development of training curricula to ensure alignment with industry needs. (Implementers: NYSERDA, Hub)

Develop and fund new training programs that are accessible to low-income and marginalized communities. Ensure that training programs offer certifications and skills that match the needs of green energy employers. (Implementers: NYSERDA, Hub, EDC)

Expand support services for trainees. Provide wraparound services, such as childcare, transportation, and stipends, to reduce barriers to participation in training programs. (Implementers: NYSERDA, Hub, EDC)

• Community Campaign Implementation

Explore using community campaign funding to address specific localized problems. (Implementer: Hub) Ideas:

- Offer free necessary structural/health and safety repairs in cases where these are necessary before efficiency upgrades.
- Take advantage of uniform building characteristics in particular areas to access economies of scale through bulk purchasing, standardization. Test this model in NYC's densely populated neighborhoods.
- Connect resilience and sustainability: provide special outreach, assistance, and funding to customers after natural disasters.

• Engaging Partners

Explore ways to streamline the processes by which green economy businesses and contractors interact with NYSERDA. Offer extra assistance with administrative burden to smaller/MWBE businesses without as much experience navigating government programs. (Implementers: NYSERDA, Hub)

Educate non-green economy businesses from underrepresented communities about how to get involved in the green economy, available certifications, and benefits of doing so. (Implementers: NYSERDA, Hub)

C. Long Term

• Residential Program Adoption

Create more programs that center and integrate resilience in response to escalating climate threats. Examples include programs that integrate batteries and solar, moving equipment out of basements, give economic incentive to those who have gone through a natural disaster. (Implementers: NYSERDA, HCR, HPD)

• Participating in Workforce

Devote more resources to workforce development in the next iteration of the Hubs, and shift the focus of workforce development work more towards supporting workers, especially from underrepresented communities, as opposed to employers. (Implementer: NYSERDA)

Foster ongoing collaboration between training providers, employers, and policymakers to address evolving workforce needs. Promote industry standards and certifications that ensure high-quality training and job readiness. (Implementers: NYSERDA, HCR, ECD)

Conduct deeper research on the current and future green economy in NYC, such as sector specific analyses, to become an authority on green workforce issues. (Implementers: NYSERDA, Hub)

Focus on resilience and adaptability. Prepare the workforce for the evolving demands of the green economy, including emerging technologies and changing regulations. Also, support continuous learning and professional development opportunities for green energy workers. (Implementers: NYSERDA, HCR, ECD)

• Community Campaign Implementation

Learn from the Hubs about the unique qualities of their communities, including ethnically and linguistically diverse communities, and tailor programs and outreach in response. (Implementers: NYSERDA, Hub)

In the next round of Hub contracts, provide Hubs, especially those covering very populous regions, with significantly more funding to expand the number of energy advisors and community campaigns. (Implementers: NYSERDA, Hub)

- Tie Hub funding to achieve a target number of energy advisors based on each region's LMI population. Consult with Hubs to determine appropriate targets.

• Engaging Partners

Build relationships with and support unions/organizing in the green economy to ensure that green jobs continue to be good livable jobs. (Implementers: NYSERDA, Hub)

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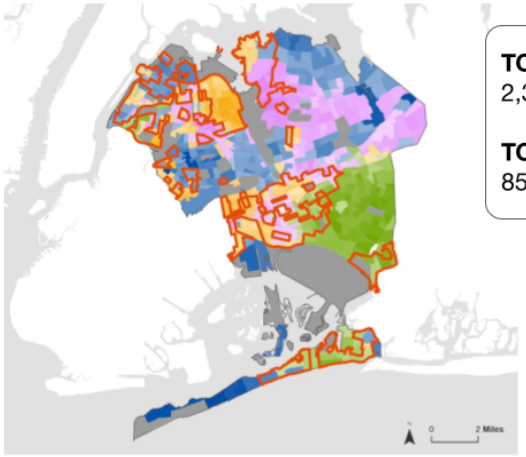
Appendices

Appendix A
Complete Sociodemographic Data

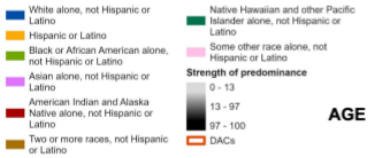
QUEENS: OVERVIEW



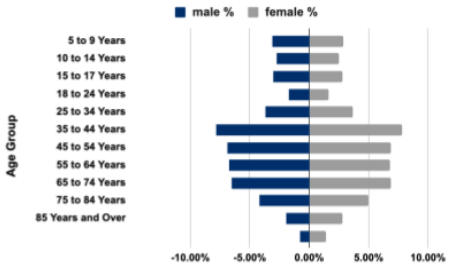
TOTAL POPULATION [1]
2,393,104

TOTAL POPULATION DAC [1,2]
850,109

Predominant Race by Census Tract



AGE & SEX (Queens)



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RACE & ETHNICITY [1]

Race*	DACs	Queens	NYC	NYS
White	26.8%	33.6%	39.8%	60.7%
Black or African American	17.5%	17.8%	23.4%	15.2%
American Indian and Alaska Native	0.7%	0.6%	0.5%	0.4%
Asian	23.9%	25.8%	14.3%	8.7%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%	0.1%
Some Other Race	22.5%	14.6%	14.9%	9.0%
Two or More Races	8.5%	7.6%	7.1%	6.0%

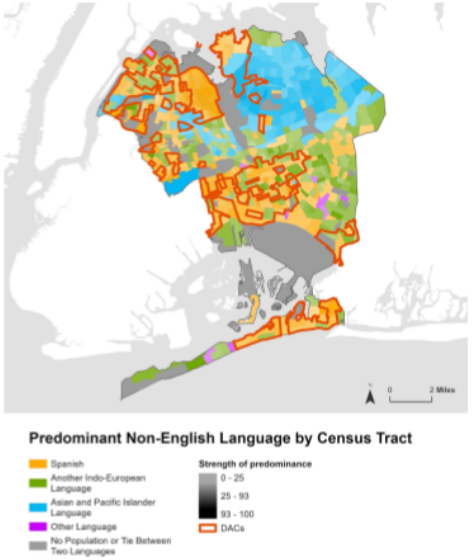
*Categories are mutually exclusive

Ethnicity**	DACs	Queens	NYC	NYS
Hispanic or Latino	39.2%	27.9%	28.9%	19.3%
White Alone	*11.4%*	*9.0%*	*7.8%*	*6.1%*
Black or African American Alone	*1.3%*	*1.0%*	*2.3%*	*1.3%*
American Indian and Alaska Native Alone	*0.4%*	*0.3%*	*0.4%*	*0.2%*
Asian Alone	*0.3%*	*0.2%*	*0.1%*	*0.1%*
Native Hawaiian and Other Pacific Islander Alone	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Some Other Race Alone	*20.0%*	*12.7%*	*13.9%*	*8.3%*
Two or More Races	*5.9%*	*4.8%*	*4.4%*	*3.3%*
Not Hispanic or Latino	60.8%	72.1%	71.1%	80.8%
White Alone	*15.5%*	*24.6%*	*31.9%*	*54.7%*
Black or African American Alone	*16.2%*	*16.8%*	*21.1%*	*13.9%*
American Indian and Alaska Native Alone	*0.3%*	*0.3%*	*0.2%*	*0.2%*
Asian Alone	*23.6%*	*25.6%*	*14.1%*	*8.6%*
Native Hawaiian and Other Pacific Islander Alone	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Some Other Race Alone	*2.6%*	*2.0%*	*1.0%*	*0.7%*
Two or More Races	*2.6%*	*2.8%*	*2.7%*	*2.7%*

**Categories are mutually exclusive

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LANGUAGE SPOKEN AT HOME; FOREIGN-BORN POPULATION [1]



Immigration stats link

% Foreign-born (QN)[1]
47.0%

% Foreign-born (DAC) [1,2]
50.4%

% Foreign-born w/ citizenship status (QN)[1]
58.5% (as percent of foreign-born pop.)

% Foreign-born w/ Citizenship status (DAC) [1,2]
51.6% (as percent of foreign-born pop.)

Language Spoken at Home (Population 5+)	DACs	Queens	NYC	NYS
Speak Only English	39.3%	44.8%	52.1%	69.5%
Spanish	34.2%	23.4%	23.5%	14.8%
French, Haitian, Or Cajun	1.2%	1.7%	2.3%	1.5%
German Or Other West Germanic Languages	0.3%	0.3%	1.5%	1.3%
Russian, Polish, Or Other Slavic Languages	1.8%	3.3%	3.6%	2.1%
Other Indo-European Languages	10.7%	10.0%	5.5%	3.9%
Korean	0.9%	1.8%	0.8%	0.5%
Chinese (Incl. Mandarin, Cantonese)	7.1%	9.4%	6.1%	3.2%
Vietnamese	0.1%	0.2%	0.1%	0.1%
Tagalog (Incl. Filipino)	1.3%	1.5%	0.6%	0.4%
Other Asian And Pacific Island Languages	1.3%	1.7%	1.1%	0.9%
Arabic	0.9%	0.8%	0.9%	0.6%
Other And Unspecified Languages	0.8%	1.1%	1.9%	1.2%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LANGUAGE SPOKEN AT HOME [1]

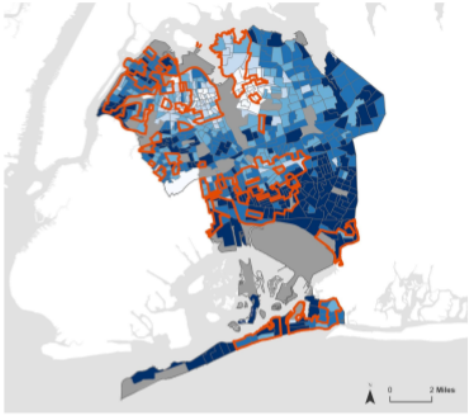
Language Spoken at Home: Total Number of Speakers (Population 5+)	DACs	Queens	NYC	NYS
Speak Only English	312,306	1,008,620	4,271,921.00	13,177,639.00
Spanish	272,079	525,964	1,923,155.00	2,801,677.00
French, Haitian, Or Cajun	9,836	37,591	185,662.00	280,169.00
German Or Other West Germanic Languages	2,377	7,074	125,911.00	252,986.00
Russian, Polish, Or Other Slavic Languages	14,061	74,781	292,422.00	397,510.00
Other Indo-European Languages	85,062	225,941	449,051.00	744,335.00
Korean	7,360	41,446	62,803.00	91,014.00
Chinese (Incl. Mandarin, Cantonese)	56,763	210,645	500,659.00	600,113.00
Vietnamese	842	3,538	11,046.00	22,710.00
Tagalog (Incl. Filipino)	10,181	33,648	49,292.00	76,783.00
Other Asian And Pacific Island Languages	10,655	38,270	87,729.00	173,537.00
Arabic	7,435	18,194	75,392.00	115,658.00
Other And Unspecified Languages	6,373	23,741	157,567.00	226,238.00

Top non-English languages in DACs *(~10,000 speakers above age 5)*:

1. **Spanish**: *272,079 speakers*
2. **Other Indo-European Languages (incl. South Asian languages, some European languages)**: *85,062 speakers*
3. **Chinese (incl. Mandarin, Cantonese)**: *56,763 speakers*
4. **Russian, Polish, or Other Slavic Languages**: *14,061 speakers*
5. **Tagalog (Incl. Filipino)**: *10,181 speakers*
6. **Other AAPI Languages (incl. Many East/Southeast Asian languages other than Chinese, Vietnamese, Korean, Tagalog)**: *10,655*

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

HOUSEHOLD ENGLISH PROFICIENCY [1]



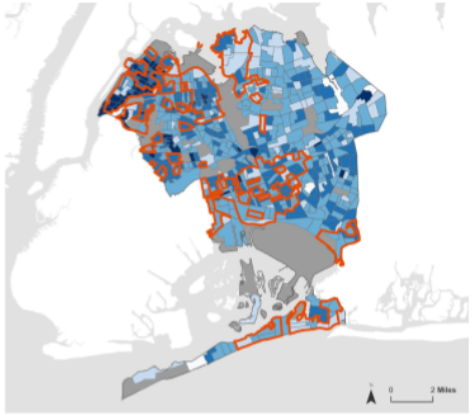
Limited English Proficiency HH (QN)[1]
17.8%

Limited English Proficiency HH (DAC) [1,2]
22.1%

Household Language and English Proficiency by Household					
Household Language	**English Proficiency**	**DACs**	**Queens**	**NYC**	**NYS**
English Only	N/A	37.5%	42.3%	50.6%	68.5%
Spanish	Limited English Speaking Household	**11.1%**	**6.7%**	**6.5%**	**3.6%**
	Not A Limited English Speaking Household	21.7%	16.2%	17.2%	11.2%
Other Indo-European Languages	Limited English Speaking Household	**4.3%**	**4.1%**	**3.6%**	**2.0%**
	Not A Limited English Speaking Household	10.8%	12.8%	10.5%	7.8%
Asian And Pacific Island Languages	Limited English Speaking Household	**6.3%**	**6.7%**	**3.4%**	**1.7%**
	Not A Limited English Speaking Household	6.3%	9.1%	5.4%	3.4%
Other Languages	Limited English Speaking Household	**0.4%**	**0.3%**	**0.4%**	**0.3%**
	Not A Limited English Speaking Household	1.7%	1.8%	2.4%	1.6%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LABOR PARTICIPATION & UNEMPLOYMENT



Labor Participation (QN)[1]
63.9%

Labor Participation (DAC) [1,2]
63.9%

NYC
63.4%

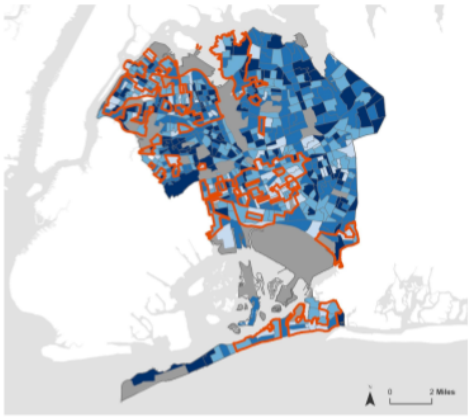
NYS
63.1%

Labor Participation Rate *by Race or Ethnicity*				
Race or Ethnicity		**Queens**	**NYC**	**NYS**
Race	White alone	**61.7%**	**65.0%**	**63.1%**
	Black or African American alone	**64.4%**	**60.6%**	**61.1%**
	American Indian and Alaska Native alone	**68.6%**	**62.9%**	**58.9%**
	Asian alone	**63.7%**	**64.2%**	**64.2%**
	Native Hawaiian and Other Pacific Islander alone	**66.8%**	**65.0%**	**63.8%**
	Some other race alone	**67.8%**	**61.7%**	**63.4%**
	Two or more races	**65.5%**	**65.4%**	**66.6%**
Ethnicity	Hispanic or Latino origin (of any race)	**67.2%**	**62.1%**	**64.2%**
	White alone, not Hispanic or Latino	**60.2%**	**65.8%**	**62.9%**

* **Labor participation** refers to people in the workforce who are either working or actively looking for work; **unemployment** refers to people who are actively seeking work and are unemployed ("labor participation" is the denominator)

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LABOR PARTICIPATION & UNEMPLOYMENT



Unemployment Rate (QN)[1]
7.0%

Unemployment Rate (DAC) [1,2]
8.0%

NYC
7.5%

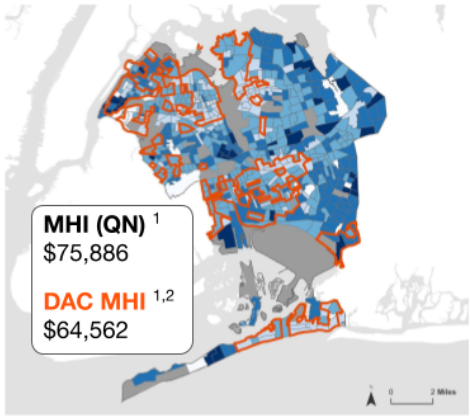
NYS
6.2%

Unemployment Rate for the Pop. 16+ *by Race or Ethnicity*					
Race or Ethnicity		**DACs**	**Queens**	**NYC**	**NYS**
Race	White Alone	6.5%	5.9%	5.5%	5.0%
	Black or African American Alone	11.5%	8.8%	9.7%	9.2%
	American Indian or Alaska Native Alone	4.2%	5.9%	10.0%	9.2%
	Asian Alone	6.7%	6.0%	6.1%	5.7%
	Native Hawaiian or Pacific Islander Alone	0.0%*	10.2%	15.5%	12.0%
	Some Other Race Alone	7.9%	7.6%	10.0%	9.0%
	Two or More Races Alone	9.8%	9.4%	10.0%	9.0%
Ethnicity	Hispanic or Latino	7.3%	7.3%	9.3%	8.3%
	White Alone, Not Hispanic or Latino	7.6%	6.1%	5.3%	4.9%

* Very small population of NHPI in DACs

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

MEDIAN HOUSEHOLD INCOME [3]



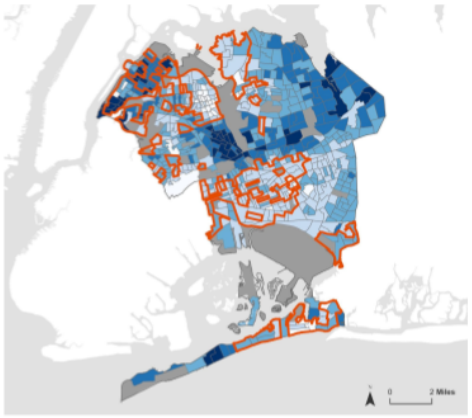
MHI (QN) [1]
$75,886

DAC MHI [1,2]
$64,562

Median Household Income *by Race or Ethnicity*					
Race or Ethnicity		**DACs**	**Queens**	**NYC**	**NYS**
Race	White Alone Householder	$70,434	$82,668	$93,105	$83,877
	Black or African American Alone Householder	$55,997	$74,726	$53,095	$53,697
	American Indian and Alaska Native Alone Householder	$62,521	$68,543	$52,801	$50,731
	Asian Alone Householder	$64,828	$73,580	$76,634	$83,399
	Native Hawaiian and Other Pacific Islander Alone Householder	$48,499	$116,985	$46,009	$49,528
	Some Other Race Alone Householder	$62,935	$66,132	$45,336	$49,838
	Two or More Races Householder	$66,683	$75,963	$65,288	$68,158
Ethnicity	Hispanic or Latino Householder	$61,051	$66,470	$49,189	$55,621
	White Alone Householder, Not Hispanic or Latino	$78,608	$86,784	$102,633	$85,520

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023
[3] NYSERDA RABA Data Visualization Tool, 2023

EDUCATIONAL ATTAINMENT



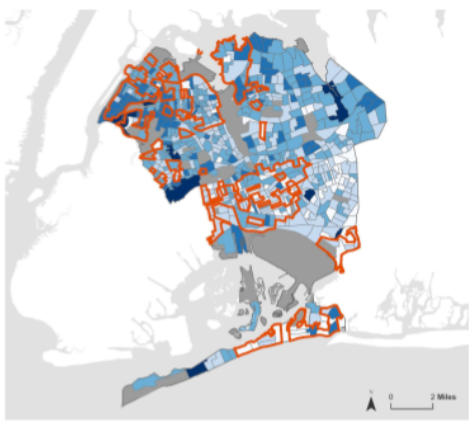
% Bachelor's or Higher (QN)[1]
33.9%

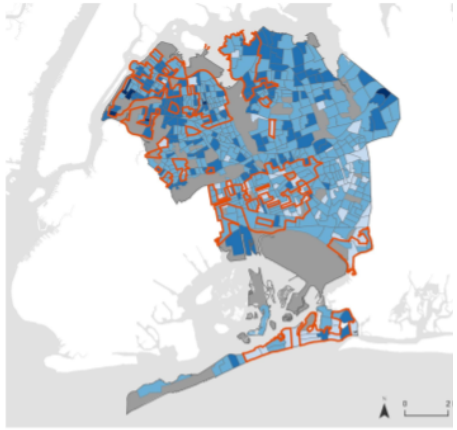
% Bachelor's or Higher (DAC) [1,2]
26.2%

Educational Attainment Level (Ages 25+)	DACs	Queens	NYC	NYS
Less than High School	22.9%	17.3%	16.8%	12.6%
High School Graduate or More (Includes Equivalency)	77.1%	82.7%	83.2%	87.4%
Some College or More	47.0%	56.0%	59.6%	62.2%
Bachelor's Degree or More	26.2%	33.9%	39.6%	38.1%
Master's Degree or More	9.0%	12.9%	16.7%	16.8%
Professional School Degree or More	2.0%	3.2%	4.9%	4.7%
Doctorate Degree	0.7%	1.1%	1.6%	1.6%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

TRAVEL TIME TO WORK





Travel Time to Work (for workers 16+)	DACs	Queens	NYC	NYS
< 5 min.	1.0%	0.8%	1.1%	2.4%
5 - 14 min.	7.3%	7.3%	8.1%	17.5%
15 - 29 min.	16.2%	18.0%	20.6%	29.4%
30 - 44 min.	27.0%	26.2%	27.1%	22.1%
45 - 59 min.	17.6%	17.2%	16.3%	11.0%
60 - 89 min.	21.9%	21.5%	19.2%	12.1%
90+ min.	9.1%	9.1%	7.6%	5.7%
Average Commute Time	44 min.	44 min.	41 min.	33 min.

Average Commute Time (QN) [1]
44 min.

Average Commute Time (DAC)
44 min.

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

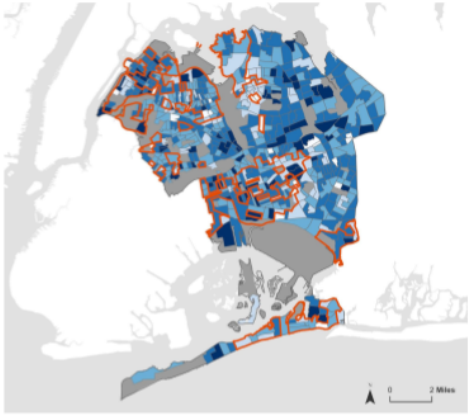
MEANS OF TRANSPORTATION & VEHICLE ACCESS

Means of Transport to Work (for workers 16+)	DACs	Queens	NYC	NYS
Car, Truck, or Van	32.6%	38.9%	26.8%	57.6%
Drove Alone	*26.9%*	*32.8%*	*22.4%*	*51.4%*
Carpooled	*5.6%*	*6.1%*	*4.4%*	*6.3%*
Public Transportation (Includes Taxicab)	*52.2%*	*46.1%*	*50.8%*	*25.4%*
Motorcycle	0.1%	0.1%	0.1%	0.1%
Bicycle	0.9%	0.6%	1.4%	0.7%
Walked	7.2%	5.8%	9.5%	5.8%
Other Means	0.7%	0.7%	0.9%	0.8%
Worked At Home	6.4%	7.8%	10.7%	9.5%

Vehicle Access by Household (Occupied)	DACs	Queens	NYC	NYS
No Vehicle Available	46.0%	36.7%	54.5%	28.9%
1 Vehicle Available	37.5%	40.3%	32.0%	32.8%
2 Vehicles Available	12.1%	17.2%	10.3%	25.8%
3 Vehicles Available	3.3%	4.5%	2.5%	8.6%
4 Vehicles Available	0.8%	1.1%	0.6%	2.8%
5 or More Vehicles Available	0.3%	0.3%	0.2%	1.1%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

INTERNET ACCESS [1]



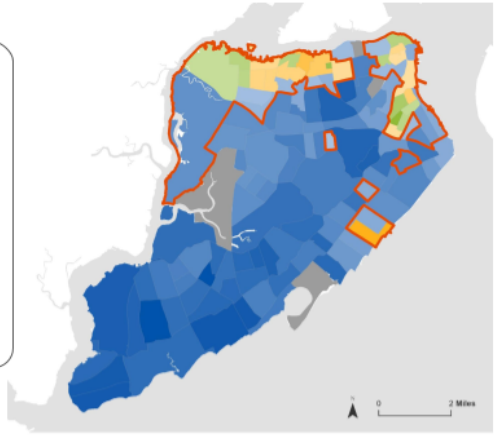
Internet Access by Household	DACs	Queens	NYC	NYS
With An Internet Subscription	85.6%	87.8%	86.3%	87.1%
Dial-Up Alone	*0.2%*	*0.2%*	*0.2%*	*0.2%*
Broadband (such As Cable, Fiber Optic, or DSL)	*69.7%*	*72.3%*	*72.9%*	*74.7%*
Satellite Internet Service	*4.1%*	*3.9%*	*3.7%*	*4.0%*
Other Service	*1.0%*	*0.8%*	*0.9%*	*0.8%*
Internet Access Without A Subscription	2.6%	1.9%	2.2%	2.4%
No Internet Access	11.8%	10.3%	11.5%	10.5%

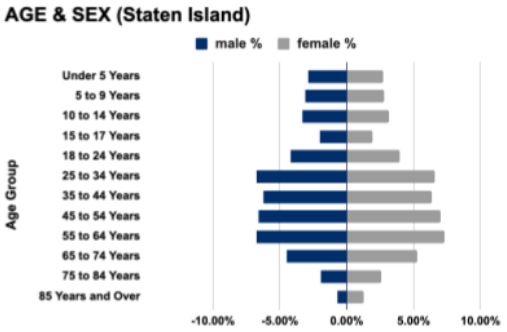
[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

STATEN ISLAND: OVERVIEW

TOTAL POPULATION [1]
493,194

TOTAL POPULATION DAC [1,2]
141,077





[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

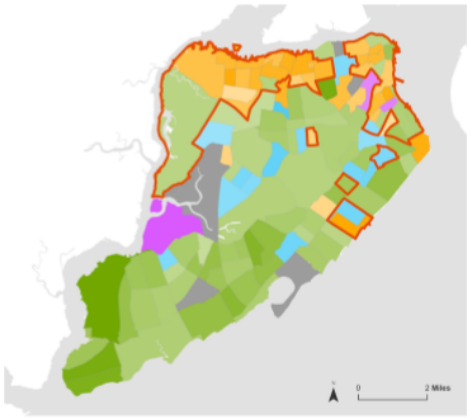
RACE & ETHNICITY

Race	DACs	Staten Island	NYC	NYS
White Alone	44.2%	69.4%	39.8%	60.7%
Black or African American Alone	27.8%	10.1%	23.4%	15.2%
American Indian and Alaska Native Alone	0.5%	0.3%	0.5%	0.4%
Asian Alone	10.8%	10.4%	14.3%	8.7%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.0%	0.1%	0.1%
Some Other Race Alone	8.2%	4.1%	14.9%	9.0%
Two or More Races	8.4%	5.8%	7.1%	6.0%

Ethnicity	DACs	Staten Island	NYC	NYS
Hispanic or Latino	**31.9%**	**18.4%**	**28.9%**	**19.3%**
White Alone	*14.7%*	*9.7%*	*7.8%*	*6.1%*
Black or African American Alone	*3.0%*	*1.0%*	*2.3%*	*1.3%*
American Indian and Alaska Native Alone	*0.4%*	*0.2%*	*0.4%*	*0.2%*
Asian Alone	*0.1%*	*0.1%*	*0.1%*	*0.1%*
Native Hawaiian and Other Pacific Islander Alone	*0.1%*	*0.0%*	*0.0%*	*0.0%*
Some Other Race Alone	*8.0%*	*3.9%*	*13.9%*	*8.3%*
Two or More Races	*5.6%*	*3.6%*	*4.4%*	*3.3%*
Not Hispanic or Latino	**68.2%**	**81.6%**	**71.1%**	**80.8%**
White Alone	*29.5%*	*59.6%*	*31.9%*	*54.7%*
Black or African American Alone	*24.8%*	*9.1%*	*21.1%*	*13.9%*
American Indian and Alaska Native Alone	*0.2%*	*0.1%*	*0.2%*	*0.2%*
Asian Alone	*10.7%*	*10.4%*	*14.1%*	*8.6%*
Native Hawaiian and Other Pacific Islander Alone	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Some Other Race Alone	*0.2%*	*0.2%*	*1.0%*	*0.7%*
Two or More Races	*2.8%*	*2.1%*	*2.7%*	*2.7%*

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LANGUAGE SPOKEN AT HOME; FOREIGN-BORN POPULATION [1]



Immigration stats link

% Foreign-born (SI)[1]
24.2%

% Foreign-born (DAC) [1,2]
29.0%

% Foreign-born w/ citizenship status (SI)[1]
67.7% (as percent of foreign-born pop.)

% Foreign-born w/ Citizenship status (DAC) [1,2]
58.5% (as percent of foreign-born pop.)

Language Spoken at Home (Population 5+)	**DACs**	**Staten Island**	**NYC**	**NYS**
Speak Only English	59.0%	66.2%	52.1%	69.5
Spanish	21.1%	10.4%	23.5%	14.8
French, Haitian, Or Cajun	1.1%	0.6%	2.3%	1.5
German Or Other West Germanic Languages	0.1%	0.4%	1.5%	1.3
Russian, Polish, Or Other Slavic Languages	3.8%	6.1%	3.6%	2.1
Other Indo-European Languages	5.2%	5.9%	5.5%	3.9
Korean	0.1%	0.5%	0.8%	0.5
Chinese (Incl. Mandarin, Cantonese)	4.6%	4.8%	6.1%	3.2
Vietnamese	0.1%	0.1%	0.1%	0.1
Tagalog (Incl. Filipino)	0.5%	0.5%	0.6%	0.4
Other Asian And Pacific Island Languages	1.0%	1.2%	1.1%	0.9
Arabic	1.4%	2.1%	0.9%	0.6
Other And Unspecified Languages	2.1%	1.4%	1.9%	1.2

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LANGUAGE SPOKEN AT HOME [1]

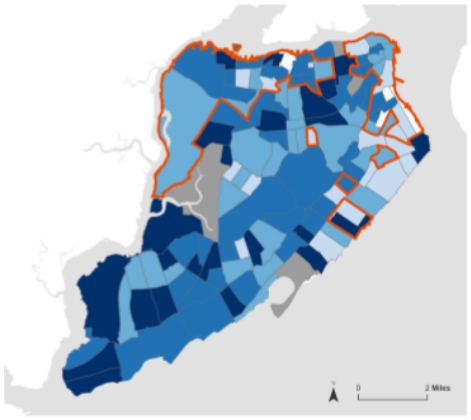
Top non-English languages in DACs *(>5,000 speakers above age 5)*:

1. **Spanish**: *28,044 speakers*
2. **Other Into-European languages (incl. South Asian languages, some European languages)**: *6,845 speakers*
3. **Chinese (incl. Mandarin, Cantonese)**: *6,068 speakers*
4. **Russian, Polish, or other Slavic languages**: *5,014 speakers*

Language Spoken at Home (Population 5+)	**DACs**	**Staten Island**	**NYC**	**NYS**
Speak Only English	78,494	307,934	4,271,921	13,177,639
Spanish	28,044	48,182	1,923,155	2,801,677
French, Haitian, Or Cajun	1,445	2,689	185,662	280,169
German Or Other West Germanic Languages	87	1,785	125,911	252,986
Russian, Polish, Or Other Slavic Languages	5,014	28,357	292,422	397,510
Other Indo-European Languages	6,845	27,610	449,051	744,335
Korean	154	2,286	62,803	91,014
Chinese (Incl. Mandarin, Cantonese)	6,068	22,481	500,659	600,113
Vietnamese	183	363	11,046	22,710
Tagalog (Incl. Filipino)	713	2,289	49,292	76,783
Other Asian And Pacific Island Languages	1,280	5,390	87,729	173,537
Arabic	1,889	9,711	75,392	115,658
Other And Unspecified Languages	2,817	6,440	157,567	226,238

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LANGUAGE SPOKEN AT HOME [1]



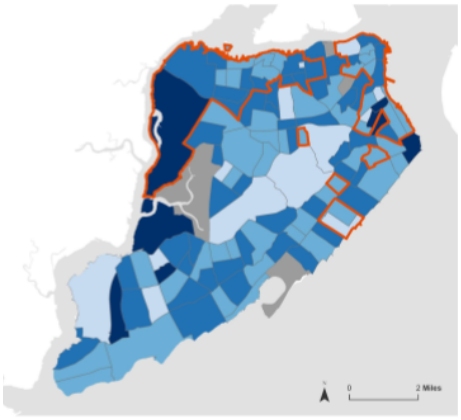
Limited English Proficiency HH (SI)[1]
6.6%

Limited English Proficiency HH (DAC) [1,2]
9.3%

Household Language and English Proficiency by Household (% of Total HH)					
Household Language	**English Proficiency**	**DACs**	**Staten Island**	**NYC**	**NYS**
English Only	N/A	56.5%	63.0%	50.6%	68.5%
Spanish	Limited English Speaking Household	**3.5%**	**1.5%**	**6.5%**	**3.6%**
	Not A Limited English Speaking Household	18.6%	10.4%	17.2%	11.2%
Other Indo-European Languages	Limited English Speaking Household	**3.0%**	**2.8%**	**3.6%**	**2.0%**
	Not A Limited English Speaking Household	8.4%	12.3%	10.5%	7.8%
Asian And Pacific Island Languages	Limited English Speaking Household	**2.6%**	**2.2%**	**3.4%**	**1.7%**
	Not A Limited English Speaking Household	3.3%	4.4%	5.4%	3.4%
Other Languages	Limited English Speaking Household	**0.2%**	**0.1%**	**0.4%**	**0.3%**
	Not A Limited English Speaking Household	3.9%	3.3%	2.4%	1.6%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LABOR PARTICIPATION & UNEMPLOYMENT



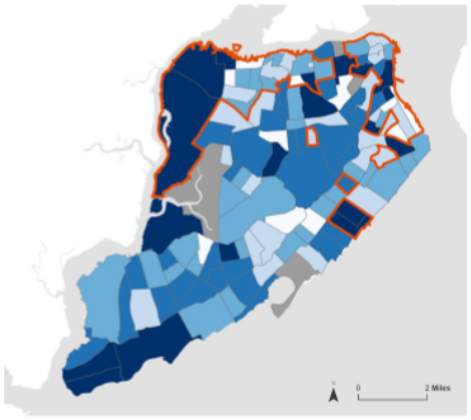
Labor Participation (SI)[1]
59.7%

Labor Participation (DAC) [1,2]
58.8%

Labor Participation Rate *by Race or Ethnicity*				
Race or Ethnicity		**Staten Island**	**NYC**	**NYS**
Race	White alone	58.9%	65.0%	63.1%
	Black or African American alone	61.1%	60.6%	61.1%
	American Indian and Alaska Native alone	59.1%	62.9%	58.9%
	Asian alone	63.2%	64.2%	64.2%
	Native Hawaiian and Other Pacific Islander alone	19.0%	65.0%	63.8%
	Some other race alone	64.6%	61.7%	63.4%
	Two or more races	57.8%	65.4%	66.6%
Ethnicity	Hispanic or Latino origin (of any race)	61.8%	62.1%	64.2%
	White alone, not Hispanic or Latino	58.4%	65.8%	62.9%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

LABOR PARTICIPATION & UNEMPLOYMENT



Unemployment Rate (SI)[1]
3.3%

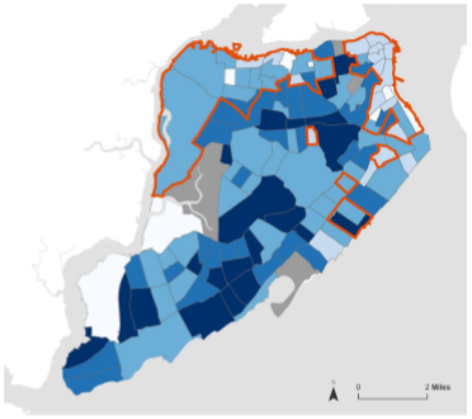
Unemployment Rate (DAC) [1,2]
3.7%

Unemployment Rate for the Pop. 16+ *by Race or Ethnicity*

Race or Ethnicity		DACs	Staten Island	NYC	NYS
Race	White Alone	4.5%	4.9%	5.5%	5.0%
	Black or African American Alone	7.6%	7.2%	9.7%	9.2%
	American Indian or Alaska Native Alone	5.2%	3.3%	10.0%	9.2%
	Asian Alone	7.4%	5.3%	6.1%	5.7%
	Native Hawaiian or Pacific Islander Alone	*0%**	*0%**	15.50%	12.00%
	Some Other Race Alone	6.5%	8.1%	10.0%	9.0%
	Two or More Races Alone	11.2%	8.8%	10.0%	9.0%
Ethnicity	Hispanic or Latino	6.1%	6.5%	9.3%	8.3%
	White Alone, Not Hispanic or Latino	4.8%	4.9%	5.3%	4.9%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

MEDIAN HOUSEHOLD INCOME [3]



MHI (SI) [1]
$89,427

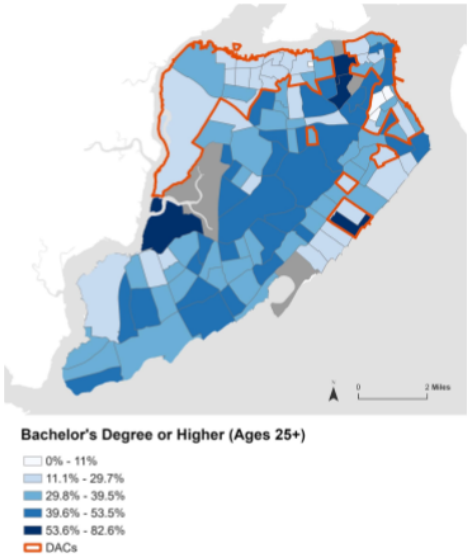
DAC MHI [1,2]
$65,076

Median Household Income by Race or Ethnicity

Race or Ethnicity		DACs	Staten Island	NYC	NYS
Race	White Alone Householder	$71,588	$95,889	$93,105	$83,877
	Black or African American Alone Householder	$53,942	$57,517	$53,095	$53,697
	American Indian and Alaska Native Alone Householder	$64,903	$80,583	$52,801	$50,731
	Asian Alone Householder	$80,737	$87,751	$76,634	$83,399
	Native Hawaiian and Other Pacific Islander Alone Householder	$28,491	*no data*	$46,009	$49,528
	Some Other Race Alone Householder	$51,539	$74,770	$45,336	$49,838
	Two or More Races Householder	$52,445	$72,058	$65,288	$68,158
Ethnicity	Hispanic or Latino Householder	$52,908	$72,303	$49,189	$55,621
	White Alone Householder, Not Hispanic or Latino	$74,833	$98,714	$102,633	$85,520

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023
[3] NYSERDA RABA Data Visualization Tool, 2023

EDUCATIONAL ATTAINMENT



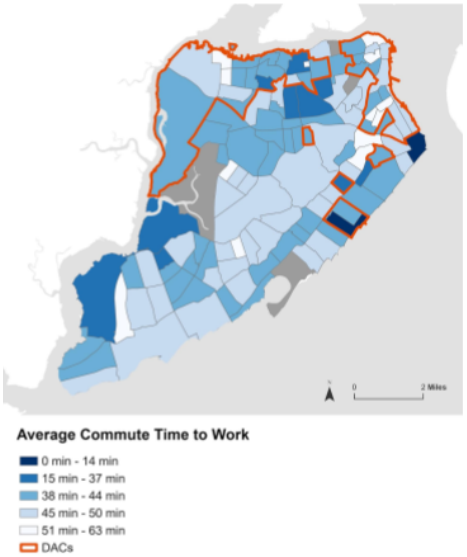
% Bachelor's or Higher (SI)[1]
34.9%

% Bachelor's or Higher (DAC) [1,2]
27.6%

Educational Attainment Level (Ages 25+)	DACs	Staten Island	NYC	NYS
Less than High School	17.8%	11.4%	16.8%	12.6%
High School Graduate or More (Includes Equivalency)	82.2%	88.6%	83.2%	87.4%
Some College or More	50.2%	58.7%	59.6%	62.2%
Bachelor's Degree or More	27.6%	34.9%	39.6%	38.1%
Master's Degree or More	10.3%	13.7%	16.7%	16.8%
Professional School Degree or More	1.9%	3.0%	4.9%	4.7%
Doctorate Degree	0.6%	0.9%	1.6%	1.6%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

TRAVEL TIME TO WORK



Travel Time to Work (for workers 16+)	DACs	Staten Island	NYC	NYS
< 5 min.	1.1%	1.1%	1.1%	2.4%
5 - 14 min.	10.6%	11.0%	8.1%	17.5%
15 - 29 min.	25.5%	24.1%	20.6%	29.4%
30 - 44 min.	17.3%	18.4%	27.1%	22.1%
45 - 59 min.	10.3%	10.6%	16.3%	11.0%
60 - 89 min.	20.4%	20.4%	19.2%	12.1%
90+ min.	14.9%	14.4%	7.6%	5.7%
Average Commute Time	45 min.	45 min.	41 min.	33 min.

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

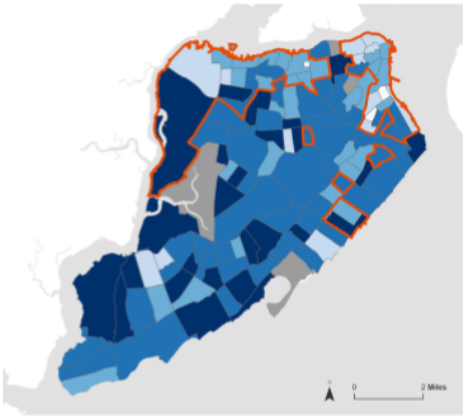
MEANS OF TRANSPORTATION & VEHICLE ACCESS

Means of Transport to Work (16+)	DACs	Staten Island	NYC	NYS
Car, Truck, or Van	52.4%	63.0%	26.8%	57.6%
Drove Alone	*44.5%*	*54.6%*	*22.4%*	*51.4%*
Carpooled	*7.9%*	*8.4%*	*4.4%*	*6.3%*
Public Transportation (Includes Taxicab)	36.8%	26.5%	50.8%	25.4%
Motorcycle	0.1%	0.0%	0.1%	0.1%
Bicycle	0.3%	0.2%	1.4%	0.7%
Walked	3.9%	2.7%	9.5%	5.8%
Other Means	1.4%	0.8%	0.9%	0.8%
Worked At Home	5.1%	7%	10.7%	9.5%

Vehicle Access by Household (Occupied)	DACs	Staten Island	NYC	NYS
No Vehicle Available	29.1%	15.4%	54.5%	28.9%
1 Vehicle Available	39.2%	36.9%	32.0%	32.8%
2 Vehicles Available	23.0%	34.0%	10.3%	25.8%
3 Vehicles Available	6.3%	9.9%	2.5%	8.6%
4 Vehicles Available	2.0%	3.0%	0.6%	2.8%
5 or More Vehicles Available	0.4%	0.9%	0.2%	1.1%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

INTERNET ACCESS [1]

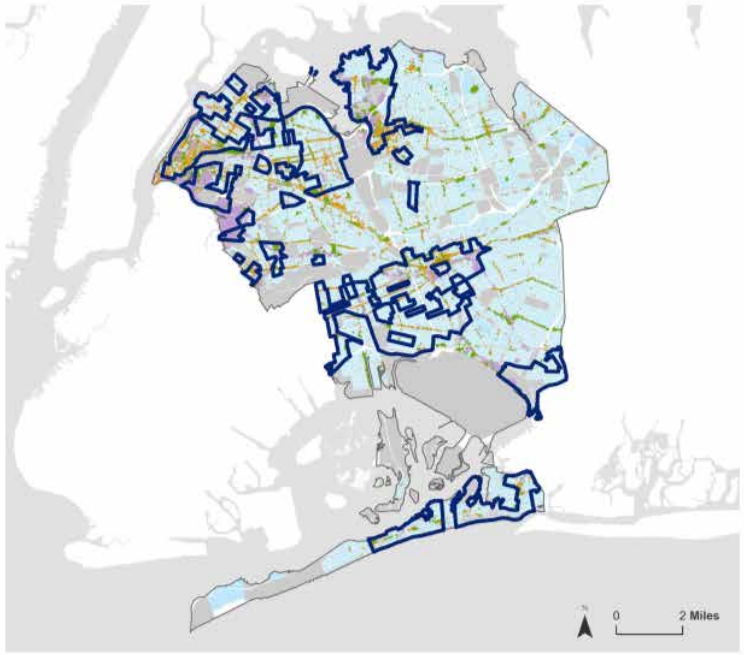


Internet Access by Household	DACs	Staten Island	NYC	NYS
With An Internet Subscription	79.8%	86.3%	86.3%	87.1%
Dial-Up Alone	*0.1%*	*0.4%*	*0.2%*	*0.2%*
Broadband (such As Cable, Fiber Optic, or DSL)	*66.9%*	*75.5%*	*72.9%*	*74.7%*
Satellite Internet Service	*3.6%*	*4.9%*	*3.7%*	*4.0%*
Other Service	*0.7%*	*0.9%*	*0.9%*	*0.8%*
Internet Access Without A Subscription	2.7%	2.5%	2.2%	2.4%
No Internet Access	17.5%	11.2%	11.5%	10.5%

[1] ACS 5-Year Estimates, 2021
[2] NYSERDA Final Disadvantaged Communities, 2023

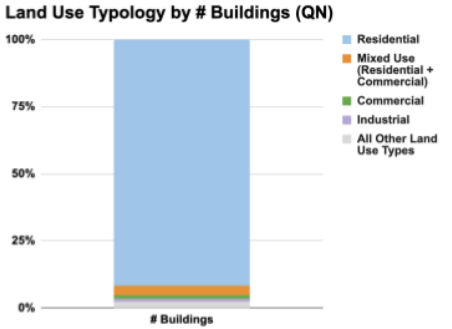
Appendix B
Complete Buildings & Land Use Data

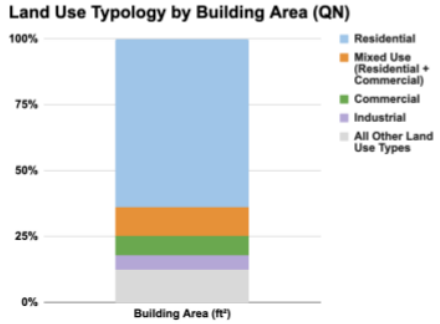
LAND USE [1]



[1] NYC DCP (MapPLUTO), 2023
[2] NYSERDA Final Disadvantaged Communities, 2023

LAND USE (QN): Overall Land Use Typologies [1]



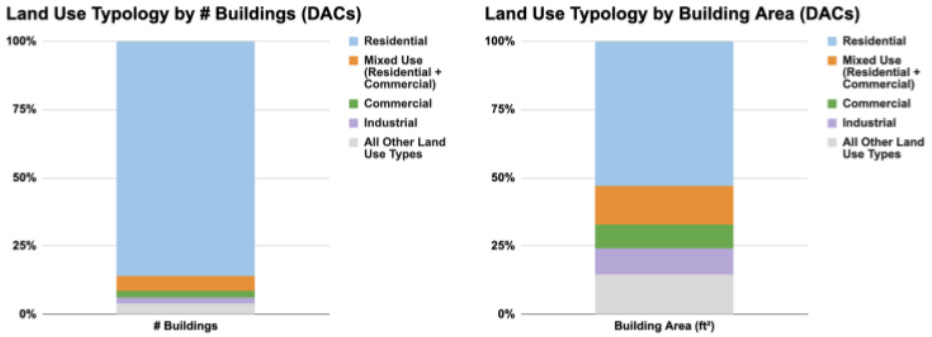


Buildings by Land Use (QN)	# Buildings	% of Total Buildings
Residential*	424,607	91.7%
1-4 Unit	396,132	85.6%
5+ Units	28,404	6.1%
0 Units or Blank	*71*	*0.0%*
Commercial*	6,986	1.5%
Small (>25,000 ft²)	6,194	1.3%
Large (<25,000 ft²)	569	0.1%
0 Commercial sq. ft. or Blank	*223*	*0.0%*
Mixed Use (residential + commercial)*	15,573	3.4%
1-4 Unit (residential)	12,333	2.7%
5+ Units (residential)	2,647	0.6%
0 Units or Blank	*593*	*0.1%*
Industrial	4,248	0.9%
All Other Land Use Types	11,392	2.5%
Total	***462,806***	--

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE (DACs): Overall Land Use Typologies [1]

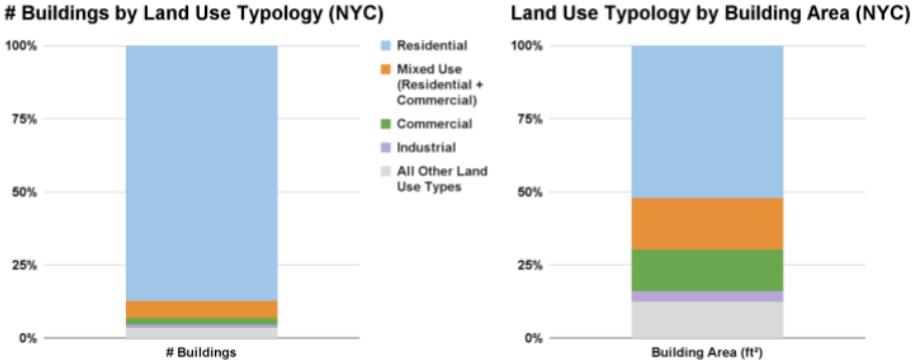


Buildings by Land Use (DACs)	# Buildings	% of Total Buildings
Residential*	106,488	85.9%
1-4 Unit	99,768	80.5%
5+ Units	6,697	5.4%
0 Units or Blank	*23*	*0.0%*
Commercial*	2,823	2.3%
Small (>25,000 ft²)	2,422	2.0%
Large (<25,000 ft²)	262	0.2%
0 Commercial sq. ft. or Blank	*139*	*0.1%*
Mixed Use (residential + commercial)*	6,913	5.6%
1-4 Unit (residential)	5,226	4.2%
5+ Units (residential)	1,380	1.1%
0 Units or Blank	*307*	*0.2%*
Industrial	2,899	2.3%
All Other Land Use Types	4,780	3.9%
Total	***123,903***	--

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE (NYC): Overall Land Use Typologies [1]



Buildings by Land Use (NYC)	# Buildings	% of Total Buildings
Residential*	949,437	87.2%
1-4 Unit	860,466	79.0%
5+ Units	88,754	8.2%
0 Units or Blank	*217*	*0.0%*
Commercial*	23,909	2.2%
Small (>25,000 ft²)	19,328	1.8%
Large (<25,000 ft²)	3,759	0.3%
0 Commercial sq. ft. or Blank	*822*	*0.1%*
Mixed Use (residential + commercial)*	64,608	5.9%
1-4 Unit (residential)	39,544	3.6%
5+ Units (residential)	22,205	2.0%
0 Units or Blank	*2,859*	*0.3%*
Industrial	11,870	1.1%
All Other Land Use Types	39,077	3.6%
Total	***1,088,901***	--

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE: Residential Land Use Typologies by # of Residential Units [1]

Queens

Residential Land Use Typology	# Total Residential Units	% Total Residential Units in QN
1-4 Units	**450,359**	**51.6%**
"Residential" LU	428,447	49.1%
"Mixed Use" LU	20,953	2.4%
Other LU	*959*	*0.1%*
5+ Units	**422,457**	**48.4%**
"Residential" LU	327,329	37.5%
"Mixed Use" LU	91,374	10.5%
Other LU	*3,754*	*0.4%*
Total Residential Units	***872,816***	**--**

NYC

Residential Land Use Typology	# Total Residential Units	% Total Residential Units in NYC
1-4 Units	**1,184,033**	**32.5%**
"Residential" LU	1,107,911	30.4%
"Mixed Use" LU	73,125	2.0%
Other LU	*2,997*	*0.1%*
5+ Units	**2,457,491**	**67.5%**
"Residential" LU	1,669,158	45.8%
"Mixed Use" LU	755,871	20.8%
Other LU	*32,462*	*0.9%*
Total Residential Units	***3,641,524***	**--**

DACs

Residential Land Use Typology	# Total Residential Units in DACs	% Total Residential Units in DACs	% Total Residential Units in QN
1-4 Units	**143,477**	**46.6%**	**16.4%**
"Residential" LU	133,733	43.4%	15.3%
"Mixed Use" LU	9,330	3.0%	1.1%
Other LU	*414*	*0.1%*	*0.0%*
5+ Units	**164,690**	**53.4%**	**18.9%**
"Residential" LU	116,449	37.8%	13.3%
"Mixed Use" LU	46,772	15.2%	5.4%
Other LU	*1,469*	*0.5%*	*0.2%*
Total Residential Units	***308,167***	**--**	***35.3%***

***35.3%** of residential units are in DACs, **46.6%** of which are in a 1-4 unit building*

[1] NYC DCP (MapPLUTO), 2023

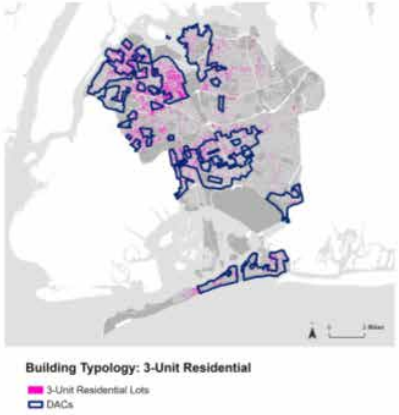
1-4 UNIT RESIDENTIAL BUILDINGS [1]

1-UNIT [1,2]

2-UNIT [1,2]

3-UNIT [1,2]

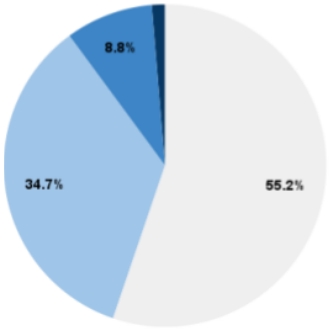
4-UNIT [1,2]



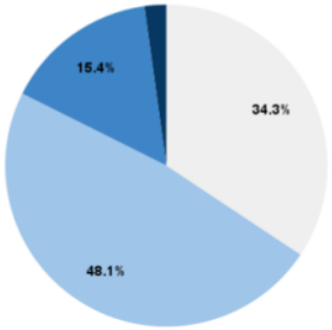
1-4 UNIT RESIDENTIAL BUILDINGS [1]

	Queens				DACs			
# Units in Building	# Lots	% of 1-4-Unit Lots	Total # Units	% of All 1-4-Units	# Lots	% of 1-4-Unit Lots	Total # Units	% of All 1-4-Units
1-Unit Buildings	151,466	55.2%			24,751	34.3%		
2-Unit Buildings	95,125	34.7%			34,647	48.1%		
3-Unit Buildings	24,101	8.8%			11,128	15.4%		
4-Unit Buildings	3,607	1.3%			1,576	2.2%		

Queens (Total)



DACs



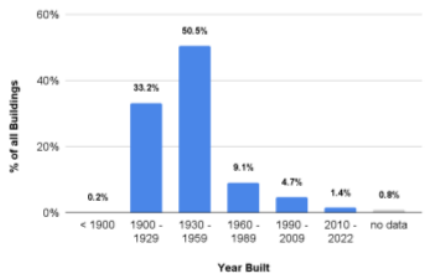
- 1-Unit Buildings
- 2-Unit Buildings
- 3-Unit Buildings
- 4-Unit Buildings

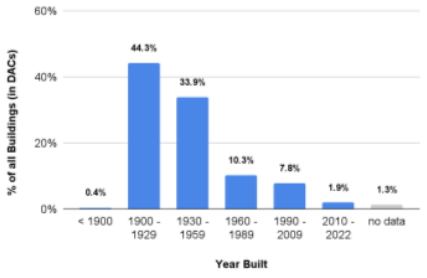
YEAR BUILT [1]

Queens[1]

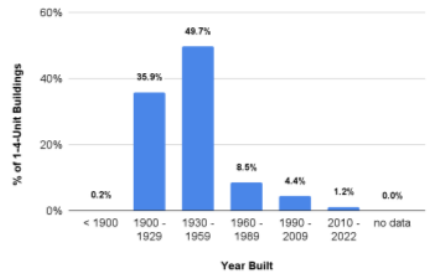
DACs[1,2]

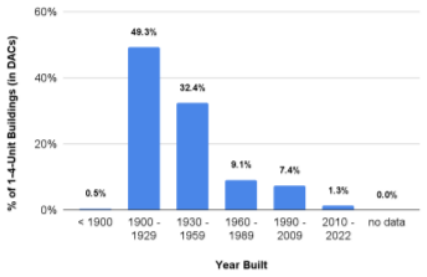
ALL BUILDINGS





RESIDENTIAL UNITS (ALL LAND USES)

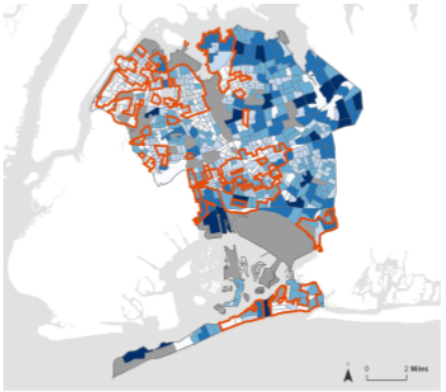




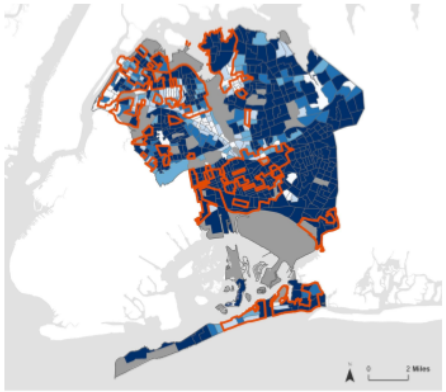
[1] NYC DCP (MapPLUTO), 2023
[2] NYSERDA Final Disadvantaged Communities, 2023

RESIDENTIAL LAND USE: Occupancy, Vacancy, Tenure [1]

Housing Tenure, Occupancy/Vacancy Rates				
	DACs	QN	NYC	NYS
Occupancy Rate	88.0%	90.8%	90.5%	89.1%
Owner-Occupied	28.2%	41.2%	30.0%	48.5%
Units in a 1-4-Unit Building	**22.4%**	**32.0%**	**19.8%**	**41.8%**
Units in a 5+-Unit Building	5.7%	9.1%	10.2%	5.4%
Units in a Mobile Home/Boat/RV/etc.	*0.1%*	*0.1%*	*0.1%*	*1.3%*
Renter-Occupied	59.8%	49.6%	60.5%	40.6%
Units in a 1-4-Unit Building	24.5%	21.2%	15.0%	15.0%
Units in a 5+-Unit Building	35.1%	28.2%	45.4%	25.2%
Units in a Mobile Home/Boat/RV/etc.	*0.2%*	*0.1%*	*0.1%*	*0.5%*
Vacancy Rate	12.0%	9.2%	9.5%	10.9%
For Rent	1.8%	1.5%	2.3%	1.7%
For Sale	0.5%	0.5%	0.6%	0.6%
Other Vacant	9.6%	7.2%	6.6%	8.5%



Total Owner-Occupied Housing Units in a 1-4-Unit Building



Percentage of Total Owner-Occupied Units that are in a 1-4-Unit Building

[1] ACS 5-Year Estimates, 2021

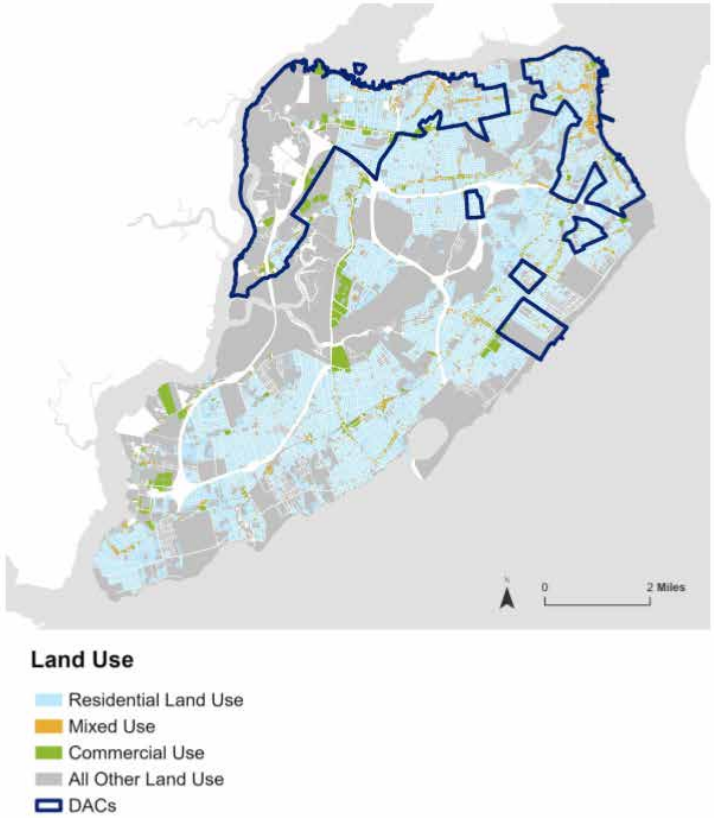
RESIDENTIAL LAND USE: Tenure by Race [1]

Ratio of Owner:Renter *by Race or Ethnicity*		DACs		QN		NYC		NYS	
		Owner	Renter	Owner	Renter	Owner	Renter	Owner	Renter
	All Householders	**32.1%**	**67.9%**	**45.4%**	**54.6%**	**33.2%**	**66.8%**	**54.4%**	**45.6%**
Race	White Alone Householder	31.7%	68.3%	47.6%	52.4%	39.4%	60.6%	64.5%	35.5%
	Black Or African American Alone Householder	33.1%	66.9%	48.3%	51.7%	27.2%	72.8%	32.2%	67.8%
	American Indian And Alaska Native Alone Householder	22.4%	77.6%	35.2%	64.9%	22.5%	77.5%	36.1%	64.0%
	Asian Alone Householder	41.6%	58.5%	51.3%	48.8%	44.8%	55.2%	50.7%	49.3%
	Native Hawaiian And Other Pacific Islander Alone Householder	66.1%	33.9%	56.5%	43.5%	32.0%	68.0%	38.7%	61.3%
	Some Other Race Alone Householder	21.7%	78.3%	28.1%	71.9%	14.3%	85.7%	21.4%	78.6%
	Two Or More Races Householder	29.0%	71.1%	36.1%	64.0%	24.8%	75.2%	37.9%	62.1%
Ethnicity	White Alone, Not Hispanic Or Latino Householder	37.3%	62.7%	52.3%	47.8%	42.7%	57.3%	66.9%	33.1%
	Hispanic Or Latino Householder	19.5%	80.5%	27.2%	72.8%	16.9%	83.1%	27.1%	72.9%

"VACANCY RATES"	DACs	Queens	NYC	NYS
"Available Housing Vacancy Rate":	**2.6%**	**2.2%**	**3.0%**	**2.6%**
For Sale + For Rent:	**2.3%**	**2.0%**	**2.8%**	**2.4%**

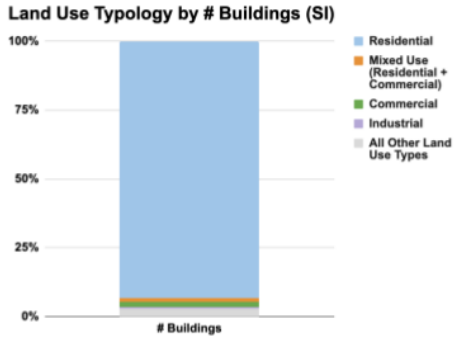
[1] ACS 5-Year Estimates, 2021

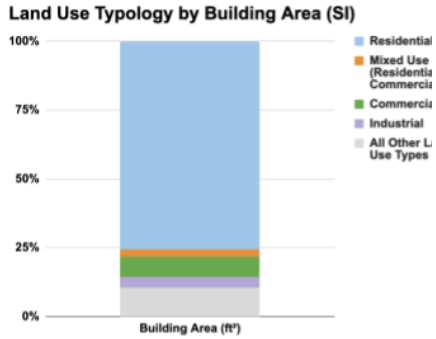
LAND USE [1]



[1] NYC DCP (MapPLUTO), 2023
[2] NYSERDA Final Disadvantaged Communities, 2023

LAND USE (SI): Overall Land Use Typologies [1]



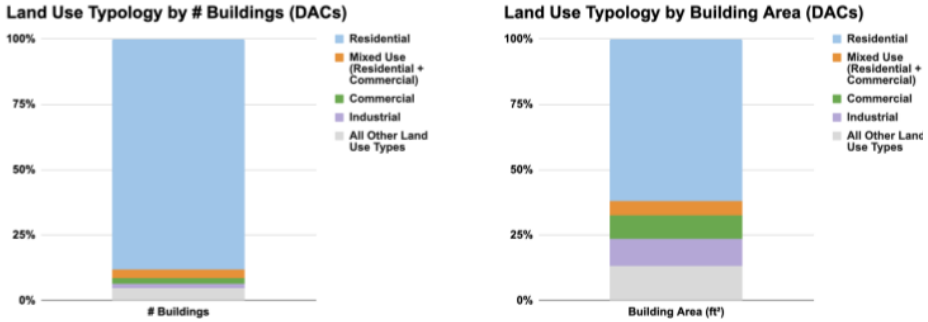


Buildings by Land Use (SI)	# Buildings	% of Total Buildings
Residential*	132,626	93.2%
1-4 Unit	125,655	88.3%
5+ Units	6,936	4.9%
0 Units or Blank	*35*	*0.0%*
Commercial*	2,391	1.7%
Small (>25,000 ft²)	2,124	1.5%
Large (<25,000 ft²)	233	0.2%
0 Commercial sq. ft. or Blank	*34*	*0.0%*
Mixed Use (residential + commercial)*	2,258	1.6%
1-4 Unit (residential)	2,069	1.5%
5+ Units (residential)	136	0.1%
0 Units or Blank	*53*	*0.0%*
Industrial	877	0.6%
All Other Land Use Types	4,162	2.9%
Total	***142,314***	--

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE (DACs): Overall Land Use Typologies [1]

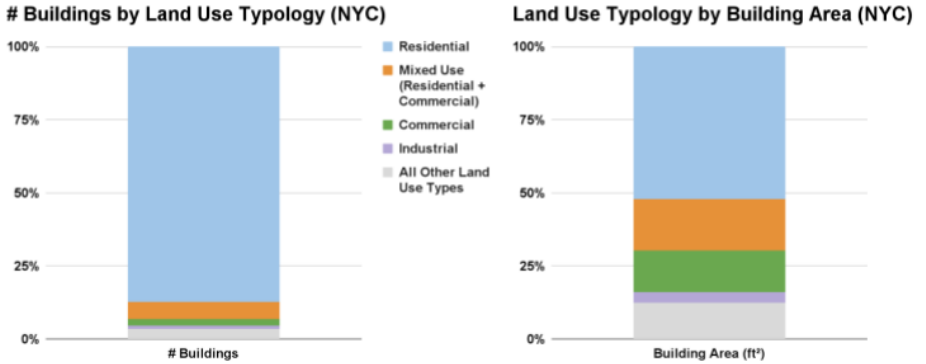


Buildings by Land Use (SI)	# Buildings	% of Total Buildings
Residential*	31,298	88.1%
1-4 Unit	29,223	82.2%
5+ Units	2,070	5.8%
0 Units or Blank	*5*	*0.0%*
Commercial*	807	2.3%
Small (>25,000 ft²)	700	2.0%
Large (<25,000 ft²)	87	0.2%
0 Commercial sq. ft. or Blank	*20*	*0.1%*
Mixed Use (residential + commercial)*	1,139	3.2%
1-4 Unit (residential)	1,042	2.9%
5+ Units (residential)	82	0.2%
0 Units or Blank	*15*	*0.0%*
Industrial	622	1.8%
All Other Land Use Types	1,676	4.7%
Total	***35,542***	**--**

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE (NYC): Overall Land Use Typologies [1]



Buildings by Land Use (NYC)	# Buildings	% of Total Buildings
Residential*	949,437	87.2%
1-4 Unit	860,466	79.0%
5+ Units	88,754	8.2%
0 Units or Blank	*217*	*0.0%*
Commercial*	23,909	2.2%
Small (>25,000 ft²)	19,328	1.8%
Large (<25,000 ft²)	3,759	0.3%
0 Commercial sq. ft. or Blank	*822*	*0.1%*
Mixed Use (residential + commercial)*	64,608	5.9%
1-4 Unit (residential)	39,544	3.6%
5+ Units (residential)	22,205	2.0%
0 Units or Blank	*2,859*	*0.3%*
Industrial	11,870	1.1%
All Other Land Use Types	39,077	3.6%
Total	***1,088,901***	**--**

* Categories are mutually exclusive and refer to the land use typology of the individual tax lot.

[1] NYC DCP (MapPLUTO), 2023

LAND USE: Residential Land Use Typologies by # of Residential Units [1]

Staten Island

Residential Land Use Typology	# Total Residential Units	% Total Residential Units
1-4 Units	**145,831**	**81.8%**
"Residential" LU	143,002	80.2%
"Mixed Use" LU	2,550	1.4%
Other LU	*279*	*0.2%*
5+ Units	**32,391**	**18.2%**
"Residential" LU	28,928	16.2%
"Mixed Use" LU	2,593	1.5%
Other LU	*870*	*0.5%*
Total Residential Units	***178,222***	**--**

NYC

Residential Land Use Typology	# Total Residential Units	% Total Residential Units in NYC
1-4 Units	**1,184,033**	**32.5%**
"Residential" LU	1,107,911	30.4%
"Mixed Use" LU	73,125	2.0%
Other LU	*2,997*	*0.1%*
5+ Units	**2,457,491**	**67.5%**
"Residential" LU	1,669,158	45.8%
"Mixed Use" LU	755,871	20.8%
Other LU	*32,462*	*0.9%*
Total Residential Units	***3,641,524***	**--**

DACs

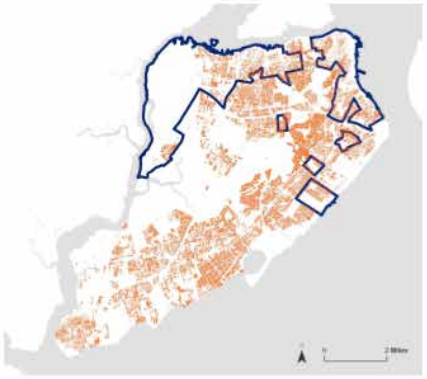
Residential Land Use Typology	# Total Residential Units	% Total Residential Units in DACs	% Total Residential Units in SI
1-4 Units	**34,714**	**66.2%**	**19.5%**
"Residential" LU	33,212	63.4%	18.6%
"Mixed Use" LU	1,377	2.6%	0.8%
Other LU	*125*	*0.2%*	*0.1%*
5+ Units	**17,710**	**33.8%**	**9.9%**
"Residential" LU	15,071	28.7%	8.5%
"Mixed Use" LU	2,051	3.9%	1.2%
Other LU	*588*	*1.1%*	*0.3%*
Total Residential Units	***52,424***	**--**	***29.4%***

***29.4%** of residential units are in DACs, **66.2%** of which are in a 1-4 unit building*

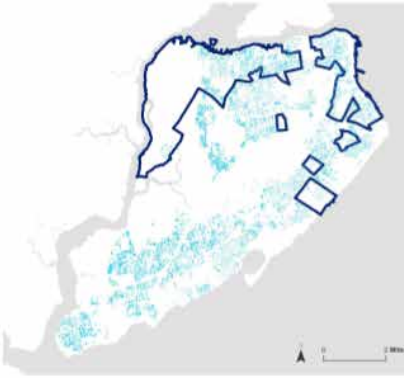
[1] NYC DCP (MapPLUTO), 2023

1-4 UNIT RESIDENTIAL BUILDINGS [1]

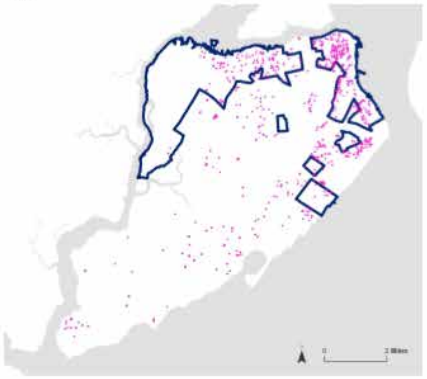
1-UNIT [1,2]



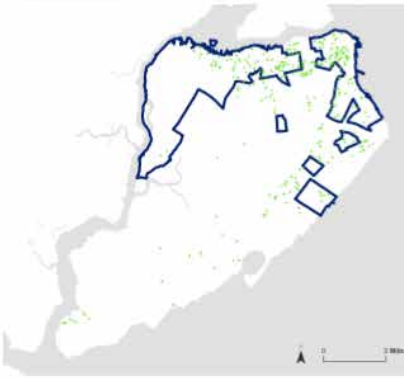
2-UNIT [1,2]



3-UNIT [1,2]



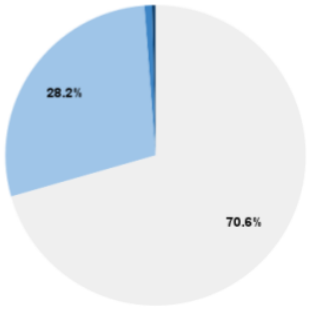
4-UNIT [1,2]



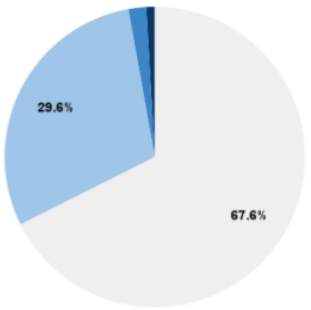
1-4 UNIT RESIDENTIAL BUILDINGS [1]

	Staten Island				DACs			
# Units in Building	# Lots	% of 1-4-Unit Lots	Total # Units	% of All 1-4-Units	# Lots	% of 1-4-Unit Lots	Total # Units	% of All 1-4-Units
1-Unit Buildings	77,005	70.6%			16,485	67.6%		
2-Unit Buildings	30,827	28.2%			7,217	29.6%		
3-Unit Buildings	897	0.8%			467	1.9%		
4-Unit Buildings	413	0.4%			223	0.9%		

Staten Island (Total)

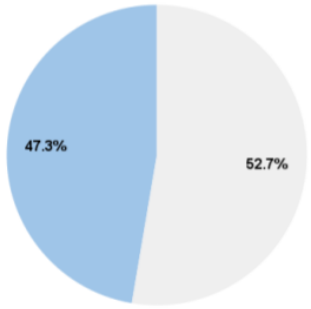


DACs



- 1-Unit Buildings
- 2-Unit Buildings
- 3-Unit Buildings
- 4-Unit Buildings

3-4 UNIT RESIDENTIAL BUILDINGS IN DACS CENSUS TRACTS [1]



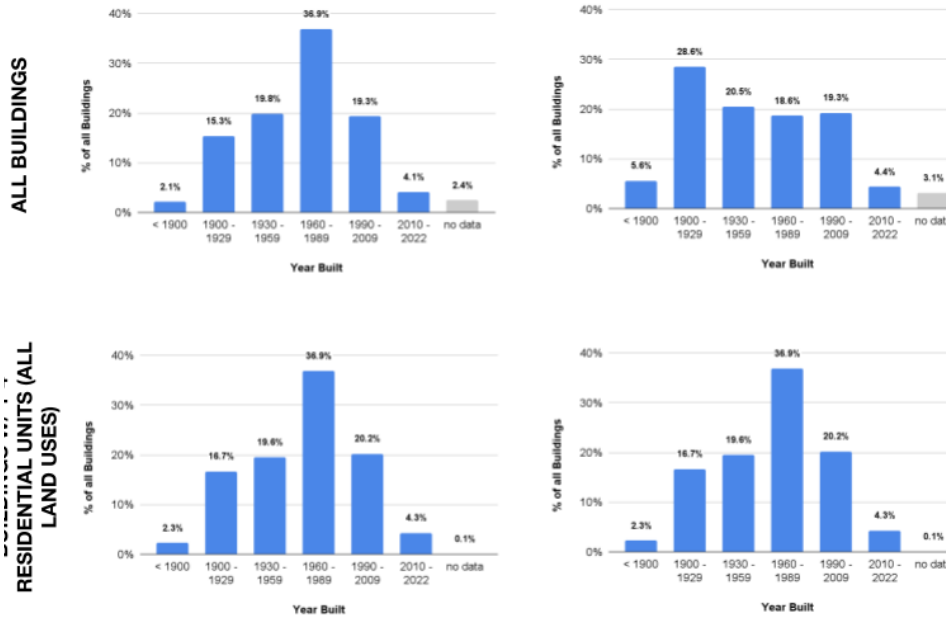
- DACs
- Non-DACs

(Roughly half of all 3-4 unit residential buildings in Staten Island are in DACs)

YEAR BUILT [1]

Staten Island[1]

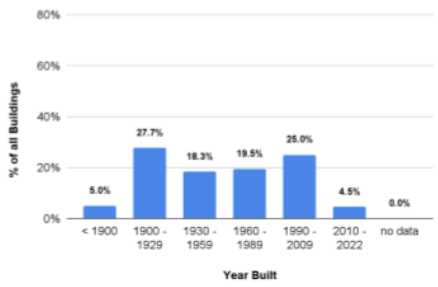
DACs[1,2]



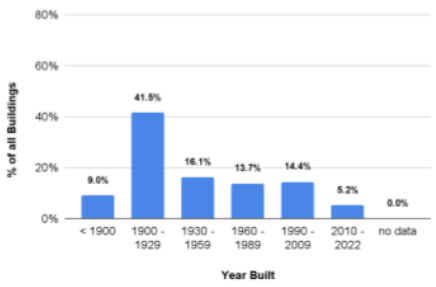
[1] NYC DCP (MapPLUTO), 2023
[2] NYSERDA Final Disadvantaged Communities, 2023

YEAR BUILT: DACs 1-4-Unit Buildings [1]

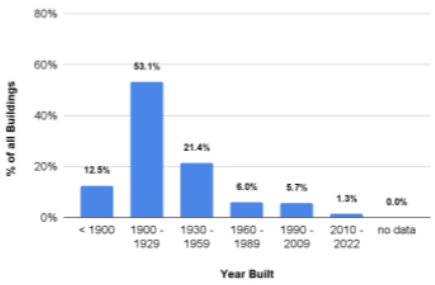
1-Unit Buildings



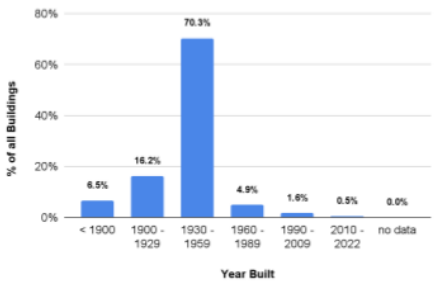
2-Unit Buildings



3-Unit Buildings



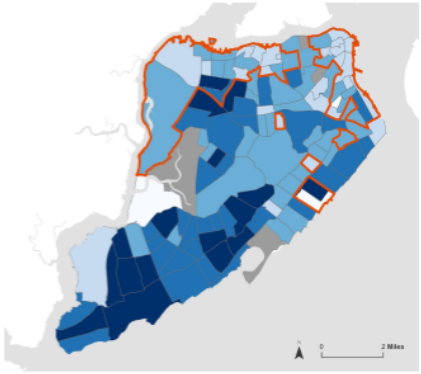
4-Unit Buildings

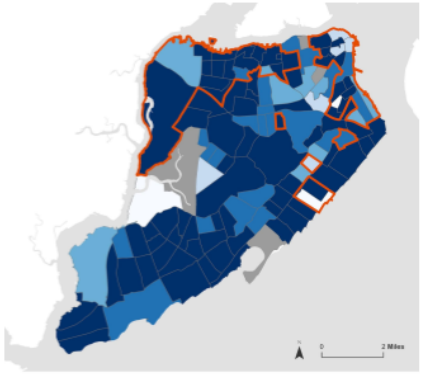


[1] NYC DCP (MapPLUTO), 2023
[2] NYSERDA Final Disadvantaged Communities, 2023

RESIDENTIAL LAND USE: Occupancy, Vacancy, Tenure [1]

Housing Tenure, Occupancy/Vacancy Rates				
	DACs	**Staten Island**	**NYC**	**NYS**
Occupancy Rate	88.8%	92.6%	90.5%	89.1%
Owner-Occupied	45.0%	63.6%	30.0%	48.5%
Units in a 1-4-Unit Building	**42.2%**	**61.3%**	**19.8%**	**41.8%**
Units in a 5+-Unit Building	2.6%	2.1%	10.2%	5.4%
Units in a Mobile Home/Boat/RV/etc.	*0.2%*	*0.2%*	*0.1%*	*1.3%*
Renter-Occupied	43.8%	29.0%	60.5%	40.6%
Units in a 1-4-Unit Building	21.8%	18.4%	15.0%	15.0%
Units in a 5+-Unit Building	21.8%	10.5%	45.4%	25.2%
Units in a Mobile Home/Boat/RV/etc.	*0.2%*	*0.1%*	*0.1%*	*0.5%*
Vacancy Rate	11.2%	7.4%	9.5%	10.9%
For Rent	4.1%	1.9%	2.3%	1.7%
For Sale	1.6%	1.5%	0.6%	0.6%
Other Vacant	5.5%	4.0%	6.6%	8.5%





[1] ACS 5-Year Estimates, 2021

RESIDENTIAL LAND USE: Tenure by Race [1]

Ratio of Owner:Renter *by Race or Ethnicity*		DACs		Staten Island		NYC		NYS	
		Owner	Renter	Owner	Renter	Owner	Renter	Owner	Renter
	All Householders	**50.7%**	**49.3%**	**68.7%**	**31.3%**	**33.2%**	**66.8%**	**54.4%**	**45.6%**
Race	White Alone Householder	57.0%	43.0%	73.6%	26.4%	39.4%	60.6%	64.5%	35.5%
	Black Or African American Alone Householder	34.9%	65.1%	35.3%	64.7%	27.2%	72.8%	32.2%	67.8%
	American Indian And Alaska Native Alone Householder	59.3%	40.7%	72.5%	27.5%	22.5%	77.5%	36.1%	64.0%
	Asian Alone Householder	77.4%	22.6%	81.1%	18.9%	44.8%	55.2%	50.7%	49.3%
	Native Hawaiian And Other Pacific Islander Alone Householder	95.1%	4.9%	95.1%	4.9%	32.0%	68.0%	38.7%	61.3%
	Some Other Race Alone Householder	40.6%	59.5%	44.7%	55.3%	14.3%	85.7%	21.4%	78.6%
	Two Or More Races Householder	39.4%	60.6%	49.8%	50.2%	24.8%	75.2%	37.9%	62.1%
Ethnicity	White Alone, Not Hispanic Or Latino Householder	64.7%	35.3%	77.1%	22.9%	42.7%	57.3%	66.9%	33.1%
	Hispanic Or Latino Householder	35.3%	64.7%	44.3%	55.7%	16.9%	83.1%	27.1%	72.9%

"VACANCY RATES"	DACs	Staten Island	NYC	NYS
"Available Housing Vacancy Rate":	**6.0%**	**3.5%**	**3.0%**	**2.6%**
For Sale + For Rent:	**5.7%**	**3.4%**	**2.8%**	**2.4%**

[1] ACS 5-Year Estimates, 2021

RESIDENTIAL LAND USE: House Heating Fuel by Tenure [1]

Owner-Occupied

House Heating Fuel for Owner-Occupied Households *(as a %age of Total Owner-Occupied Households)*	DACs	Staten Island	NYC	NYS
Utility Gas	86.1%	89.0%	73.9%	60.8%
Bottled, Tank, Or Lp Gas	2.2%	2.1%	2.7%	5.6%
Electricity	4.8%	3.7%	8.1%	7.1%
Fuel Oil, Kerosene, Etc.	6.2%	4.2%	12.8%	22.2%
Coal Or Coke	0.0%	0.0%	0.0%	0.3%
Wood	0.2%	0.1%	0.1%	2.5%
Solar Energy	0.2%	0.2%	0.1%	0.1%
Other Fuel	0.0%	0.3%	1.1%	0.9%
No Fuel Used	0.4%	0.4%	1.1%	0.5%

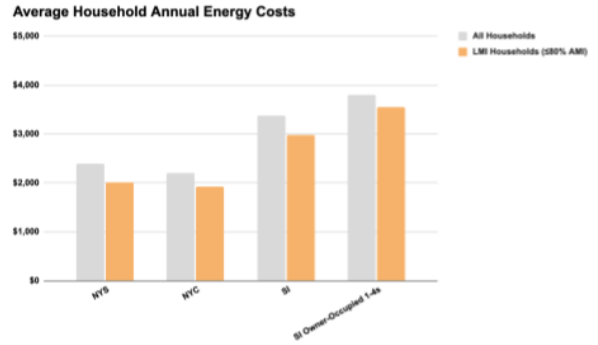
Renter-Occupied

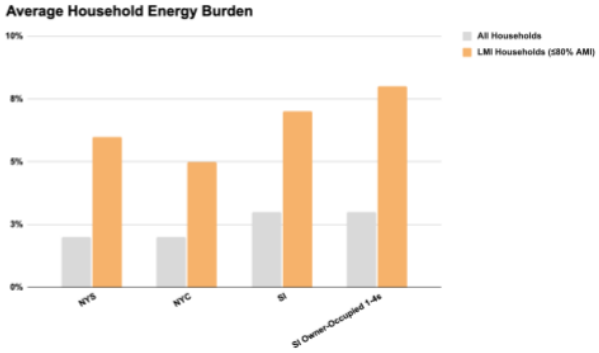
House Heating Fuel for Renter-Occupied Households *(as a %age of Total Renter-Occupied Households)*	DACs	Staten Island	NYC	NYS
Utility Gas	79.2%	81.0%	61.0%	58.3%
Bottled, Tank, Or Lp Gas	1.4%	1.7%	2.3%	3.1%
Electricity	8.9%	9.3%	16.1%	19.8%
Fuel Oil, Kerosene, Etc.	6.8%	5.3%	15.5%	14.4%
Coal Or Coke	0.0%	0.0%	0.1%	0.1%
Wood	0.0%	0.1%	0.0%	0.3%
Solar Energy	0.1%	0.1%	0.1%	0.1%
Other Fuel	0.9%	0.9%	1.8%	1.5%
No Fuel Used	2.6%	1.6%	3.2%	2.4%

[1] ACS 5-Year Estimates, 2021

ENERGY COST & BURDEN

	Annual Energy Cost		Energy Burden	
	All	LMI	All	LMI
NYS	$2,391	$2,014	2%	6%
NYC	$2,201	$1,928	2%	5%
SI	$3,369	$2,973	3%	7%
SI Owner-Occupied 1-4s	3,803	$3,554	3%	8%





[1] DOE LEAD Tool, 2018

Appendix C
Full Potential Partners

The below spreadsheet is a small excerpt of Appendix C. The full partners list is hosted online and is available for Hub partners' use. Email Kieran Micka-Maloy at kmickamaloy@prattcenter.net if you'd like access to this Appendix.

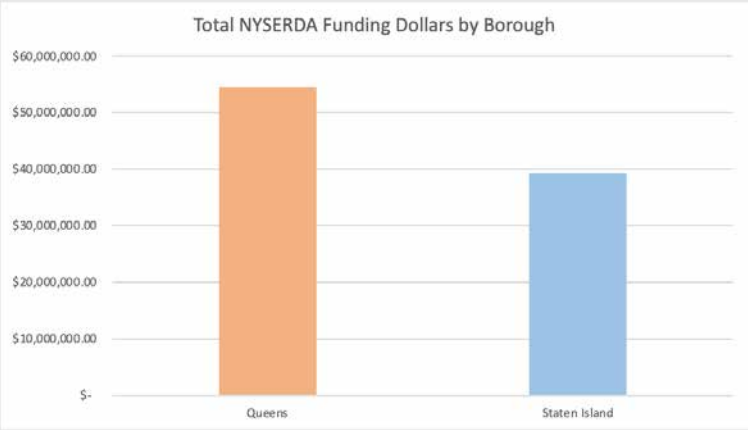
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Entry type	Name	Website	Priori	Geography	Sector	Focus area (1)	Focus area (2)	Focus area (3)	Outrea	Retro	Workfo	Wraparo	Notes
2	Organization	Queens Public Library	queenslibrary.org	☑	Queens	Government	Community institution			☑	☐	☐	☐	66 branches around Queens. NHSQ mentioned Jackson Heights, Corona, East Elmhurst, Woodside, and Langston Hughes
4	Organization	CUNY	cuny.edu	☑	NYC	Government	Community institution	Workforce development/Edu		☐	☐	☑	☐	Laguardia Community College offers career skills and workforce training programs for heat pumps, hvac, etc; also building an offshore wind program w/ Kingsborough + City Tech. Recently received huge gift to set up workforce training center. College of SI is developing an offshore wind training program.
5	Organization	NYC DOE schools	schools.nyc.gov	☑	NYC	Government	Community institution			☑	☐	☐	☐	immigrant families with kids rely on schools to get certain info. NHSQ works with some PTAs. Youth WINS works with Port Richmond and Concord HS in SI.
7	Organization	Muslim American Society	masnewyork.org	☑	NYC	Nonprofit	Community institution	Congregation	Cultural/immigrant	☑	☐	☐	☐	
8	Network	Green Faith	greenfaith.org	☑	NYC	Nonprofit	Congregation	Sustinability/resiliency		☑	☑	☐	☐	
9	Organization	Catholic Charities	catholiccharitiesny.org	☑	NYC	Nonprofit	Social services	Cultural/immigrant		☑	☐	☐	☑	Coalition of churches focused on climate change
16	Network	Eastern Queens Alliance	easternqueensalliance.org	☑	Queens	Nonprofit	Civic association	Sustinability/resiliency		☑	☐	☐	☐	Made up of 10 civic associations: Addisleigh Park Civic Organization; Concerned Citizens of Laurelton; Federated Blocks of Laurelton General; Greater TriAngular Civic Association, Inc.; Rosedale Civic Association, Inc.; Springfield/Rosedale Community Action Association, Inc.; SpringGar Community Civic Association; Springfield Gardens Taxpayers & Citizens Association; Wayanda Civic Association; St. Albans Civic Improvement Association; United Neighbors Civic Association of Jamaica, Inc.
19	Organization	Chhaya	chhaya.org	☑	Queens	Nonprofit	Cultural/immigrant	Housing	Social services	☑	☑	☑	☑	
20	Organization	NHS of Jamaica	nhsj.org	☑	Queens	Nonprofit	Housing			☑	☑	☐	☐	
21	Organization	Neighborhood Restore	neighborhoodrestore.org	☑	NYC	Nonprofit	Housing	Contractor		☑	☑	☐	☐	subcontract with home fix
23	Organization	Center for NYC Neighborhoods	cnycn.org	☑	NYC	Nonprofit	Housing	Sustinability/resiliency		☑	☑	☐	☑	HomeFix program administrator
24	Organization	Association for Energy Affordability (AEA)	aea.us.org	☑	Queens	Nonprofit	Housing	Sustinability/resiliency	Workforce development/Edu	☑	☑	☑	☐	WAP program administrator for parts of Queens
25	Organization	HANAC		☑	Queens	Nonprofit	Social services	Housing	Sustinability/resiliency	☑	☑	☐	☑	WAP program administrator for parts of Queens
27	Category	Food pantries		☑	NYC	Nonprofit	Social services			☑	☐	☐	☑	
28	Organization	Queens Legal Services	legalservicesnyc.org/our-program/queens	☑	Queens	Nonprofit	Social services			☑	☐	☐	☑	
29	Organization	Commonpoint Queens	commonpointqueens.org	☑	Queens	Nonprofit	Social services	Community institution	Workforce development/Edu	☑	☐	☑	☑	
31	Organization	Make the Road	maketheroadny.org	☑	Queens	Nonprofit	Cultural/immigrant	Social services	Workforce development/Edu	☑	☐	☑	☑	
33	Organization	NYC EDC	edc.nyc	☑	NYC	Government	Business interests	Workforce development/Edu	Sustinability/resiliency	☐	☐	☑	☐	EDC Offshore Wind NYC Waterfront Pathways Program - increase MWBE pathways into OSW industry
36	Category	BIDs	nyc.gov/site/sbs/neighborhoods/bid-directory.page	☑	NYC	Nonprofit	Business interests			☐	☐	☐	☐	
46	Network	NYC Employment and Training Coalition	nycetc.org	☑	NYC	Nonprofit	Workforce development/E	Sustainability/resiliency		☐	☐	☑	☐	
47	Network	Green Economy Network	jobsfirstnyc.org/solutions/sector-network-green-economy	☑	NYC	Nonprofit	Workforce development/E	Sustainability/resiliency		☐	☐	☑	☐	
48	Organization	HOPE Program	thehopeprogram.org	☑	NYC	Nonprofit	Workforce development/E	Green employer	Sustinability/resiliency	☐	☐	☑	☐	Job training and remedial education with a green slant, multiple programs. Runs a YouthBuild project as well.
49	Organization	Green City Force	greencityforce.org	☑	NYC	Nonprofit	Workforce development/E	Green employer	Sustinability/resiliency	☐	☐	☑	☐	
50	Organization	Soulful Synergy	soulfulsynergy.org	☑	NYC	Business	Workforce development/E	Sustinability/resiliency		☐	☐	☑	☐	
51	Organization	Solar One	solar1.org	☑	NYC	Nonprofit	Sustinability/resiliency	Workforce development/Edu		☐	☑	☑	☐	
52	Organization	Willdan	willdan.com	☑	NYC	Business	Workforce development/E	Sustinability/resiliency		☐	☐	☑	☐	Runs Willdan Clean Energy Academy
53	Organization	TMI Waterfront	tmi-waterfront.com	☑	NYC	Business	Workforce development/E	Sustinability/resiliency		☐	☐	☑	☐	joint venture of MWBEs offering offshore wind/ waterfront trainings
57	Category	Resiliency organizations		☑	NYC	Nonprofit	Sustinability/resiliency			☑	☑	☐	☑	
59	Category	Offshore wind companies		☑	NYC	Business	Green employer	Workforce development/Edu		☐	☐	☑	☐	
60	Organization	Mayor's Office of Climate and EJ	climate.cityofnewyork.us	☑	NYC	Government	Sustinability/resiliency			☑	☐	☐	☐	

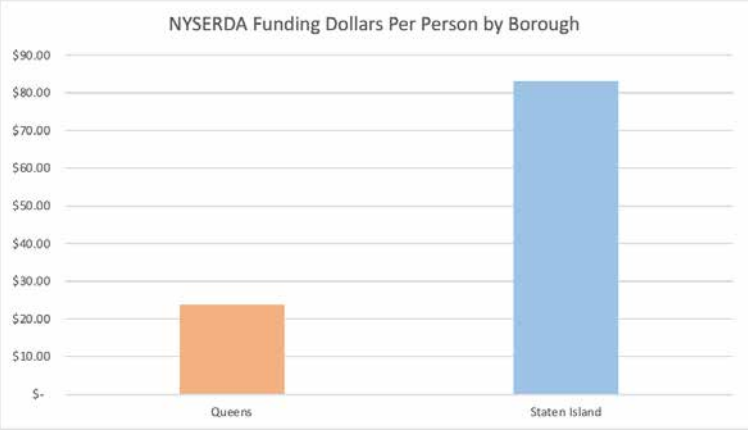
Appendix D
Regional Clean Energy Programs

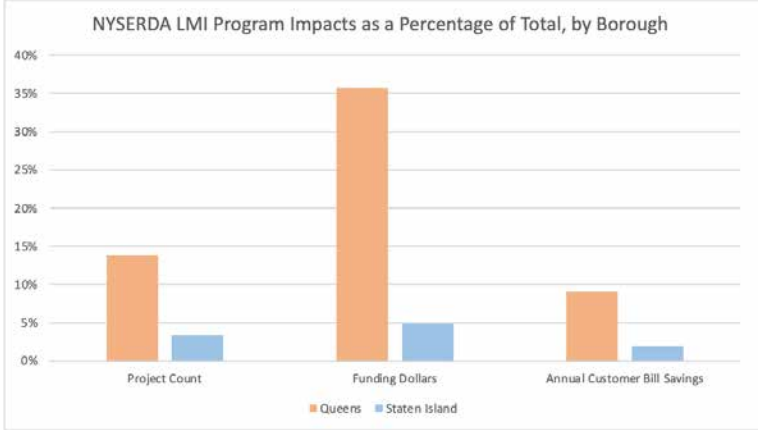
The below spreadsheet is a small excerpt of Appendix D. The full partners list is hosted online and is available for Hub partners' use. Email Kieran Micka-Maloy at kmickamaloy@prattcenter.net if you'd like access to this Appendix.

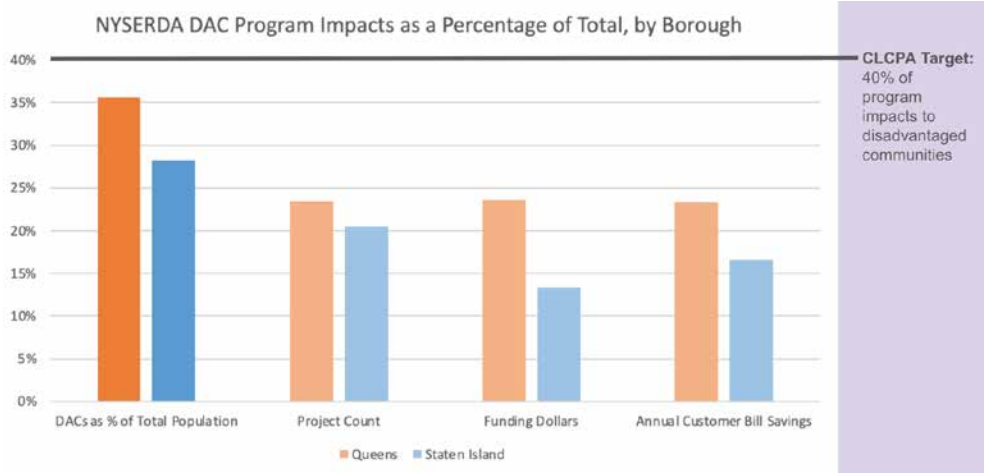
	A	B	C	D	E	F	G
1	**Program Name**	**Geographic service area**	**Location**	**Eligibility criteria/target populations**	**Brief description**	**Organization(s)**	**Source/website**
2	NYC CoolRoofs	Citywide	Remote	Anyone	10 to 11 weeks of full-time, paid work experience installing energy saving reflective rooftops at a starting wage of $16 per hour Opportunity to earn credentials in the construction sector, including 4-Hour Flagger, 4-Hour Scaffold User, Fireguard, CPR/First Aid, and Construction Site Safety Training (SST) certification at no cost.	NYC Department of Small Business Services (SBS) ; Workforce1 Industrial & Transportation Career Center ; the Mayor's Office of Climate and Environmental Justice ; HOPE Program.	
3	Civilian Climate Corps	Citywide	Brooklyn/ Remote	Formerly incarcerated, BIPOC and women preferred	Paid 3 month foundational training plus two months of building trade: construction/carpentry, low voltage electrical, plumbing , HVAC , building energy efficiency auditing	BLOCPower ; Mayor's Office of Criminal Justice	
4	Green Maintenance for Buildings Training Program	Citywide	Brooklyn	Anyone	Free full-time 9-week training program designed to provide entry-level skills necessary to work as a janitor, custodian, or porter in residential and commercial buildings.	CUNY ; CityTech	
5	SolarOne Green Workforce Program	Citywide	Queens/NYC metro area	Minorities encouraged/ preferred	4-6 weeks training in energy efficiency, renewable energy, green construction, and green building operations and maintenance.	SolarOne ; Mayor's Office for Economic Opportunity	
6	NYCHA Clean Energy Academy	Citywide	Cross-borough NYCHA complexes	NYCHA residents	16-week (280 hour) course where NYCHA residents develop the skills to install solar panels, transform heating and cooling systems, install and maintain heat pumps and learn various construction duties. Stipend provided.	NYCHA ; Public Housing Community Fund ; Laguardia Community College Funders include NYSERDA	
7	Intervine	Citywide	Bronx		10 week paid program provides foundational training for green infrastructure projects.	The HOPE Program	
8	SSBx	Citywide	Bronx		14 week classroom-based and hands-on green jobs training program. Throughout the training, our students green the local community through hands-on projects such as tree surveys, water quality testing and shoreline restoration.	The HOPE Program ; Sustainable South Bronx	
9	Green and Clean HVAC	Citywide	Bronx		12 week program on installation and maintenance of efficient heating and cooling equipment	The HOPE Program	
10	GCF Service Corps	Citywide	Cross-borough NYCHA complexes	18-24 year old NYCHA residents with GED/high school diploma	Americorps Program for NYCHA young adults. "Service initiatives respond to needs in public housing communities: cultivating and distributing fresh produce, building sustainable green infrastructure... Initiatives also include visits and service with environmental partner organizations. Classroom training includes eco-literacy and applied environmental education." Corps Members receive site safety and the OSHA-40 certification.	Green City Force	https://greencityforce.org/service-corps/
11	Willdan Clean Energy Academy	Citywide	Remote		Free courses in things like HVAC, lighting, building envelope, heating systems, EVs that offer certifications. Works to fill skill gaps identified by employer partners.	NYSERDA, Willdan, ConEd, Soulful Synergy, NYIT, others	https://www.cleanenergyacademy.org/
12	CUNY Building Performance Lab	Citywide	Mostly remote, various in person locations	facility managers, building operators, and energy professionals, CUNY students	Offers courses to building professionals to help buildings become more energy efficient and sustainable. NY Center for Energy and Carbon Management Training (E-CMT): comprehensive education in building performance and operations. Offers pathways to various professional certifications. Couples academic instruction with real-world internships through the WAP sub-grantee network.	CUNY, NYS HCR	
13	RETI Center Sollar		Red Hook,				

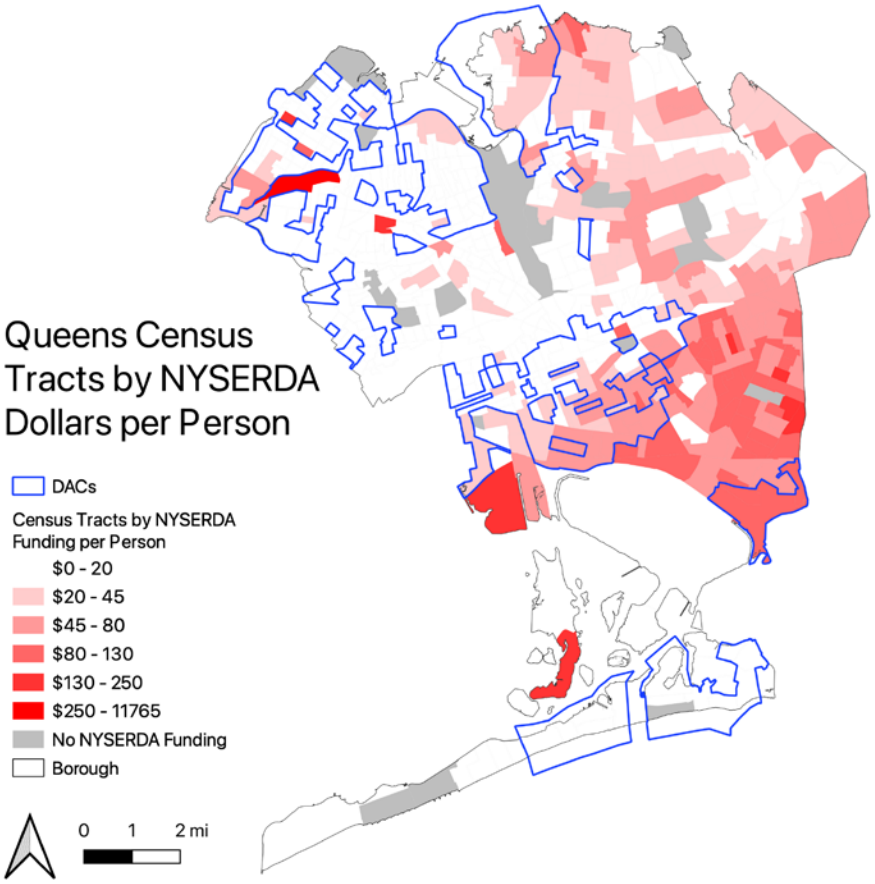
Appendix E
NYSERDA Equity Analysis Charts

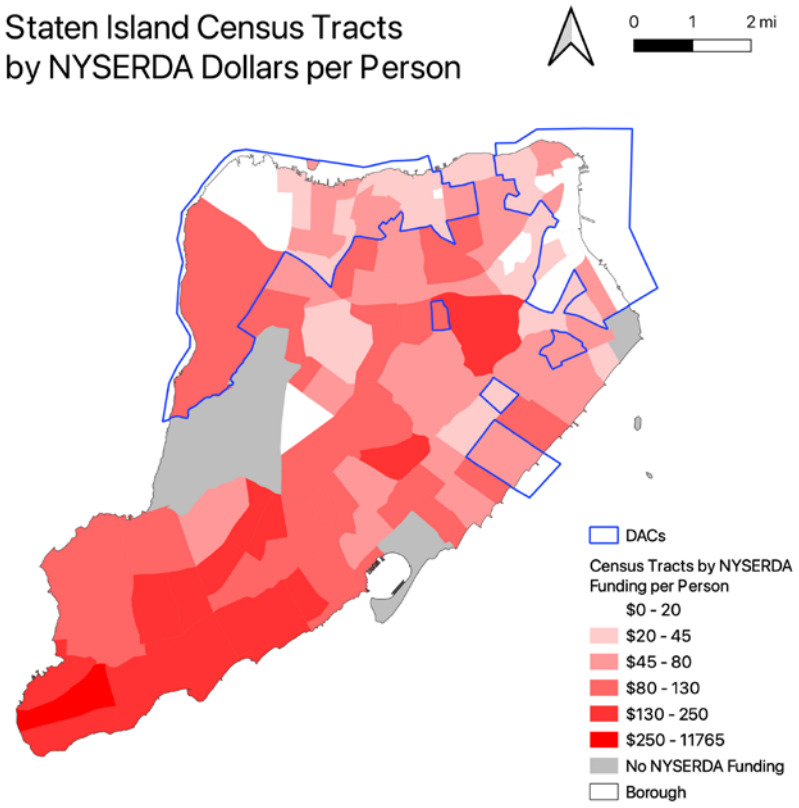




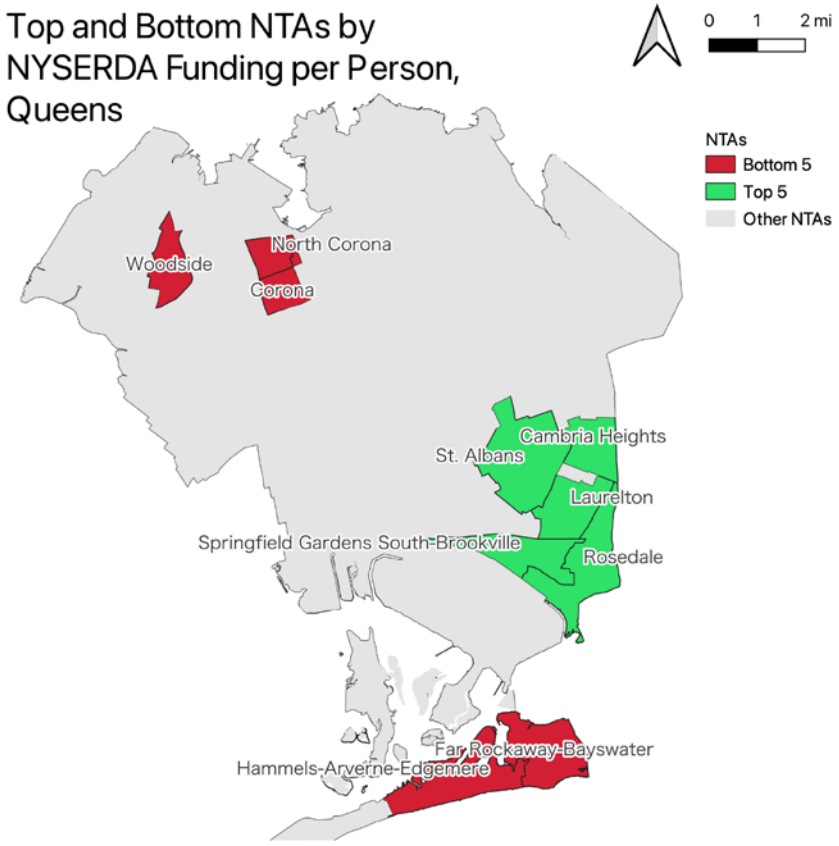




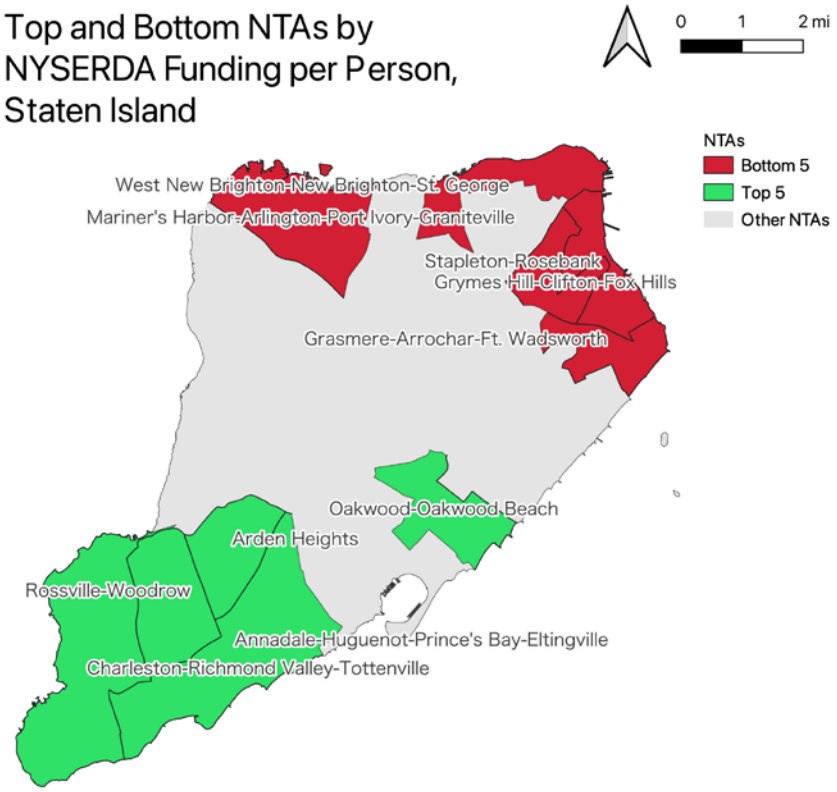

Queens Census Tracts by NYSERDA Dollars per Person
DACs
Census Tracts by NYSERDA Funding per Person
$0 - 20
$20 - 45
$45 - 80
$80 - 130
$130 - 250
$250 - 11765
No NYSERDA Funding
Borough
0 1 2 mi

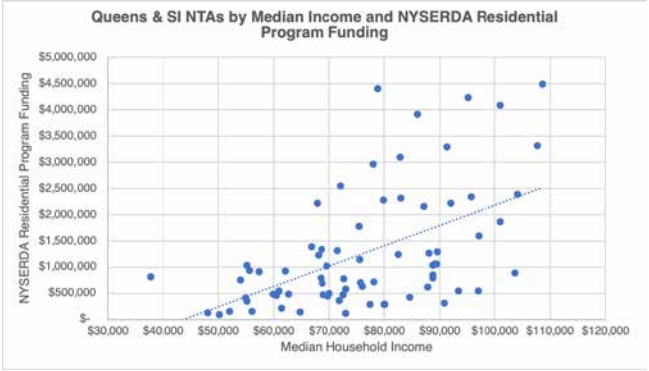

Staten Island Census Tracts by NYSERDA Dollars per Person
0 1 2 mi
DACs
Census Tracts by NYSERDA Funding per Person
$0 - 20
$20 - 45
$45 - 80
$80 - 130
$130 - 250
$250 - 11765
No NYSERDA Funding
Borough

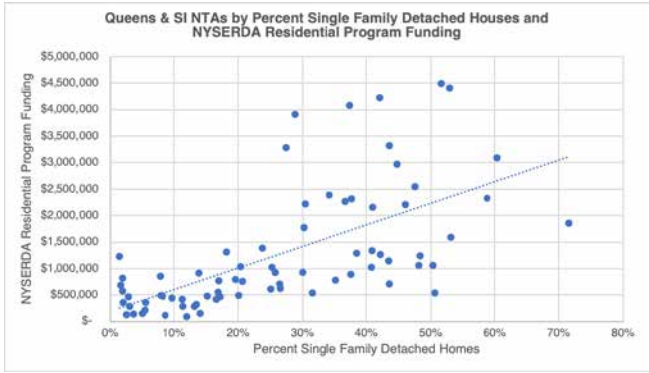
Top and Bottom Neighborhoods by NYSERDA Residential Funding per Person: Queens					
Top 5					
Neighborhood	**NYSERDA Funding per person**	**Annual Bill Savings per person**	**Median Income**	**Percent BIPOC**	**Percent Renter Occupied**
Springfield Gardens South-Brookville	$ 97	$ 174	$ 87,155	96%	40
Laurelton	$ 90	$ 125	$ 95,701	97%	20
Cambria Heights	$ 88	$ 127	$ 101,058	97%	13
Rosedale	$ 83	$ 141	$ 92,057	93%	31
St. Albans	$ 83	$ 130	$ 78,815	96%	24
Bottom 5					
North Corona	$ 4	$ 11	$ 61,438	65%	78
Woodside	$ 3	$ 6	$ 64,766	56%	61
Far Rockaway-Bayswater	$ 3	$ 4	$ 56,083	58%	70
Corona	$ 3	$ 9	$ 51,977	59%	76
Hammels-Arverne-Edgemere	$ 2	$ 4	$ 50,227	70%	64

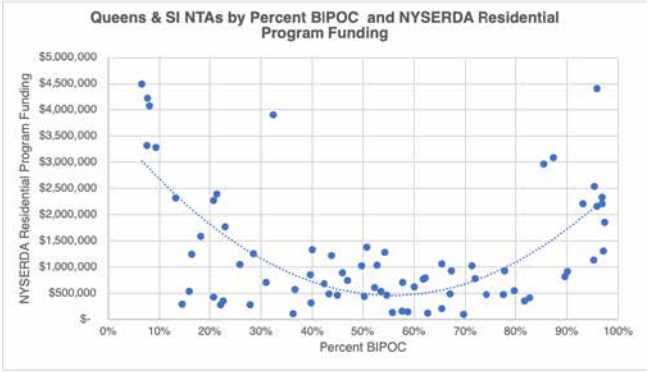


Top and Bottom NTAs by NYSERDA Residential Funding per Person: Staten Island					
Top 5					
NTA	**NYSERDA Funding per person**	**Annual Bill Savings per person**	**Median Income**	**Percent BIPOC**	**Percent Renter Occupied**
Charleston-Richmond Valley-Tottenville	$ 177	$ 223	$ 95,114	8%	22
Rossville-Woodrow	$ 152	$ 201	$ 107,717	8%	12
Annadale-Huguenot-Prince's Bay-Eltingville	$ 151	$ 205	$ 108,693	7%	16
Arden Heights	$ 122	$ 169	$ 91,299	9%	13
Oakwood-Oakwood Beach	$ 113	$ 137	$ 83,014	13%	26
Bottom 5					
Grasmere-Arrochar-Ft. Wadsworth	$ 45	$ 68	$ 78,186	31%	35
Mariner's Harbor-Arlington-Port Ivory-Graniteville	$ 42	$ 93	$ 66,772	51%	38
West New Brighton-New Brighton-St. George	$ 33	$ 49	$ 55,165	53%	59
Stapleton-Rosebank	$ 30	$ 53	$ 54,022	47%	57
Grymes Hill-Clifton-Fox Hills	$ 22	$ 42	$ 68,906	45%	55




Queens & SI NTAs by Median Income and NYSERDA Residential Program Funding
NYSERDA Residential Program Funding
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
$30,000 $40,000 $50,000 $60,000 $70,000 $80,000 $90,000 $100,000 $110,000 $120,000
Median Household Income


Queens & SI NTAs by Percent Single Family Detached Houses and NYSERDA Residential Program Funding
NYSERDA Residential Program Funding
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
0% 10% 20% 30% 40% 50% 60% 70% 80%
Percent Single Family Detached Homes


Queens & SI NTAs by Percent BIPOC and NYSERDA Residential Program Funding
NYSERDA Residential Program Funding
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
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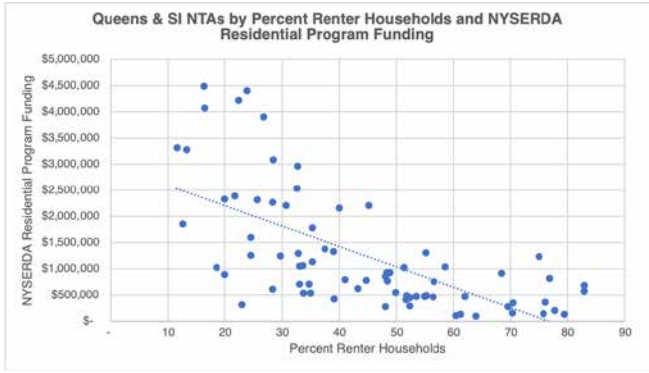
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Percent BIPOC


Queens & SI NTAs by Percent Renter Households and NYSERDA Residential Program Funding
NYSERDA Residential Program Funding
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
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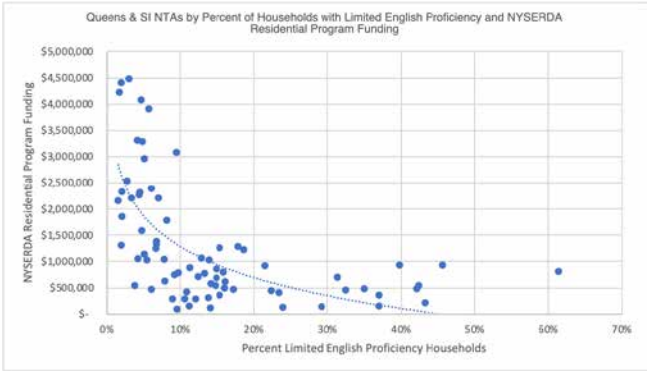
10 20 30 40 50 60 70 80 90
Percent Renter Households


Queens & SI NTAs by Percent of Households with Limited English Proficiency and NYSERDA Residential Program Funding
NYSERDA Residential Program Funding
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
0% 10% 20% 30% 40% 50% 60% 70%
Percent Limited English Proficiency Households

Appendix F
Public Engagement Interviews & Focus Groups

RABA External Organization Interviews

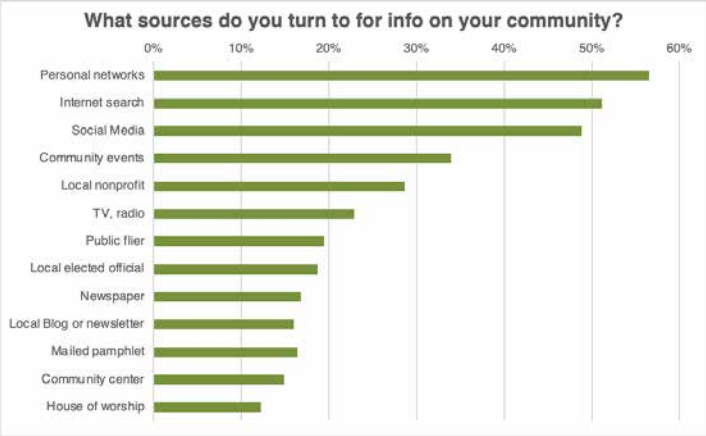
Organization	Borough	Description	Participants	Date
Central Family Life Center	SI	Provides a variety of programming and direct services to SI North Shore communities.	Elizabeth Morgan, Director of YouthBuild IMPACT	7/25/23
Soulful Synergy	NYC	Offers workforce development training programs, including in green industries.	- Dwayne Norris, Co-founder and COO - Alejandro Alvarez, Co-Founder - Will Scherle, Director of Decarbonization	8/3/23
SI Connect	SI	Provides wraparound services to NYCHA youth and their families.	Amber Alicea, Case-manager/ Coordinator	8/7/23
Neighborhood Restore	NYC	Creates affordable housing through restoring abandoned properties for LMI homeowners.	Francesco Mollica, Construction Project Manager	8/10/23
SIEDC	SI	Fosters economic development through partnerships with businesses, including green employers, and government.	Mike Cusick, President & CEO	8/15/23
NHS of Jamaica	Queens	Promotes LMI homeownership in and around Jamaica, through programming, support with repairs, and more.	Lori Miller, Executive Director	9/5/23
Northfield Community LDC	SI	Creates and supports affordable housing in SI's North Shore, with a focus on weatherization.	- Kathleen Bielsa, Executive Director - Jim Reilly, Weatherization Director	9/6/23
Queens Borough President's Office	Queens	Hosts the Queens Climate Expo, facilitates a network of Queens CBOs working on environmental issues, supports homeowners in the wake of flooding.	Katherine Brezler, Strategic Advisor	10/19/23
Chhaya	Queens	Provides housing counseling and a variety of other direct services in South Asian & Indo-Caribbean communities.	- Tenying Yangsel, Associate Director of Programs Homeownership - Thinley Dolma, Housing Counselor	1/5/24
			- Anlisa Outar, Housing Counselor	
Eastern Queens Alliance	Queens	Coalition of civic associations that promotes environmental stewardship and education in Southeast Queens.	- Barbara E. Brown, Chairperson - Gloria Boyce-Charles, Vice-Chairperson	1/11/24

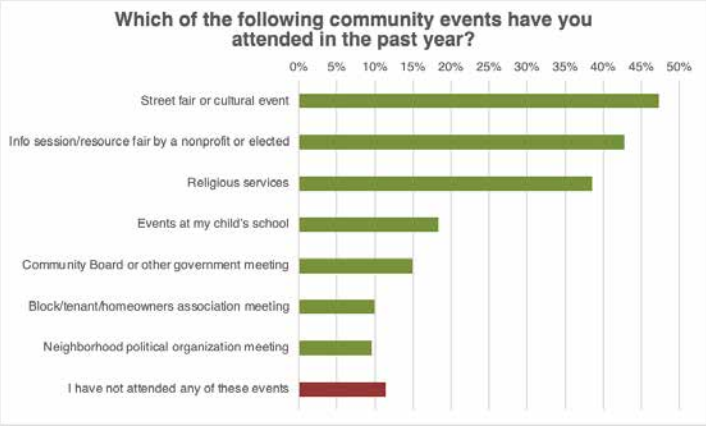
RABA Focus Groups

Focus Group	Description	Date	Corresponding Hub Team Organizations	# of Participants
Electrify NYC (ENYC) Participants	ENYC is a City government program, administered by CBOs including KC3, NHSQ, and N4SF, that offers small homeowners guidance/assistance with making sustainability upgrades to their homes. Spoke to people who have interacted with ENYC about their experiences with the program.	8/2/23	KC3, NHSQ, N4SF	3
Youth	Spoke with teenage youth involved in Youth WINS/NYCID workforce related programs about their career goals, their knowledge of/interest in the clean energy industry.	8/8/23	Youth WINS	3
MWBE Contractors	Spoke with contractors about their experiences navigating the landscape of doing sustainability work as MWBEs.	8/14/23	BOC Network	5
Immigrant women	Spoke with women involved in New Women New Yorkers (NWNY) programs about their career goals, their knowledge of/interest in the clean energy industry.	8/14/23	NWNY	3

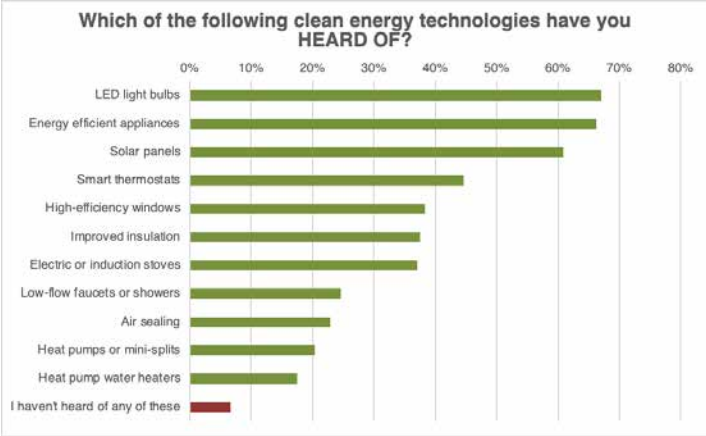
Appendix G
Full Survey Results

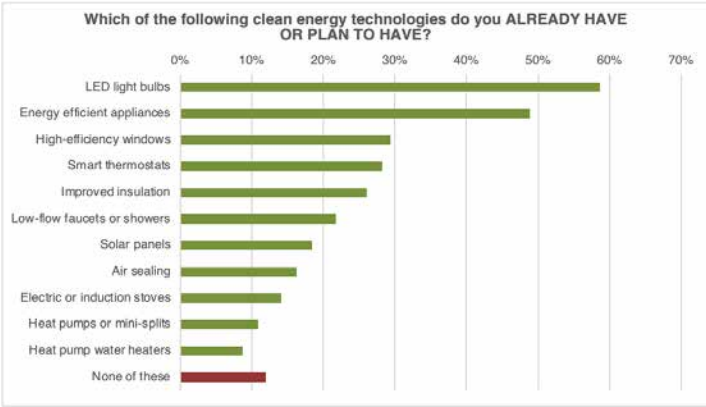
Information Sources



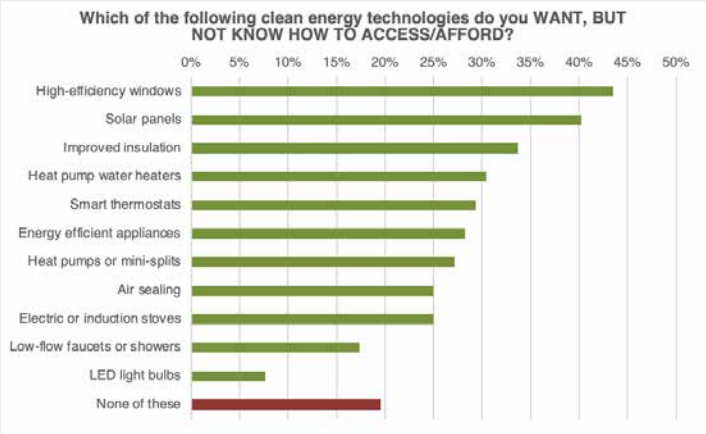


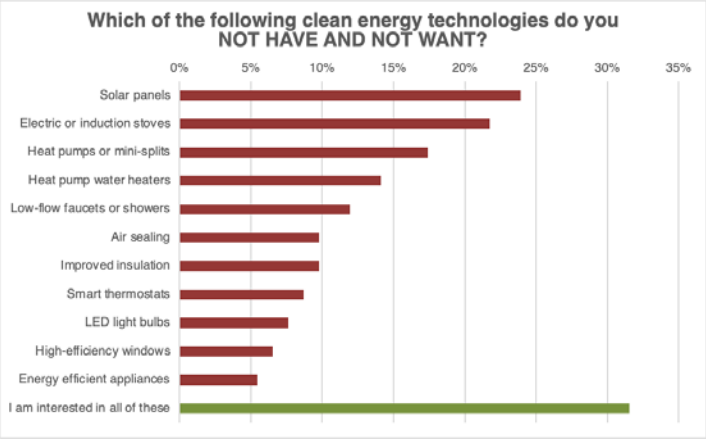
Home Energy Upgrades





Home Energy Upgrades





How much do these benefits of making a home energy upgrade appeal to you?* (Scale of 1-5)	
Lowering my utility bills	4.6
Improving indoor air quality	4.6
Preparing my home to withstand natural disasters and avoid power outages	4.5
Making my home's temperature more comfortable	4.4
Fighting climate change/improving the environment	4.4
Making needed home repairs like a roof replacement or mold/lead abatement as part of the upgrade	4.1
Getting my tenant to stop complaining about being cold/hot (only asked to homeowners)	*3.1*

How big of an obstacle would these be to making a home energy upgrade?* (Scale of 1-5)	
I can't afford the upfront cost of the upgrades I'm interested in	4.2
I cannot make the upgrades I'm interested in on my own as a renter (only asked to renters)	4.1
The process of receiving upgrades is daunting/complicated	4.0
I don't know what kinds of upgrades, technologies, and programs exist and what it is possible for me to do	3.8
Other home repairs or upgrades are a bigger priority for me (only asked to homeowners)	*3.6*
I don't want people coming into my home to install upgrades	2.3

**Italicized: only asked to homeowners.* Underlined: only asked to renters

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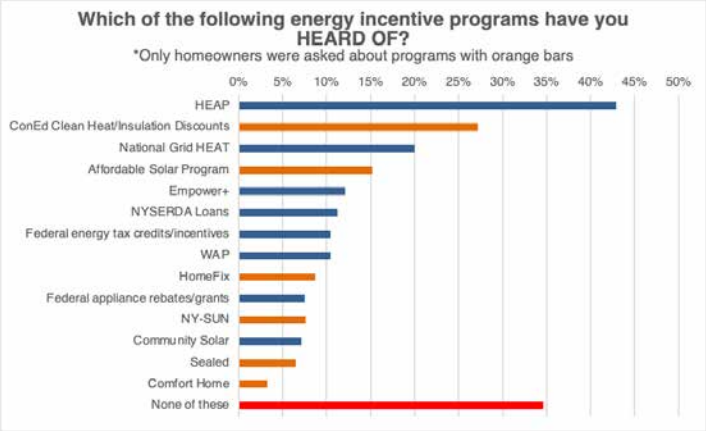
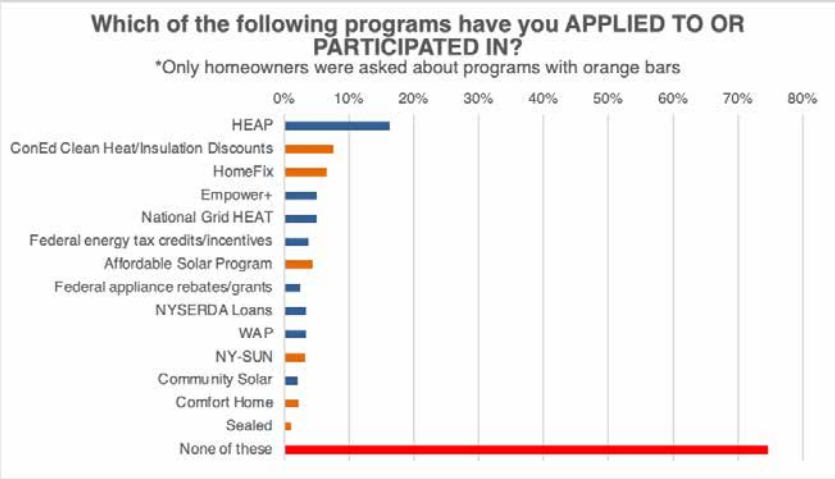
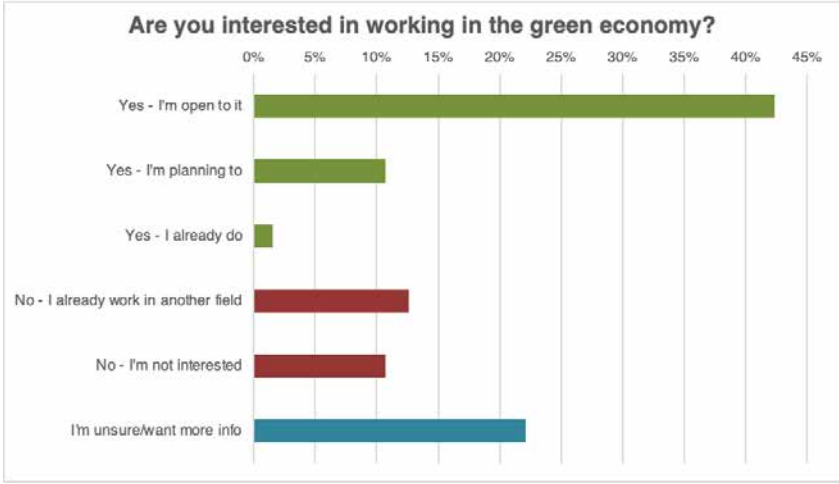
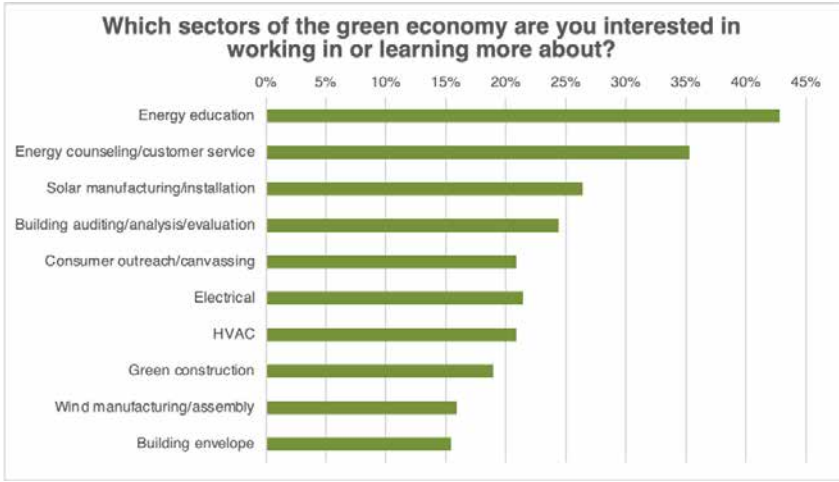




Workforce





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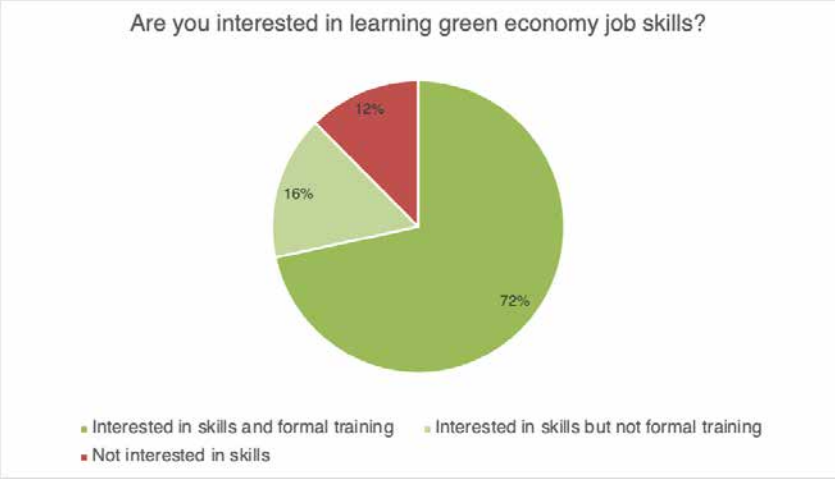

How much would the following encourage/enable you to participate in a green jobs training program?	
Possibility of earning better wages and benefits	4.7
Learning new skills	4.6
Doing work that helps my community and the environment	4.5
Stipend (payment) for participation	4.5
Hearing positive experiences from people who completed the program	4.4
Online option (no in-person requirement)	4.3
Someone I trust recommending the program	4.3
Free childcare during the program	3.4

How big of an obstacle would these be to participating in a green job training program?	
I don't know how to find a green job training program	4.2
I'm worried I don't have the right skills	4.1
Travel time	4.0
Work schedule / inability to take time off work	3.8
Childcare or other caretaking responsibilities and/or cost	3.6