

Regional Clean Energy Hubs Market Evaluation and Baseline Update (2023-2024): APPENDICES

Final Report

Prepared for:

New York State Research and Development Authority (NYSERDA)

Althea Koburger

Project Manager, NYSERDA

Prepared by:

Industrial Economics, Inc

Cambridge, MA

Cynthia Manson,

Principal

Emma Fox, Ph.D.

Senior Associate

Veronika Koziel,

Associate

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APPENDIX A: Extended Methodology

Table A- 1 summarizes the primary data collection activities conducted to support the market evaluation and update to the baseline study. The sections that follow provide additional detail on each activity.

Table A- 1. Primary Data Collection Activity Summary

ACTIVITY	TARGET GROUP	POPULATION SIZE	SAMPLE SIZE	EXPECTED SAMPLING PRECISION/ CONFIDENCE	STRATA
Interviews	RCEH Hub Leadership	12 Hubs	12 interviews (27 interviewees)	Hubs census	NA
Virtual Focus Groups	Subcontractors	61 subcontractor organizations	3 focus groups (24 total participants)	Thematic saturation, regional representation	NA
Virtual Focus Groups	Partners	1,110 partner organizations	4 focus groups (29 participants)	Thematic saturation, regional representation	NA
Virtual Focus Groups	Consumers in DACs	~7,000,000 individuals	5 Focus Groups of 6-9 participants each (50 total)	Thematic saturation	Rural/urban/ suburban strata (designations defined by Data Axle)
Online survey	Consumers in DACs	~7,000,000 individuals	286 respondents	90/10	Rural/urban/ suburban strata (designations defined by Data Axle)

A.1 Extended Hub Leadership Interview Methodology

Hub leadership interviews targeted a census of the Hub leadership teams, to ensure all 12 Hubs were represented (i.e., a 100 percent response rate). The bulk of the Hub leader interviews were conducted between May and June 2025, with two interviews completed in September to accommodate Hub leader availability. Hub Leadership interviews were designed to establish context for understanding Hub progress since the baseline study. The 12 interviews included a total of 27 participants. This report analyzes interviews at the Hub level, as teams interviewed represented the same Hubs and were in agreement about progress to-date, and successes/challenges they had experienced. Topics included Hub partner organizations, Hub activities to date (e.g., education events and community campaigns), observed market barriers to consumer uptake of clean energy services, and other planned activities. Interviewees were also asked questions about their top 3-5 partners organizations for the purpose of informing the social network analysis (described in detail in **Section A.3**). After the interview, Hub leaders were asked to confirm or update the specific list of partners gleaned from the Regional Analysis and Barriers Assessment (RABA) and Outreach and Equitable Engagement Plan (OEEP) documents for their individual Hub.

A.2 Extended Subcontractor and Partner Focus Group Methodology

The Evaluation Contractor team conducted a series of virtual focus groups with representatives from a range of Hub subcontractor organizations (in July 2025) and partner organizations (in August 2025 and January 2026). Virtual focus groups with subcontractors and partner organizations generated feedback on the Hubs' planned activities, as well as RCEH program implementation successes and challenges. The virtual subcontractor and partner focus groups were also designed to confirm or rebut information gathered during the Hub Leadership interviews as a point of data validation (triangulation).

The participant candidates for the three stakeholder focus groups were drawn from the NYSERDA Hub Membership List (with organizations updated/confirmed with support from NYSERDA program staff), and efforts were made to invite participation from subcontractors across all 12 Hub territories (**Table A-2**). Each of the three subcontractor focus groups had approximately ten participants each, with 24 total participants, an 82% participation rate, overall. Staff at organizations that subcontract with the Hubs are considered Hub teams (collectively, Hub leaders and subcontractors) and receive compensation through the RCEH program.

Table A- 2. Subcontractor Focus Group Participation

HUB REGION	SUBCONTRACTORS IDENTIFIED	INVITED	ATTENDED	PARTICIPATION RATE
Capital Region	4	3	3	100%
Central NY	3	1	1	100%
Genesee/ Finger Lakes	6	4	3	75%
Long Island	13	4	4	75%
Mid-Hudson	2	1	1	100%
Mohawk Valley	2	2	2	100%
NYC Bronx/ Brooklyn	4	2	2	100%
NYC Manhattan	4	2	1	50%
NYC Richmond/ Queens*	2	1	1*	0%
North Country	4	4	4	100%
Southern Tier	1	1	1	100%
Western NY	7	3	2	67%
TOTAL	52	28	24	82%

***Note:** Richmond/Queens subcontractors did not participate in focus groups; however, they were interviewed as a part of the Hub leader interview process, with responses analyzed in the context of focus group discussions, and are therefore included here.

The participant sample for the four partner focus groups were developed from the RABA and OEEP documents, and (as with the subcontractor focus groups) Hub leaders were asked to confirm or update listed organizations after their interviews to ensure as complete a list as possible prior to outreach. All 12 Hub leadership teams provided updates to the partner lists, which the Evaluation Contractor then used to

conduct outreach. Partners across all 12 Hub territories were invited to participate to garner regional representation; partner organizations from all 12 Hub territories are represented in the results (Table A-3).

Table A- 3. Partner Focus Group Participation

HUB REGION	PARTNERS IDENTIFIED	INVITED	ATTENDED	PARTICIPATION RATE
Capital Region*	21	19	3	13%
Central NY	48	47	6	13%
Genesee/ Finger Lakes	15	14	2	14%
Long Island	31	30	4	13%
Mid-Hudson	22	19	1	5%
Mohawk Valley	20	16	1	6%
NYC Bronx/ Brooklyn	12	12	2	15%
NYC Manhattan	8	8	3	38%
NYC Richmond/ Queens	12	11	2	18%
North Country	14	13	1	8%
Southern Tier	6	6	2	33%
Western NY	12	11	2	18%
TOTAL	221	206	29	14%

A.3 Extended DAC Consumer Survey Methodology

The DAC population in New York State is approximately 7,000,000 known residents. In order to reach a wide representation of residents living in geographically-defined DACs, NYSERDA shared Data Axle¹ contact information for a randomly selected sample of DAC residents in New York State.² DAC designation is based on a series of criteria developed by the NYSERDA Climate Justice Working Group; to note, the DAC definition was not yet finalized during baseline study sampling, and thus the sample was based on the DAC interim criteria as defined by New York State (i.e., geographically-defined DACs, including hard-to-reach, underserved rural communities and areas with high levels of poverty and limited access to resources).^{3,4} The update to the baseline study used DAC final criteria.

¹ Data Axle is a company that compiles publicly available contact, demographic, housing, and consumer purchase pattern data for purchase for marketing and survey-based research. Data Axle acquired recognized brands Infogroup and InfoUSA and continues to grow their consumer data coverage through targeted acquisitions.

² The 50,000 DAC residents represent a true random sample draw with no attention to regional distribution.

³ NYS Climate Action Working Group. 2023. Disadvantaged Communities Criteria. Accessed online April 2023: <https://climate.ny.gov/resources/disadvantaged-communities-criteria/>

⁴ The NYS Climate Action Working Group definition for DACs is based on a set of criteria, including employment; income level; home ownership/rental status; particulate matter exposure; asthma rate; proximity to highways, industrial land use, landfills, remediation sites, and/or wastewater discharge; and more.

The Evaluation Contractor developed a randomized but balanced contact sample draw with equal numbers of contacts dwelling in urban, suburban, and rural areas (as designated by Data Axle). The DAC consumer survey was administered in waves from October to November 2025, and participants were compensated for completing the survey (\$20, an increase in the baseline study incentive of \$10 to boost response rates). The population segmentation strata for the survey were urban/rural/suburban, using Data Axle designation data. With a total sample of 251,921 contacts from which to send emails, the goal was 280 responses, which was deemed sufficient to achieve a 90% confidence/10% precision (90/10) target threshold across each of three strata, plus additional variation for analysis across single and multifamily consumer types (**Table A- 4**). **The survey ultimately reached 47,535 contacts and received 286 complete responses.**

Table A- 4. DAC consumer survey response rate by stratum

STRATUM	EMAILS SENT	HARD BOUNCES	SOFT BOUNCES	COMPLETES	RESPONSE RATE	CONFIDENCE/ PRECISION
Rural	32,665	16,897	831	115	0.1%	90/10
Urban	32,644	14,586	880	81	0.2%	90/10
Suburban	32,475	16,206	849	90	0.3%	90/10
Total	9,495	47,689	2,560	286	0.6%	90/10

A total of 28 percent of respondents were categorized as dwelling in urban areas, 31 percent in suburban areas, and 40 percent were in rural areas. As in the 2023 baseline consumer survey, Survey Administrator translated and programmed a Spanish language survey option to make the 2025 survey accessible to a multilingual audience (12% of the contacts in the sample were identified as Spanish-speaking by Data Axle, 5% lower than in the baseline year). Despite this effort, the Spanish-translated survey option was not activated by any participants.

Total survey bounce-backs were high, nearly 51%. The Survey Administrator contacted 97,784 individuals and sent reminders to 23,740 of these. The online survey achieved a 0.6% response rate (**Table A- 5**). Survey respondents represented all 12 Hub territories (**Table A- 5**). Though the survey sample design sought geographic representation across all 10 economic development regions, the evaluation team did not set formal targets or quotas for this stratification (i.e., the Evaluation Contractor did not seek specific number of respondents for each region, or aim to achieve a 90/10 threshold in survey response). Respondent distribution across each economic development region is described here for illustrative purposes only.⁵

⁵ Two participants completed both the survey and participated in a DAC consumer virtual focus group.

Table A- 5. Respondent distribution by economic development region

REDC	CONTACTED	COMPLETES	BOUNCEBACKS	RESPONSE RATE
Capital Region	4,883	17	2,379	0.7%
Central NY	7,066	30	3,674	0.9%
Finger Lakes	13,399	41	7,192	0.7%
Long Island	10,302	20	5,502	0.4%
Mid-Hudson	20,056	45	10,239	0.5%
Mohawk Valley	6,677	28	3,483	0.9%
North Country	4,100	10	2,157	0.5%
NYC - Brooklyn/Bronx	5,707	14	2,605	0.4%
NYC - Manhattan	2,794	9	1,318	0.6%
NYC - Queens/Staten Island	7,240	14	3,435	0.4%
Southern Tier	4,012	13	2,171	0.7%
Western NY	11,548	45	6,094	0.8%
Grand Total	97,784	286	50,249	0.6%

Unlike the baseline consumer survey, the 2025 update did not include a survey question for focus group recruitment.

A.4 Extended DAC Focus Group Methodology

The Evaluation Contractor conducted a series of five DAC consumer virtual focus groups in August 2025. The intention for the DAC consumer focus groups was to provide contextual depth to the characterization of consumer awareness in the DAC consumer survey. As in the baseline study, consumer focus group questions focused on personal energy concerns, awareness of energy efficiency and renewable energy generation and storage, and awareness of past experiences with home energy assessments. Focus group respondents were compensated for their participation (\$100, consistent with baseline study incentive levels). Recruitment for DAC focus groups used email addresses from the Data Axle sample.

While Long Island was not represented in the DAC consumer focus group discussions (**Table A- 6**), the focus group strata (i.e., rural, urban, suburban) were evenly represented (**Table A- 7**). DAC consumer survey respondents represented all 12 Hub territories.

Table A- 6. Focus group recruitment and response rate by REDC

REDC	CONTACTS INVITED	CONTACTS ATTENDED	% RESPONSE
Capital Region	513	9	1.8%
Central NY	503	4	0.8%
Finger Lakes	506	5	1.0%
Long Island	500	0	0.0%
Mid-Hudson	506	6	1.2%

REDC	CONTACTS INVITED	CONTACTS ATTENDED	% RESPONSE
Mohawk Valley	505	4	0.8%
NYC Brooklyn and Bronx	508	6	1.2%
NYC Queens and Staten Island	505	3	0.6%
NYC Manhattan	503	2	0.4%
North Country	501	2	0.4%
Southern Tier	502	5	1.0%
Western NY	506	4	0.8%
TOTAL	6,058	50	0.8%

Table A- 7. DAC consumer focus group participation rate across participant strata

STRATUM	CONTACTS INVITED	CONTACTS ATTENDED	% RESPONSE
Rural	1,798	7	0.1%
Urban	2,564	21	0.3%
Suburban	1,685	13	0.2%
Not identified*	11	9	0.1%
TOTAL	6,058	50	0.8%

*Participants listed as “not identified” were individuals, likely family members, who responded on behalf of or instead of the original contact, for whom the Evaluation Contractor did not have Data Axle data. These individuals received compensation for the survey, and their responses were included in the analysis.

APPENDIX B: Extended Secondary Data Review Methodology

The Hub Opportunities Data and Engagement Report Data files that the Evaluation Contractor reviewed for the baseline evaluation had numerous inconsistencies and large data gaps. In May 2023, the Evaluation Contractor submitted a memorandum to NYSERDA describing recommendations for improved Salesforce recordkeeping to limit possible data losses. Hub staff were asked to review and consider updating past data entries, and these changes were to be implemented going forward under the guidance of a finalized Salesforce User Guide.⁶

For this update to the baseline study, NYSERDA program staff provided the Evaluation Contractor with cleaned Hub Engagement Report Data that addressed some recommendations from Phase II. Actions for cleaning included:

- **Reconciling engagement titles.** Engagements are often labeled in a confusing manner, and NYSERDA program staff delineated individual engagements between Task 3 and Task 5 to support the Evaluation Contractor’s analysis.
- **Confirming DAC outreach events.** NYSERDA reviewed every outreach event and confirmed which were in DACs and which were not.

NYSERDA also provided the Evaluation Contractor with cleaned Opportunities Data. Cleaning included:

- **Attached opportunities to accounts.** Some opportunities were without accounts – this was a gap that the Evaluation Contractor noted in the baseline evaluation, and it led to data losses. NYSERDA program staff worked with Hubs to identify accounts where possible.
- **Consolidating opportunities to projects.** While the Salesforce user guide acknowledges that one account could have five referrals to different NYSERDA programs, there were some issues with this approach. NYSERDA consolidated opportunities to projects, which limited issues where Hubs used the database to track process, rather than projects (e.g., Southern Tier).

Table 1 lists each of the datasets and documents data losses from cleaning, except where NYSERDA has already cleaned the dataset (e.g., RCEH Opportunities Data). The sections below follow the format of the table and characterize each dataset and its anomalies. Detailed data cleaning information is described further below in the **Data Anomalies and Losses** Section.

⁶ Careful and consistent data management practices support evaluators in more accurately characterizing the progress toward consumer outreach and engagement during the RCEH program. NYSERDA Program Staff and shared a guide with Hub Staff in 2024 for using the Salesforce portal to promote more consistent data management.

Table B- 1. RCEH Program Data Inventory

FILE NAME	REPORTING PERIOD	RECORDS (RAW)	RECORDS (CLEANED)	NOTES
Hub Opportunities Data	Sept 1, 2023 – August 31, 2024	4,480	4,443	NYSERDA linked opportunities to accounts, and consolidated opportunities to projects, which limited issues where Hubs tracked process, rather than projects. Number of records in the final file is slightly reduced from the original file, reflecting losses due to missing account name information.
Monthly Hub Reports	Sept 1, 2023 – August 31, 2024	8,375	8,375	NYSERDA revised and reconciled engagement titles and task numbering prior to sharing with IEc. Number of records in the final file is consistent with the initial file because no exclusions were made – the Evaluation Contractor summarized the data received as-is.
List of Project Partners	2025	212	212	The Evaluation Contractor used this list to inform data collection activities for interviews and focus groups.
RABA	2024-2025	12	12	RABA files were not included in the preliminary reporting. The Evaluation Contractor did not clean these files or adjust in any way.
OCEEP	2024-2025	12	12	OCEEP files will be used to provide context for the final baseline report but will not be included in the preliminary reporting.
NYSERDA's Annual Statewide Tracking Study	2024	1	1	The Evaluation Contractor received a PowerPoint file summary from NYSERDA. Summary data summary from the 2024 Statewide Tracking Study will provide context for understanding DAC consumer survey data but otherwise are not directly analyzed as a part of this evaluation.
USEER Data 2023	2023	3,195	63	Published annually – the Evaluation Contractor limited this file to New York State county-level jobs data, as in the baseline evaluation.
USEER Data 2024	2024	3,195	63	Published annually – the Evaluation Contractor limited this file to New York State county-level jobs data, as in the baseline evaluation.

B.1 Hub Opportunities Data

The Hub Opportunities dataset represents individuals, households and businesses that have entered NYSERDA's RCEH pipeline (e.g., signed up at a community event and requested to receive more information, applied and tagged the Hub for clean energy assistance through Empower +, or completed an air source heat pump installation project in their home), which is regularly reported to NYSERDA by the 12 Hubs.

The raw NYSERDA Hub Opportunities data include a total of 4,480 entries from September 2023 to August 2024. Hub Opportunities are a key indicator of progress that each individual Hub is making

toward the goals of the RCEH program. Opportunities represent individuals that have been engaged by Hubs and have entered the project pipeline, from requesting additional information about specific opportunities to submitting an application and completing a project. Opportunities provide insights into NYSERDA and non-NYSERDA program use, level of participation from individuals and businesses, and some indication of the rate of application success.⁷

Data Anomalies and Losses: For the update to the baseline study, the Evaluation Contractor received a pre-cleaned Hub Opportunities Dataset from NYSERDA. This “raw” data previously included limitations such as records not clearly linked with individuals or businesses, so the Evaluation Contractor previously made determinations using a decision rule approach. NYSERDA RCEH Program Staff amended this issue in the data cleaning process for the 2023-2024 dataset. The Evaluation Contractor still notes some gaps and limitations in the dataset, having completed one additional cleaning step, summarized below.

The Evaluation Contractor made efforts to keep data wherever possible. Data losses are strictly tied to missing information for actual known entities (accounts) associated with an opportunity. Anomaly distribution and subsequent data cleaning decisions are described in detail below:

- **Full Name:** Individual/entity name information was missing for 37 opportunities, 21 of which were entered by the NYC Brooklyn/Bronx Hub,⁸ and 9 of which were entered by the Western NY Hub.^{9, 10} With no individual or entity to link to the opportunity, the data for these records cannot be validated. The Evaluation Contractor removed these opportunities from the dataset to be consistent with our decision rule from the baseline evaluation. This is the only variable where missing information resulted in data losses during cleaning.
- **Business or Individual:** The Evaluation Contractor determined businesses vs. individuals field based on notes in the Account Name: Account Name field. If the opportunity type was marked as “individual account,” the Evaluation Contractor categorized the record as “individual.” categorized all other opportunities as “business/non-profit.”
- **Program Name:** Program name information (NYSERDA and non-NYSERDA) was missing for a total of 122 opportunities. While there was some indication of program type in the opportunity

⁷ Importantly, Hub Leadership teams have indicated that the Hub Opportunities dataset cannot be used as a direct measure of application success rate, because the status updates may not always be timely or complete.

⁸ A total of 20 of these NYC Brooklyn/Bronx Hub entries without account information were entered by the Center for NYC Neighborhoods, with one entered by Solar One.

⁹ All 9 of the entries from the Western NY Hub without account information were entered by PUSH Buffalo. Southern Tier had four opportunities with no account information. One entry each without an account name came from the Mid-Hudson Hub, Mohawk Valley Hub, and North Country.

¹⁰ Noted here for tracking purposes because NYSERDA Program Staff may wish to follow up about recordkeeping/data entry for quality assurance.

name, the Evaluation Contractor did not have enough information to make a determination one way or another (even for EmPower+ labeled items, because of the low vs. moderate income incentive difference). The Evaluation Contractor did not remove these opportunities from the dataset; however, this missing information is flagged here as a dataset limitation. Additionally, there are 360 opportunities flagged with “other” in the non-NYSERDA program column. Again, the Evaluation Contractor did not delete these entries, but note that this high use of “other” could suggest a gap in the types of pre-set non-NYSERDA program selections in the Salesforce dataset.

The final NYSERDA RCEH Opportunities data include 4,443 entries.

B.2 Hub Engagement Reports Data

Hub Monthly Engagement Reports describe activities in which Hubs and their subcontractors have engaged (e.g., educational events for first-time homebuyers, marketing projects, hiring and onboarding new staff, etc.), and are reported by Hubs on a monthly basis.

NYSERDA Hub Reports data include 8,375 entries from September 2023 through August 2024. For update to the baseline evaluation study, NYSEDA provided a pre-cleaned Hub Monthly Engagements Dataset. This “raw” data previously included limitations such as confusing titles, lack of SOW numbering, and (for outreach tasks) lack of indication of whether the outreach took place in DACs or not. NYSEDA addressed these limitations in the cleaning process for the update to the baseline study.

The Hub Engagement Report Data are intended to inform the characterization of the overall level of structured activity in each Hub beyond adding individual opportunities to the NYSEDA program pipeline. The Hub Engagement Report Data are an illustration of overall effort to date, but it is important to note that total numbers of engagements are not comparable or translatable across Hubs. For example, the Capital Region and Genesee/Finger Lakes Hubs report rolled-up engagements (e.g., every individual conducting activities is not represented), while the Western NY Hub uses engagements to track subcontractor activities.

Data Anomalies and Losses: The Hub Engagement Reports data are more challenging to summarize than the RCEH Opportunities data, due to the inability to compare or translate performance across Hubs. As noted above, Hubs use the engagements reporting process for different purposes, and the entries should be interpreted with care.

Unlike the RCEH Opportunities dataset, which has a limited number of variables for analysis, the Hub Engagement Reports dataset has sufficient detail in one or more additional variables to support data validation for any given activity (e.g., “Partnerships” activities all have a partner organization listed).

Additionally, the detail provided in other variables is sufficient to back-fill critical information such as Engagement Name and Record Type. For this reason, the Evaluation Contractor determined to keep *all* activities in the dataset (zero deletions during cleaning).

Note: Engagements do not necessarily correlate to opportunities due to outreach focus, SOW task, or lead time. Some outreach engagements are more about establishing trust and presence in the local community, while others are focused on educating the public. Some SOW tasks are focused on marketing, which similarly may not lead directly to opportunities.

The final Hub Engagement Reports data include 8,375 entries from September 2024 to August 2024.

B.3 Hub List of Project Partners

The Hub List of Project Partners with contact information included a total of 12 prime contractor/lead organizations and 61 unique subcontractor organizations. The Evaluation Contractor worked with NYSERDA Program Staff to confirm subcontractors to be included in focus group outreach. The Hub List of Project Partners also informed the documentation of subcontractors partnering with Hubs for the planned modified social network analysis. It is important to note that there is some overlap between the organizations: some subcontractors work with multiple Hubs. Additionally, some subcontractors also perform co-leadership duties for that region.

B.4 RABA and OEEP Review

The RABA was a required activity for Hubs as an exercise to identify barriers to the engagement of residents, community leaders, and organizations that are not traditionally engaged in the transition to a clean energy economy. RABAs characterize barriers and opportunities that impact the delivery of Hub services, provide data on unique regional characteristics, identify key local organizations and businesses engaged in the energy economy, and provide recommendations developed from identified opportunities to increase energy adoptions in DACs and throughout the region.¹¹

While most RABA documents followed a similar format in terms of the information provided, certain Hubs prepared more information/documentation than others. Some Hubs provided appendices listing organizations they are affiliated with, as well as ongoing and upcoming projects with projected costs and timelines. However, others had more sporadic information, did not list funding sources for projects, or did not go into as much detail on workforce development opportunities beyond listing names within a section,

¹¹ Regional Clean Energy Hubs Regional Assessment and Barriers Analysis (RABA) Template.

for example. Because the documentation varied from Hub to Hub, this presented a challenge to systematically aggregate information across the RABAs.

OEEPs were another required activity for Hubs, used to identify plans for equitable engagement and outreach, accomplishments to date, and the opportunities that arise out of a Hub's engagement with a region's communities and partnerships. Intended to complement the RABAs, OEEPs were designed to inform or guide a Hub's work to better reach key populations with resources, workshops, and services. The OEEPs also provide important context into the current energy landscape for workforce development, key stakeholders engaged in the transition to a clean energy economy, barriers and opportunities to clean energy adoption, unique regional characteristics, and opportunities within the scope of each Hub's territory.

While all Hubs listed various organizations that they were partnering with on current or upcoming projects, inconsistencies included the amount of information provided. For example, the status of a partnership, what was the main focus/role of the partner organization, or whether they are a true "partner" organization, an organization that might have worked with the Hub in the past, or simply an organization in the community whose activities aligns with the goals of the RCEHs. Some Hubs had detailed Excel spreadsheets with partners organized by subject matter expertise or sector (i.e., political, workforce, union, school, etc.), others listed organizations as "assets," or sometimes the organizations were simply listed within a section or paragraph with no other identifying information. These discrepancies made it difficult to consistently consolidate organizations for confirmation with the Hub leadership, as some organizations may or may not have been relevant as partners, they may have been considered for future collaboration, or their affiliation may have changed since the documents were completed. Despite these challenges, these documents contained substantial useful information and insights into the 12 Hubs and their networks. The Evaluation Contractor used the RABA and OEEP documents to create preliminary lists of partner organizations for Hubs to review and confirm priority organizations for focus group outreach.

RABAs and OEEPs are updated on an annual basis as needed.

B.5 Modified Social Network Analysis (SNA) Approach

While traditional Social Network Analysis (SNA) typically relies on survey responses to identify and illustrate connections between organizations, the modified SNA approach used for this study relied on existing data sources and member-checking exercises to ensure accuracy of the information. The Evaluation Contractor reviewed the RABA and OEEP documents developed by each Hub, and then confirmed partners with the Hub leadership teams in each territory. Following this, the Evaluation

Contractor confirmed the set of Hub subcontractors with NYSERDA program staff. The lists of partners were consolidated into a single spreadsheet, deduplicated and cleaned for input into a Python-based model for mapping. Extended results from the modified SNA are discussed in **Appendix D.5 Extended SNA Results**.

B.6 NYSERDA's Statewide Tracking Study

The Statewide Tracking Study is a longitudinal survey conducted as a part of a different NYSERDA effort, recommended as a comparison dataset during the Phase II evaluation final presentation. The survey includes questions about general acceptance of clean energy development, perceptions of energy sources that are harmful to the environment, familiarity with methods of using less fossil fuel at home, and barriers to home weatherization.

NYSERDA shared a PowerPoint file describing the LMI response strata highlights from the 2024 Statewide Tracking Study. The Evaluation Contractor did not clean this dataset or transform it in any way.

B.7 Data Axle Contact Information for DAC Consumers

DAC consumer contact data provided by NYSERDA served as the sample for the DAC consumer survey and focus groups in this final phase of evaluation. NYSERDA shared 989,055 total contacts from vendor Data Axle. After checking against the baseline sample (to exclude individuals who had responded previously), sample cleaning and stratification (matching with Economic Development Regions and deduplication of contacts), the final sample was 251,921. The Evaluation Contractor sent invitation emails to 97,784 individuals with 50,249 bounced messages,¹² a 50.7% bounce-back rate, indicating outdated contact information from Data Axle.

The Evaluation Contractor sent 76 emails to recruit 50 consumer focus group participants. Of the 50 participants, county and Economic Development Region information for was missing for 22 individuals.¹³ County data were appended for ~10 individuals for whom Data Axle information was outdated.

B.8 U.S. Energy and Employment Jobs Report (USEER)

U.S. Energy and Employment Jobs Report (USEER) data were used to provide broader context for understanding the workforce development progress made by Hubs. USEER data are released annually for all states and were filtered to the State of New York to update the baseline study values. While USEER

¹² Includes hard and soft bounces.

¹³ This result is a combination of poor Data Axle coverage on county information, and individuals responding on behalf of family receiving invitation emails (spouses, siblings, etc.).

jobs reporting data cannot be directly linked to Hub activities, they are useful context for understanding the landscape in which Hubs operate. The USEER dataset is external to NYSERDA, published by the U.S. Department of Energy (USDOE). The records include county-level employment summary data (counts) for different types of energy-related jobs across the U.S. (e.g., electric power generation; transmission, distribution, and storage; fuel production or extraction; energy efficiency-related jobs, and motor vehicle-related jobs).

For the baseline study, the Evaluation Contractor reviewed 2021 and 2022 USEER datasets. For the update to the baseline study, the Evaluation Contractor reviewed 2023 and 2024 datasets. Filtering out non-New York State county-level records, **the final USEER data files each contain a total of 62 NYS county-level records and one additional record that includes employment summary data for jobs that were not linked with a specific county but are still linked with NYS.**

APPENDIX C: Evaluation Question Crosswalk

Table C- 1 below summarizes the evaluation strategy by highlighting the data sources used to address the research questions and program indicators. Check marks (✓) denote data used this phase of the study.

Table C- 1. Evaluation Question Crosswalk

RESEARCH QUESTIONS	INDICATORS	OPPORTUNITY DATA + ENGAGEMENT REPORTS DATA	LMI STATEWIDE TRACKING STUDY	RABAs a & OEEPs	HUB LEADER INTER-VIEWS	MODIFIED SNA	HUB SUBCON-TRACTOR + PARTNER FOCUS GROUPS	DAC CONSUMER FOCUS GROUPS	DAC CONSUMER SURVEY
What are the key barriers to clean energy adoption in DACs?	Major barriers to clean energy adoption		✓	✓	✓		✓	✓	✓
What local organizations are Hubs working with in partnership?	Number of local organizations partnering with Hubs			✓	✓	✓	✓		
Did partnerships with local organizations lead to increased NYSERDA project implementation?	Number of NYSERDA projects facilitated by Hubs with partner organizations	✓			✓		✓		
What services/programs were the most used among DAC participants?	- Clean energy programs most used by members of DACs - No. of NYSERDA program participants from DACs and LMIs				✓		✓	✓	✓
Are consumers aware of clean energy opportunities (specifically in DACs)?	Consumer awareness of clean energy opportunities in DACs		✓					✓	✓
What diverse clean energy sector businesses are Hubs engaging?	No. and type of organizations (including MWBEs and SDVOBs) that Hubs are targeting for engagement relating to workforce development and contractor opportunities	✓		✓	✓	✓	✓	✓	

RESEARCH QUESTIONS	INDICATORS	OPPORTUNITY DATA + ENGAGEMENT REPORTS DATA	LMI STATEWIDE TRACKING STUDY	RABAs a & OEEPs	HUB LEADER INTER- VIEWS	MODIFIED SNA	HUB SUBCON- TRACTOR + PARTNER FOCUS GROUPS	DAC CONSUMER FOCUS GROUPS	DAC CONSUMER SURVEY
	- No. and type of participating contractors/installers in the clean energy sector - No. and type of clean energy employers recruiting from training opportunities								
What sources do customers trust for information about clean energy opportunities?	No. and type of organizations trusted							✓	✓
What organizations are promoting clean energy technologies and/or opportunities?	No. and type of stakeholders/ organizations promoting clean energy technologies and/or opportunities				✓	✓	✓	✓	
What progress is captured by the Hub Monthly Reports data since the baseline evaluation?	- No. outreach events - No. workshops - No. workforce development reports - No. projects coordinated with wraparound services	✓							
How do RCEH activities and program structure respond to/align with feedback from partners and participants?	- Logistical challenges experienced by Hubs - Changes in response to feedback				✓		✓		
Output	No. community campaigns (installations and technologies promoted)	✓							
Output	No. workshops and outreach efforts (in-person and virtual)	✓							
Output	No. NYSERDA referrals coordinated with wrap-around services/resources such as housing, health, or other	✓							
Output	No. residents, contractors and small businesses from priority populations or	✓							

RESEARCH QUESTIONS	INDICATORS	OPPORTUNITY DATA + ENGAGEMENT REPORTS DATA	LMI STATEWIDE TRACKING STUDY	RABAs ^a & OEEPs	HUB LEADER INTER- VIEWS	MODIFIED SNA	HUB SUBCON- TRACTOR + PARTNER FOCUS GROUPS	DAC CONSUMER FOCUS GROUPS	DAC CONSUMER SURVEY
	disadvantaged communities connected to NYSERDA workforce development opportunities								
Output	• No. partnerships/ subcontractor relationships established	✓				✓			
Output	• No. NYSERDA program participants from DACs and/or LMI households	✓							✓
Outcome	• Consumer awareness of clean energy technologies or opportunities in DACs							✓	✓
Outcome	• No. stakeholders/ organizations promoting clean energy technologies and opportunities	✓				✓			
Outcome	• Number of recommendations made and community needs, barriers, or opportunities identified by communities through sponsored public forums or other engagement that are elevated to Energy Equity Collaborative and Program Teams	✓							
Outcome	• No. MWBEs and SDVOBs participating in the NYSERDA workforce development and contractor opportunities	✓			✓	✓	✓		

Note: Check marks (✓) denote data used; ^a Includes the Includes the Crosscutting Barriers and Opportunities summary of the RABA reports by ILLUME Advising.

APPENDIX D: Extended Results

This section expands on the primary data analytical results provided in the main report. The results described here support the key results described in the main report and contribute to the narrative regarding the RCEH program. These extended results do not include responses from all questions asked during data collection.

This Appendix is organized as follows:

- D.1 Results from the Hub Leadership interviews, subcontractor focus groups, and partner focus groups;
- D.2 Results from the DAC consumer survey;
- D.3 Results from the DAC consumer focus groups;
- D.4 Results from the USEER analysis; and
- D.5 Results from the modified SNA.

D.1 Extended Hub Team Interview and Focus Group Results

For the primary data collection effort, the Evaluation Contractor spoke with each of the Hub Leadership teams (N=12), subcontractors (N=24), and partners (N=29). The references coded are summarized in **Table D- 1.**¹⁴ For Hub Leaders, the table summarizes the number of *interviews* qualitatively coded to a range of topics, because each interview is representative of the Hub leadership team. For Hub subcontractors and partners, the focus group frequency data summarized in the table includes the number of *participants* mentioning a particular topic. This section includes an extended discussion of reported workforce development activities, outreach and engagement opportunities, and other services offered by the Hub network (among other topics). In most cases, this section discusses broad patterns in results, attributing discussion of particular topics to “Hub Teams” (i.e., a combination of Hub leader, subcontractor, and partner participants).

¹⁴ “References coded” refers to the number of participant responses that were coded for a particular item, rather than “code frequency” data, which refers to the number of times a code is applied (and can be skewed by participants who repeatedly use a certain term or mention a particular topic area).

Table D- 1. Hub Team Interview and Focus Group Topics

TOPIC	DESCRIPTION	HUB LEADER REFERENCES	PARTNER REFERENCES	SUBCONTRACTOR REFERENCES	SUBTOPICS
Accessibility	Accessibility barriers that limit or prevent people from participating in a clean energy program.	8	11	5	• Energy literacy • Poor follow up for customers already in the system with submitted applications • Uncertainty about continued funding for programs
Logistical Challenges	Challenges from NYSERDA that limit the Hub teams from effectively conducting outreach or engaging with the community about clean energy opportunities.	8	12	8	• Lack of timely communication from NYSERDA • Rapid programmatic updates and changes
Feedback on contractor performance	Refers to instances where there is a misalignment between the contractors, customers, and program staff.	3	N/A	2	• Contractors lack experience and/or training to complete clean energy projects • Some contractors act in “bad faith” • Contractors do not provide complete information about NYSERDA program requirements (e.g., NYSERDA cap on program cost)
Financing restrictions or misaligned incentives	Refers to instances where cost or financial challenges limit accessibility to clean energy opportunities.	8	12	5	• High up-front costs of clean energy projects and equipment • Insufficient funds available for certain projects or applicant types • Participants fall short of income threshold for NYSERDA programs • Loan or incentive eligibility related to land ownership • Participants struggle to make clean energy upgrades because they rent their home • Hesitation to speak with landlord about clean energy upgrades (e.g., conflict, lack of engagement from landlord) • Rising costs of electricity
Program Design	Refers to discussion of how the RCEH structure is allowing Hub teams to provide services in their communities.	11	11	8	• Challenges with staff capacity • Wraparound services and whole home health • Braiding funding • Internal Hub programs that help customers • Administrative workload on small Hub teams • Addressing funding gaps

TOPIC	DESCRIPTION	HUB LEADER REFERENCES	PARTNER REFERENCES	SUBCONTRACTOR REFERENCES	SUBTOPICS
Hub outreach and engagement activities	Refers to the types of ongoing outreach activities and programs that Hub teams are promoting in their communities.	12	19	22	• Community campaigns • Cross-promoting or co-advertising with existing programs or ongoing initiatives • Energy literacy workshop[s] • Addressing no-heat or critical repair scenarios • Outreach or training opportunities in different languages • Pilot projects or programs • Referrals • Helping service-disabled veteran-owned businesses (SDVOBs) and minority and women-owned business enterprises (MWBs) get proper certification • Small business outreach • Support for elderly, aging, or disabled • Jobs/employment support • Training/educational initiatives • Diversity, equity and inclusion initiatives
Programmatic Communication	Refers to discussion of Hub and NYSEDA branding, as well as what other benefits need to be communicated about programs.	12	2	1	• NYSEDA brand awareness vs. Hub brand recognition • NYSEDA branding requirements for printed materials • Customers wanting to see evidence about benefits over time after purchasing their clean energy upgrades • Communicating the “return on investment” of clean energy opportunities
Structural Barriers	Refers to obstacles that Hub teams observed that prevent customers from pursuing clean energy opportunities.	2	4	5	• Limited pool of contractors to complete projects (e.g., audits or installations) • Old housing stock often requires additional work beyond installing clean energy upgrades • Other priorities that take priority over clean energy upgrades
Trust	Refers to trust related barriers that Hub teams are concerned impede customer’s ability or desire to pursue clean energy opportunities.	8	3	4	• Perceived legitimacy of organizations promoting clean energy opportunities • Eroding trust in NYSEDA • Misinformation regarding clean energy technology • Trust in long-standing organizations within a community • Speaking “face to face” with Hub teams • Political bias or mistrust in government

D.1.1 Workforce Development Activities

Since the baseline year, workforce development has become a greater focus for Hub leaders, partners, and subcontractors alike. This section describes the range of workforce development activities and provides additional context for understanding the challenges and opportunities for Hub teams trying to support customers in a changing workforce.¹⁵

Job search and other employment support. Across interviews and focus groups, Hub teams described organizing career fairs, creating job boards, and building workforce development networks as common methods to connect workers and trainees with clean energy opportunities. Participants discussed their work with local universities (e.g., the State University of New York schools) to organize career fairs and collaborate with their respective careers centers to spread awareness about opportunities in this sector. One partner described how they are providing opportunities for trainees to complete on-the-job training (OJT) hours by working on solar installation projects sponsored by the partner organization. The partner described these projects as providing direct hands-on experience in the field while training workers at the same time. Additionally, larger partner organizations like United Way and Boards of Cooperative Educational Services (BOCES) provide both training and job search support, offering opportunities such as contractor networking events and career fairs.

Hub teams also discussed strategies to spread awareness about employment opportunities, including:

- Hosting clean energy career fairs;
- Communicating with community members in their preferred languages on career presentations;
- Posting informational flyers in multiple languages;
- Conducting practice interviews with immigrants to support them in their job-seeking efforts;
- Working with local companies to recruit in the installer/construction field; and
- Creating a job board for employers and jobseekers.

Hub teams also mentioned clear challenges surrounding the employment opportunities in the clean energy sector, including:

- Lack of mechanisms to track trainees' employment after training with Hub partners is completed.
- Lack of direct pathways between the "training" organization and the "employer" to limit the administrative or management burden of matching employees to positions.

¹⁵ As noted in the main report, Hub prime and subcontractor organizations do not directly train or hold workshops for workforce development; instead, they co-host events with and provide referrals to their partners, or to NYSERDA workforce development programs.

- Cultural factors that prevent minorities or women from entering the clean energy industry.

Training and education initiatives. Across data collection efforts, Hub teams described the importance of supporting training and development opportunities to help individuals prepare to enter the clean energy workforce. Training builds fundamental skills and instructs participants about the principles that can help workers comfortably explore a particular clean energy sector before they transition into a full-time role. Hub teams described working with partners who facilitate a variety of training opportunities for both entry-level and experienced workers, including:

- Subject-specific trainings (e.g., elective vehicle maintenance, HVAC training, etc.);
- Building Performance Institute (BPI) certifications;
- On-the-job training programs (e.g., apprenticeships);
- Partnerships with local unions to offer training programs;
- Energy advisor training for high school students;
- Wage negotiation courses;
- Professional development discussions focused on career change;
- Community college or university clean energy programs;
- Pre-training on future local regulations;
- Occupational Safety and Health Administration (OSHA) 10-hour and 30-hour workplace hazards and safety certification trainings; and
- Training opportunities offered in other languages.

Hub leaders agreed that re-skilling employees from other industries is crucial to bolstering the clean energy workforce. One Hub leader described an event they co-hosted with an iron workers group, where the intent was to retrain workers to find a job supporting wind project construction. Though the wind project construction ultimately did not proceed, the Hub leader described that the training supported some participants' transition into other welding or commercial development jobs. Another Hub leader explained that careers in the clean energy sector are not limited to heavy industry or trades positions: there are also office management, operations, marketing, and business development roles. Bridging the skills gap or helping workers translate skills for in-demand jobs, continue to be a focus for Hub teams as they promote workforce development opportunities in the clean energy industry.

Hub teams also discussed challenges to training and educational opportunity implementation in their regions. A partner described their experience using NYSERDA's OJT program¹⁶ to provide workers with

¹⁶ The interviewee did not clarify, but this appears to be a reference to NYSERDA's On-the-Job Training for Energy Efficiency and Clean Technology (PON 3982).

both relevant training and a wage for approximately six months. While they reported that their organization has had some success with the program, they expressed concern about the potential to lose highly skilled and newly trained entry-level students to other industries because of funding cutbacks in the clean energy sector. A Hub leader shared similar concerns: they work with a university to help workers earn their BPI certification, but a lack of employers hiring BPI-certified energy auditors is a limiting factor in trainees' success. Despite the availability and quality of training programs offered, Hub teams expressed concern about a perceived lack of jobs in the clean energy sector, which may leave workers dissuaded from pursuing additional training or education opportunities in the near future.

To address these challenges, one subcontractor described how they would prefer additional guidance and support from NYSERDA on managing the relationship between the Hub and partners like colleges or universities, technical training providers (e.g., BOCES), and employment agencies. The subcontractor explained that their organization provides worker support at a limited scale, but they see a potential role for NYSERDA in centralizing guidance on the wide variety of trainings needed for clean energy jobs. A central, trusted source of guidance on training needs may mitigate worker misconceptions about what skills are needed for various clean energy career paths and allow training providers to tailor their offerings to available roles.

Finally, many subcontractors and partners described how they are offering training programs specifically targeting marginalized or underserved communities, such as people who were formally incarcerated, communities of color, and immigrant and minority women populations.

D.1.2 Other Essential Hub Activities

Though the main report touches on interview and focus group discussion themes, this section describes a subset of Hub activities in additional detail to support the broader narrative around other ongoing hub engagement activities in DACs in New York State, as well as other challenges that Hub teams encountered since the baseline study.

Cross-promotion or co-advertising with NYSERDA and non-NYSERDA programs/providers. Hub teams described how they can build off the established channels of communication (e.g., networks of partners) within the state or within a specific community and build further trust in clean energy opportunities. One Hub leader described that they have the same clientele as their utility partners, and strategic partnerships with the utility have resulted in coordinated efforts to serve the local community. This was also highlighted by another Hub leader who described their activities with NYSERDA's CEC program as "cross pollinating" and "cross-promoting" resources at different levels within a community to bring together a wider variety of organizations to their event (e.g., seeking municipal government

representative attendance as well as residential participation). One Hub leader also highlighted how they are coordinating with partners who hold events where their (the Hubs') target audience will already be present (e.g., block parties, farmer's markets, community fairs). Hub teams also worked with existing organizations in their community to jointly promote programs. Activities discussed included sending joint flyers or mailers, building coalitions, leveraging data from other organizations (e.g., building models) to inform outreach, holding events at high schools where students can bring their parents, or working to share information and simultaneously promote programs by sharing the same physical spaces (e.g., tabling at the same events).

Energy literacy events and workshops. In addition to cross-promoting with partners, Hub teams have been offering energy literacy training programs in their communities. Five Hub leaders and six subcontractors described their ongoing energy literacy initiatives to provide general education on key concepts and help educate consumers about the different types of clean energy services, including NYSERDA programs.

Coordination of wraparound services and financial assistance considerations for whole home health needs. As discussed in the baseline study, providing wraparound services to high-need customers is an essential focus of Hub teams. Hub teams work to address the non-energy challenges that customers experience, in addition to their energy-related challenges, by identifying and braiding together multiple services in addition to clean energy financial assistance. The term "whole home health" was used during interviews and focus groups to describe the wide variety of issues that customers might need to address in addition to clean energy assistance or support for purchasing energy efficiency and weatherization measures to reduce their energy burden. Hub leaders described that taking a holistic initial approach to customer intake allows them to tailor support to customers' individual needs, addressing the most critical first. "Whole home health" considerations identified by Hub teams included, but are not limited to:

- Emergency repairs (e.g., replacing a broken heating system);
- Finding "gap money" to bridge the gap between NYSERDA or other state funding and what the customer can currently afford;
- Mold, lead, asbestos, or pest mitigation;
- Nutrition and health;
- Childcare;
- Extreme weather preparedness/resiliency;
- Transportation;
- Energy literacy; and

- Whole home electrification (rather than just one upgrade).

In particular, Hub teams described the importance of working with elderly and disabled populations to ensure that they have access to reliable heating and cooling in their homes. Three Hub leaders reported that their top priorities with elderly and disabled residents are keeping them comfortable, lowering their bills, and educating them about simple clean energy upgrades (e.g., door sweeps, weather stripping). One Hub leader also described how senior residents (older than 62 years of age) can be eligible for grants with the U.S. Department of Agriculture or their local lead safety program to reduce lead hazards in homes. The Hub leader further described how they have a triage screening tool to quickly help customers find out if they are income-eligible for multiple programs. If this is not currently a tool shared by all Hubs, it could be of great use to other Hubs.

No-heat scenarios. No-heat scenarios are extreme situations in winter where customers require immediate support to address a current or impending lack of heat in their home. As such, no-heat scenarios become a critical focus of Hub staff in the winter heating season. Four Hub leaders discussed how they communicate with entities like Empower+, Office of Temporary Disability Assistance (OTDA), USDA, or local Departments of Social Services to coordinate customer support for no-heat and other emergency scenarios. For example, the HEAP program has benefits available for consumers in heat-related emergencies. Consumers' eligibility is based both on income and utility delivery status (i.e., where electricity powering heating systems/thermostats is already or scheduled to be shut off, or there is less than one quarter tank of fuel available for heating).¹⁷ The Heating Equipment Repair and Replacement benefit also offered by the OTDA provides financial incentives for residents 60 years of age or older to help repair (\$4,000) or replace (\$8,000) heating systems such as furnaces or boilers. Because these are emergency situations, consumers typically need public assistance or support from the Hub teams as soon as possible. High demand and limited funding availability for no-heat scenarios can challenge the Hub team's ability to effectively help customers in these dire situations. EmPower+ does have some funding available for no-heat situations but is designed as a last resort to be used after the customer exhausts all other public assistance options.¹⁸

Community Campaigns and Pilot Projects/Programs. In interviews and focus groups, the Evaluation Contractor asked Hub teams about ongoing or planned community campaigns and pilot projects to address barriers to engagement or leverage key opportunities to increase participation in clean energy

¹⁷ For more information about HEAP: <https://otda.ny.gov/programs/heap/>

¹⁸ See for more information the NYSEDA General Information System message from Dec. 16, 2025: <https://otda.ny.gov/policy/gis/2025/25DC091.pdf>

programs. Hub teams described different types of activities to promote clean energy opportunities in their region, including:

- Finding resources to address critical repairs or issues in the home;
- Raising awareness of cooling centers or other critical resources;
- Running campaigns for specific energy products (e.g., community solar sign-ups, electric vehicles, or heat pumps);
- Creating customer clean energy case studies;
- Conducting outreach to target populations (e.g., contractors, tenants, multifamily housing);
- Advertising clean energy programs and services via radio advertisement;
- Running open houses or demonstrations with clean energy technology;
- Supporting tenant and house of worship campaigns to electrify their buildings;
- Promoting SNAP benefits for residents experiencing low income;
- Helping community service providers (e.g., daycares and adult learning centers) to electrify.
- Working with a home repair nonprofit to fix critical roof repairs;
- Developing engagement activities with children to spread clean energy awareness at home;
- Improving coordination between Empower+ and Weatherization Assistance Program activities;
- Testing emissions analysis calculations;
- Analyzing the split incentive dilemma with landlords and tenants;
- Addressing energy efficiency challenges in mobile homes;
- Creating a report on potential pathways for workforce development;
- Developing a coalition of partner organizations to gather subject matter experts;
- Hosting an environmental justice festival;
- Expanding the offerings included in resident “energy kits” (e.g., adding air conditioning and radiator covers);
- Replacing gas stoves with induction stoves; and
- Installing home air quality monitoring boxes.

D.2 Extended DAC Consumer Survey Results

The DAC consumer survey was administered from October to November 2025. The median survey response time was approximately 8.9 minutes, with a minimum of 3.6 minutes and a maximum of just

over one day (indicating that the survey respondent may have paused in the middle or completed the survey while multitasking).¹⁹

Survey Demographics: The Evaluation Contractor used consumer demographic information from provider Data Axle to characterize the demographics of the DAC consumer survey targets. Demographic information is a known survey drop-off point for individuals who prefer to remain anonymous, and a general population survey typically has lower response rates than a survey of a known population (e.g., program participants).²⁰ For this reason, demographic questions were not included in the consumer survey; instead, contacts were linked with their corresponding demographic information from Data Axle. Importantly, this means that respondents' demographic information may not be strictly representative, as individuals occasionally respond on behalf of a spouse, parent, roommate, sibling, or significant other; additionally, survey respondents did not verify Data Axle demographic information, so the accuracy of this data is unknown.

Over half of survey respondents own their home (78%), while the other 22% rent their home. Respondents were 50% female, 41% male, and 9% unidentified (according to Data Axle information). The survey received responses from all age groups (**Table D- 2**). Nearly half of respondents hold an Associate or Bachelor degree (47%, **Table D- 3**).

Table D- 2. DAC Consumer survey respondents' age distribution (N=286)

AGE	COUNT	%
18-29	12	4%
30-39	34	12%
40-49	45	16%
50- 59	41	14%
60-69	71	25%
70+	61	21%
Unavailable	22	8%

Table D- 3. DAC consumer survey respondent's highest level of education achieved (N=286)

LEVEL OF EDUCATION	RESPONDENTS	%
No Diploma	24	8%
Diploma	53	19%
Associates	76	27%
Bachelors	58	20%

¹⁹ Responses of 3 minutes or less were considered “low-effort” and excluded from analysis.

²⁰ General population surveys are “cold contact” or contact without prior familiarity.

LEVEL OF EDUCATION	RESPONDENTS	%
Postgraduate	75	26%

Consumer survey respondents typically had a household income under \$30,000 per year (28%, **Table D-4**); however, the survey received responses from participants with a range of household incomes (from under \$20,000 to >\$250,000).²¹

Table D- 4. DAC consumer survey respondent household income (N=286)

HOUSEHOLD INCOME	COUNT	%
UNDER \$20,000	48	17%
\$20,000 - \$29,999	32	11%
\$30,000 - \$39,999	26	9%
\$40,000 - \$49,999	16	6%
\$50,000 - \$59,999	17	6%
\$60,000 - \$69,999	15	5%
\$70,000 - \$79,999	24	8%
\$80,000 - \$89,999	21	7%
\$90,000 - \$99,999	14	5%
\$100,000 - \$124,999	32	11%
\$125,000 - \$149,999	19	7%
\$150,000 - \$174,999	9	3%
\$175,000 - \$199,999	3	1%
\$200,000 - \$249,999	8	3%
>\$250,000	2	1%

Consumer Awareness of Clean Energy Opportunities: The consumer survey asked customers about their awareness of NYSEERDA and other NYS programs. While most consumers indicated that they were unaware about these programs, the proportion of participants who had heard of these programs generally increased over the year between the baseline study and update (**Table D- 5.**). The Home Energy Assistance Program (HEAP) had the highest level of awareness and participation, where a total of 55% of participants had heard of the program, but had not participated, while 28% had participated in the

²¹ DACs are geographically defined using series of 45 indicators, including environmental burdens or vulnerability to climate change risks, population characteristics, and pollution exposures or other health vulnerabilities. See for more information: https://climate.ny.gov/-/media/Project/Climate/Files/Disadvantaged-Communities-Criteria/LMI-dacriteria-fs-1-v3_acc.pdf. For this evaluation, the term disadvantaged communities *also* refers to hard to reach, underserved rural communities, and other areas with high levels of poverty and limited access to resources. <https://www.nyserda.ny.gov/ny/disadvantaged-communities>.

program. Over half of survey respondents found accessing the NYSERDA program somewhat easy (49%) or very easy (10%, N=91) (**Figure D- 1**).

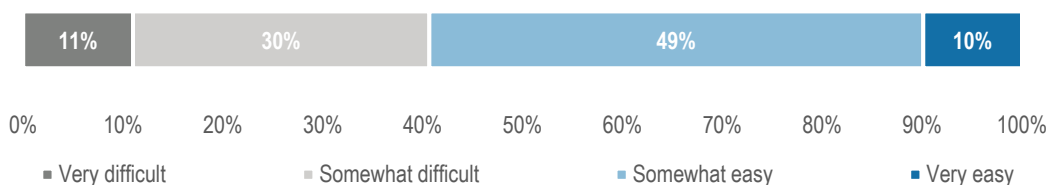
Table D- 5. DAC consumer survey respondent awareness of relevant NYSERDA programs

RESPONSE	Never heard of this program (Current)	Never heard of program (Baseline)	Heard of Program, Have not Participated (Current)	Heard of Program, Have Not Participated (Baseline)	Participated in Program (Current)	Participated in Program (Baseline)
Multifamily Performance Program	92%	96%	7%	4%	1%	0%
NY-Sun Financial Incentives	92%	95%	7%	5%	1%	0%
NY-Sun Commercial/Industrial Incentives	92%	94%	7%	5%	1%	1%
On-Bill Recovery Loan	91%	96%	8%	4%	1%	0%
FlexTech	90%	96%	9%	4%	1%	0%
Truck Voucher Program	89%	97%	10%	3%	1%	0%
Agricultural Energy Audit Program	89%	96%	11%	4%	1%	0%
Green Jobs Green New York Financing	88%	91%	11%	8%	1%	0%
Charge Ready NY	87%	96%	12%	4%	1%	0%
Heat Smart	83%	93%	17%	7%	1%	0%
NYS HOME Program	83%	89%	16%	10%	1%	0%
Green Jobs Green New York Energy Study	81%	89%	18%	11%	1%	0%
Comfort Home	80%	96%	19%	4%	1%	0%
Clean Heating & Cooling Communities	79%	91%	19%	8%	1%	0%
NYS Clean Heat	79%	91%	20%	8%	1%	1%
Air Source Heat Pump Program	78%	92%	19%	7%	3%	1%
Drive Clean	78%	89%	19%	10%	3%	0%
Solarize	72%	83%	24%	16%	4%	1%
EmPower New York (now part of EmPower+)	70%	91%	25%	8%	5%	1%
Workforce Development	64%	82%	31%	16%	5%	2%
Weatherization Assistance Program	61%	79%	33%	16%	6%	4%
Assisted Home Performance with ENERGY STAR®/	58%	81%	34%	17%	8%	3%

RESPONSE	Never heard of this program (Current)	Never heard of program (Baseline)	Heard of Program, Have not Participated (Current)	Heard of Program, Have Not Participated (Baseline)	Participated in Program (Current)	Participated in Program (Baseline)
now part of EmPower+)						
Utility Bill Assistance	43%	65%	48%	28%	9%	6%
Home Energy Assistance Program (HEAP)	17%	44%	55%	33%	28%	23%

Figure D- 1. Consumer survey respondent assessment of ease of access for NYSERDA clean energy programs (N=91)

Over half of survey respondents found accessing the program **somewhat easy or very easy (59%)** .



Twenty-four percent of respondents indicated that they have plans to participate in a clean energy or energy assistance program in the future; an additional 50% of participants indicated that they *might* participate (N=286). These findings are consistent with the baseline study, where only 25% of respondents indicated that they had plans to participate in a clean energy or energy assistance program in the future, and 54% of participants indicated that they might participate in the future (N=225).

The survey also asked whether respondents would like to be contacted by their Regional Clean Energy Hub to learn more about energy assistance programs. A total of 46% of respondents indicated that they would like to be contacted by NYSERDA; 54% (N=142) indicated that they would not. These findings are also consistent with the baseline study, where 43% indicated that they wanted to be contacted, while 57% indicated that they did not want to be contacted (N=115).

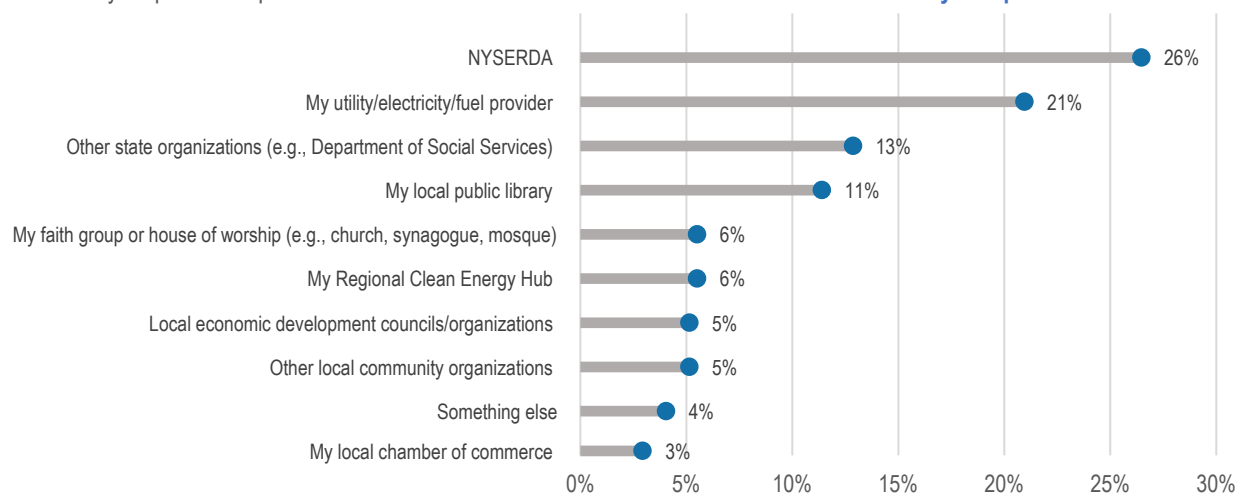
When asked to rank their trust in the organizations that gave them information about opportunities in energy efficiency, renewable energy projects, and other clean energy technologies and programs, 26% of respondents ranked NYSERDA as their top choice, followed by their utility/electricity/fuel provider (21%), and other state organizations (e.g., Department of Social Services) (13%) (**Figure D- 2**). This result differs slightly from the main report, which takes into account the ranks of all of the sources of

information and weights responses accordingly. In the main report, NYSERDA and other state organizations have a weighted average slightly higher than that of utility/electricity/fuel provider.

While findings appear consistent with the baseline study, it is important to note that the question on trusted sources of information was programmed differently in the original survey.²² Participants were asked to select which sources they trusted to provide them with information about clean energy opportunities in a select-all-that-apply type question, rather than a ranking-style question to gauge order of preference. In the baseline year, 45% of survey respondents indicated that NYSERDA was a trusted source to give them information about opportunities, while 32% of survey respondents indicated that their electricity/utility/fuel provider was a trusted source of information (N=224)

Figure D- 2. Consumer survey respondents' trusted sources of information

Survey respondent top choice for source of trusted information include **NYSERDA and utility/fuel providers.**



Note: Of those who specified in the “Something else” question, respondents indicated that they trusted the radio or local news (n=5), online or personal searches (n=2), through friends/family or through “informed citizens” (n=4), or that they did not know (n=3). Eight participants indicated “none” or that they did not trust any of these sources, with one indicating that they “don’t have faith in [the] NY clean energy agenda.” One indicated “Community solar,” one just wrote “New York State,” while another wrote that they “Only know about NYSERDA.”

D.3 Extended DAC Consumer Focus Group Results

RMS moderated five virtual consumer focus groups (N=50). Consumer focus group discussion frequency data are summarized in **Table D- 6**. The table summarizes the number of focus group respondents mentioning each topic (i.e., not the total number of mentions for each topic). The list of subtopics

²² The survey skip logic differed between versions, and a different and non-comparable subset of participants saw the question in the current study. This decision was made in collaboration with NYSERDA as a way to reduce participant burden. The survey for the current study included a few extra questions

represents the feedback described in detail in the main report. The report and extended discussion below provide an additional range of responses, as well as identification of patterns and nuances.

Table D- 6. DAC consumer focus group responses

TOPIC	DESCRIPTION	REFERENCES CODED	SUBTOPICS
Accessibility	Descriptions of accessibility barriers that limited customer participation in clean energy opportunities	10	• Energy literacy • Little to no follow up from contractors/NYSERDA after clean energy audit • Not matched with solar farm • Lack of funding available for key programs, or incentive funding ran out • Support for continuation of programs • Long wait times or waitlists • Time and energy spent to pursue audit or upgrade is not worthwhile
Awareness of clean energy concepts	Descriptions of words or phrases associated with the concepts of “energy efficiency” and “renewable energy generation and storage”	34	• Batteries • Net metering • Solar panels • Wind turbines • Environmental impact • Insulation • Lower utility bills • Proper sealing • Double paned windows • LED lightbulbs • Air conditioners • Reducing waste • Solid state technology • Concerns about flammability • Electric vehicles • Energy storage • Not enough information or transparency on solar panels • Cost-effective
Financing restrictions or misaligned incentives	Refers to discussion on financial-related barriers to pursuing clean energy opportunities.	33	• High up front costs of clean energy upgrades • Rising cost of electricity/energy delivery • Insufficient funding available for certain projects • Customers on the cusp of income eligibility are unable to participate • Renters are unable to pursue certain opportunities because they do not own their home/residence • Conflicts with landlords prevent consumers from seeking clean energy upgrades • Landlords are disengaged or uninterested in clean energy opportunities • Individuals do not own the land on which the property is located • Organizations like homeowner associations prevent customers from pursuing upgrades

TOPIC	DESCRIPTION	REFERENCES CODED	SUBTOPICS
Incentivized energy services or purchases	Descriptions of the types of clean energy upgrades customers have installed as well as any changes in cost or energy savings they might have observed.	31	• Clean energy audit • Installed solar panels • Smart thermostats • Insulated windows • Insulated attic • Energy efficient furnace • Electric water heaters • Observed decreases and increases in utility bills • Hot air furnace • Air conditioner • Perceptions of increased home asset value • CFL lighting • Washer dryer • Fridge/freezer • Electric vehicle • Curtains • Plastic covers on windows during the winter
Programmatic communication	Descriptions of customer awareness of Hubs, NYSERDA, as well as other programs.	7	• Lack of awareness of NYSERDA • Lack of awareness of Hub organizations • More promotion of payback calculations and “return on investment” for clean energy programs • Skepticism of new technology • Hard to determine whether to make the investment on clean energy purchases
Programs that DAC participants engage with	Descriptions of the types of programs/organizations consumers have engaged with for clean energy opportunities.	13	• National Grid rebates and community solar • ConEd rebates • NYSERDA clean energy audits • Nexamp • Green Mountain Energy • New York State Historic Homeownership Rehabilitation • HEAP • Comfort Home • Empower+ • City of Amherst • Federal tax credits • Community solar
Structural barriers	Descriptions of embedded structural barriers that impacted consumer ability to pursue clean energy opportunities.	9	• Old housing stock and older homes require more improvement and maintenance before clean energy upgrades can be installed • Other things take priority for customers before they pursue clean energy upgrades, such as day-to-day expenses, paying other bills (e.g., health, heat), travel, or other home projects. • Residents are uninterested in making any changes, or energy efficiency is not even something they are considering • Living in a flood zone dissuades people from going “all-electric” due to the risks

TOPIC	DESCRIPTION	REFERENCES CODED	SUBTOPICS
Trust	Description of the participant perceptions of trust in clean energy programs.	27	• Perceptions of scams • Information overload • Lack of trust and legitimacy in organizations promoting clean energy opportunities • Distrust of perceived benefits participants will receive by participating in a program (e.g., cost savings) • Concerns about the reliability of infrastructure to handle electrification • Perceptions of additional costs to the homeowner • Concerns about extreme weather impacting existing equipment • Concerns about reliability of clean energy products (e.g., reliability of solar panels) • Participants were unsure whether they will get a return on investment or cost savings
Trusted sources of information	Refers to the entities that participants trust to receive information about clean energy opportunities.	14	• NYSERDA • Electrician, contractor, or installer • Trust in themselves to conduct research on their own • Older people or homeowners • Utility/energy provider (e.g., National Grid)
Workforce and employment services	Refers to the types of workforce development opportunities that participants are aware of or have engaged with in the past.	6	• Jobs with NYSERDA • Training program with ConEdison • Clean energy programs at local universities or community colleges • OSHA training • High school programs that teach students about trades

Though focus group discussion themes are described in the main report, this Appendix describes a few topics in additional detail. The additional themes include consumer awareness of NYSERDA, energy concerns, awareness of energy audits, and barriers to clean energy adoption.

Access to NYSERDA Programs for Non-Landowners: As in the baseline study, the current study finds that there are specific clean energy financial assistance access challenges for individuals who do not own the land upon which their residence is located (e.g., mobile homeowners living in a park, homeowners on tribal reservation land, or homeowners without their name on the deed). Homeowners with strict homeowner associations (HOAs) may also experience similar barriers. As noted in the baseline study, individuals cannot finance clean energy projects through loans if they do not own their land, creating barriers to participation in some clean energy assistance programs. Four consumer focus group participants cited issues related to land ownership due to issues with their HOAs (n=2) or home location in a registered historic district (n=2). These specific customer situations represent a systematic exception

to the NYSERDA residential program offerings and is a distinct issue from renter accessibility, but was not included in the main report due to the comparative frequency of responses relating to this issue.

Consumer Awareness of NYSERDA: During focus group discussion, when asked about their awareness of the Hubs, none of the DAC focus group participants indicated that they had heard of the RCEH program. Most participants were generally aware of the role that NYSERDA plays in providing energy support for customers, as indicated by consumer participation in programs like Empower+ or the clean energy audit, for example. However, customers expressed some perceived distrust in governmental organizations (such as NYSERDA) promoting clean energy opportunities. During the focus group, one participant looked up the website of one of the Hubs and claimed that while they recognized some of the organizations, they looked “like a mouthpiece for NYSERDA,” representing government views and programs. As discussed in the main report, consumers were primarily concerned about scams and which sources of information to trust about clean energy opportunities (a particular concern for consumers who mistrust governmental organizations).

Regarding awareness, Hub teams also discussed some challenges with branding and NYSERDA’s negative reputation, particularly in rural communities. Though Hubs abide by certain requirements about the materials they are allowed to disseminate with NYSERDA branding, Hub teams described how they primarily rely on their local branding to de-emphasize their connection to a state entity. Hub leaders shared how some of the organization brand “names” are more recognized and credible in the community (e.g., the Cornell Cooperative Extensions across New York State) which is why some Hub teams choose to focus on their own local branding upfront. Despite Hub teams relying on both their local and NYSERDA branding to promote clean energy opportunities, awareness and trust remain a continued challenge.

Barriers to Adoption of Clean Energy in DACs: Beyond the key barriers indicated in the main report, customer focus group participants shared a range of additional hurdles to their own adoption of clean energy technologies in the home, among these: information for non-English speakers, insufficient funds in exchange for long customer applications, and eligibility perceptions for renters.

Non-English speakers still experience accessibility challenges when seeking information about NYSERDA programs. New York State has a large immigrant population that speak a wide variety of languages, and it is critical it is for Hubs to continue offering training and educational opportunities in

different languages to reduce barriers to clean energy careers.²³ Consistent with past evaluation recommendations, the RABA summary highlighted the need to provide more multilingual materials for consumers. Hubs leaders (n=5), partners (n=1), and subcontractors (n=4) highlighted they have been undertaking activities to produce more translated materials, host events (e.g., trainings) in languages other than English, and create children's clean energy coloring books in different languages.

NYSERDA offers insufficient funds for some customers to complete long applications. Residents who are on the cusp of eligibility due to their income may find themselves ineligible to participate in certain clean energy incentive programs, regardless of the repair and upgrade needs within their homes. One consumer focus group participant explained that, in their experience, applications for NYSERDA energy rebates required a significant amount of time and information to complete, and (for them) the incentive they received was not ultimately commensurate with the effort: for example a \$1,500 rebate for a \$40,000 clean energy project. Another consumer agreed, highlighting that “time is money.” Supporting this observation, one Hub leader suggested that NYSERDA programs are just “scratching the surface” in terms of support for customers, and that small subsidies will not be enough to “move the needle” in promoting residential clean energy adoption, particularly in DACs.

Perceptions about eligibility and split incentives prevent renters from accessing clean energy assistance and other programs. Renters' limited access to clean energy programs is a well-documented issue, consistent with findings from the baseline. Renters often do not have the power to make permanent changes to a residence and must seek landlord approval prior to applying for incentives for equipment upgrades, weatherization updates, or other energy-related repairs. This issue was raised by nine consumer focus group participants (renters) trying to implement clean energy upgrades in their residence, three of whom specified that lack of cooperation from their landlord was the primary barrier to clean energy program participation. One Hub leader and one partner independently validated this sentiment. ILLUME Advising's RABA summary similarly documented that renters perceive their options to be limited because they do not own their homes or lack the autonomy to make decisions without their landlord's approval.²⁴

The split incentive gap, wherein landlords pay for clean energy upgrades but do not directly experience the benefit and are therefore uncooperative, is a persistent and critical barrier to building decarbonization.²⁵ In a discussion regarding the issue of landlord cooperation, two subcontractors noted

²³ Michael, Leigh and Andie Gemme, *New York State Clean Energy Hubs Regional Barriers and Assessment Analysis - Crosscutting Barriers and Opportunities*. ILLUME Advising, LLC, April 2025, 29.

²⁴ Michael, Leigh and Andie Gemme, *New York State Clean Energy Hubs Regional Barriers and Assessment Analysis - Crosscutting Barriers and Opportunities*. ILLUME Advising, LLC, April 2025, 23.

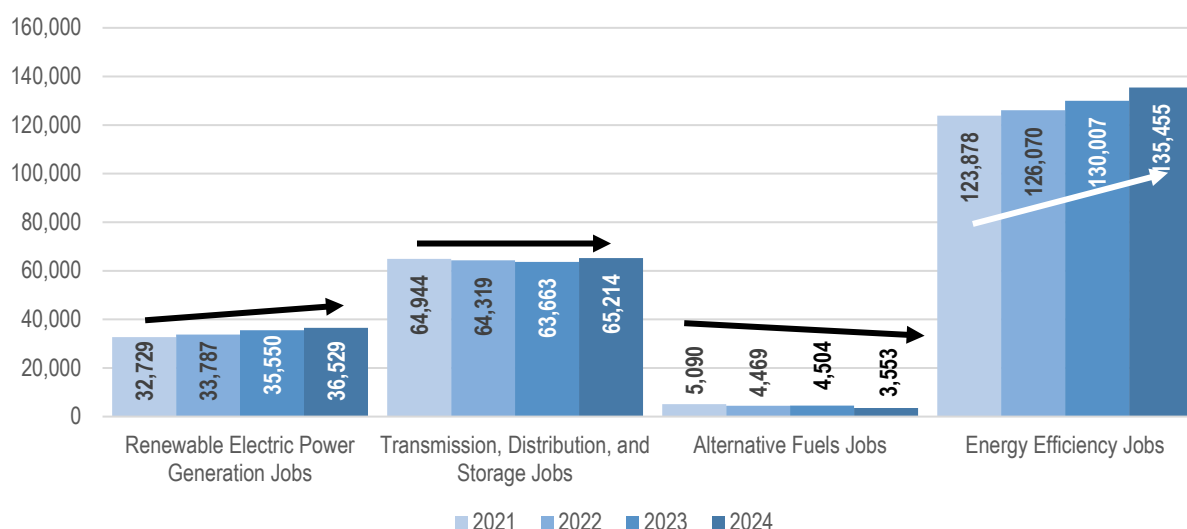
²⁵ Hubs' RABA reports identify split incentives as a critical challenge as well.

that some landlords are uncooperative because they do not want to assume additional liabilities or responsibilities for summer season cooling (e.g., maintenance) if they replace the existing heating system with heat pumps. Similar to Hub interviewee feedback identified in the baseline, RABA summary report suggestions to address the split incentives issue included more direct engagement with landlords, such as facilitating peer-to-peer conversation with other landlords, or providing guides for tenants to frame clean energy upgrades as a “value proposition.”²⁶

D.4 Extended USEER Results

From 2021 - 2024, the change in total clean energy sector jobs was greatest in the area of **Energy Efficiency**, with increases in some regions and decreases in others. Jobs in **Renewable Electric Power Generation** have increased slowly since 2021. Jobs in **Transmission, Distribution, and Storage** appear to be mostly static between 2021 and 2024 (**Figure D-3**). In 2024, jobs within the area of **Alternative Fuels** decreased compared to 2021-2023 levels.

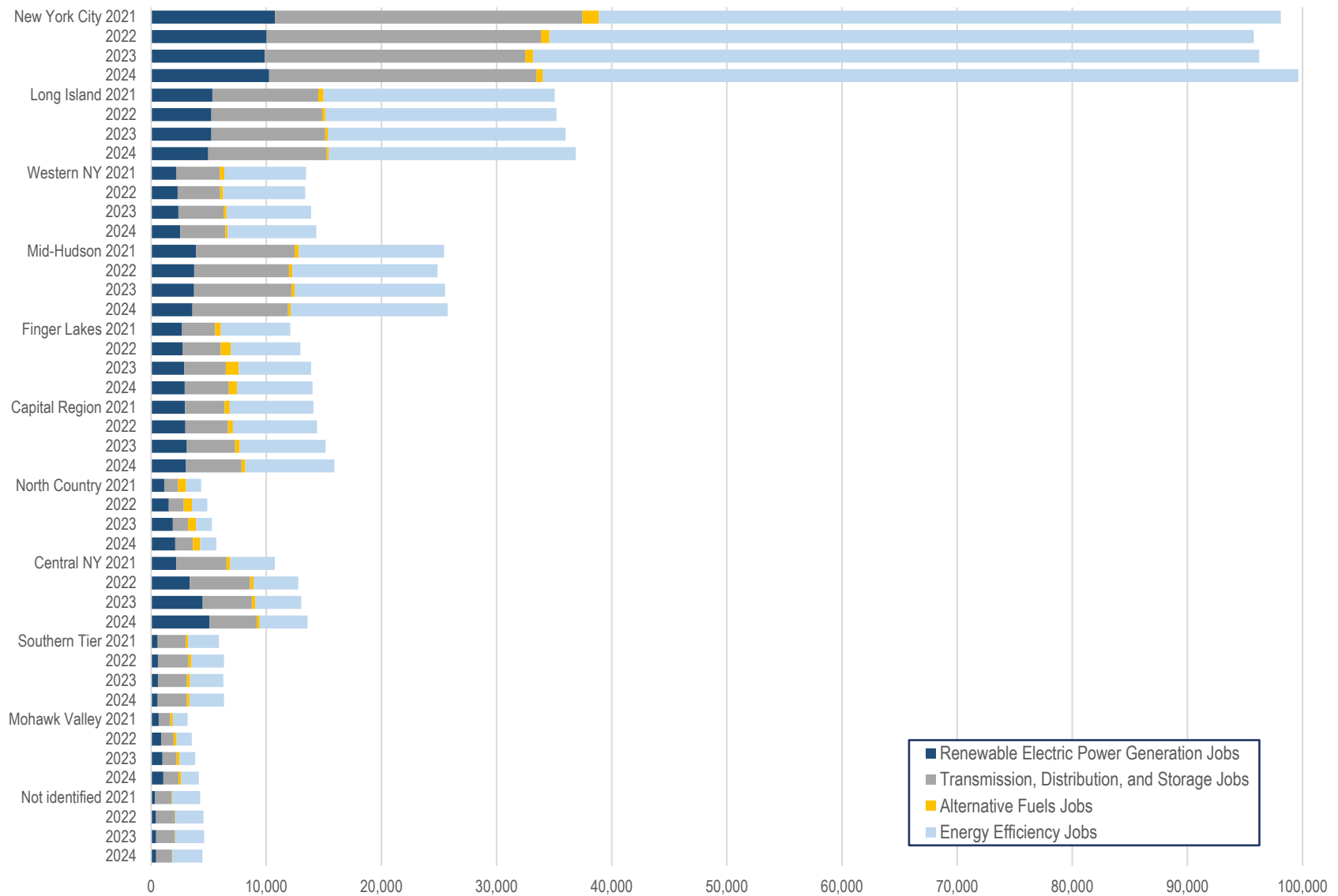
Figure D-3. Change in NYS Clean Energy Jobs by Sector (2021 - 2024)



Comparing clean energy sector jobs across Hub territories, it is not surprising that the New York City region consistently employs the largest share of jobs across all state regions (it is, by far, the largest population center in the state; **Figure D-6**). Energy Efficiency jobs represent the largest proportion of these jobs. Long Island and Mid-Hudson trail New York City for total jobs, as well as total Energy Efficiency jobs. Renewable electric power generation is a growing job sector in Central New York.

²⁶ Michael, Leigh and Andie Gemme, *New York State Clean Energy Hubs Regional Barriers and Assessment Analysis - Crosscutting Barriers and Opportunities*. ILLUME Advising, LLC, April 2025, 23.

Figure D- 4. USEER Change in Clean Energy Jobs by Year and Type for New York State



D.5 Extended SNA Results

The Evaluation Contractor collated a list of partners for each Hub and shared with Hub leaders for confirmation or correction. This section provides the output from the partner listing activity: a series of figures representing the social network within each Hub territory, highlighting Hubs, partners, subcontractors, and NYSERDA. The connections within each Hub's social network are displayed in a circular or fan formation around the prime contractor organization (labeled as "Hub").

Subcontractors and partners were not given the same opportunity to comment on the complete draft list of partners for the Hub; however, subcontractor and partner organization representatives in focus groups were asked about their top three to five partners, many of whom were already included in the Hub partner lists. Some networks are densely populated with organizations, while others are sparse. In some cases, connections between subcontractors and partner organizations occasionally cut across the perimeter. These cross-cutting connections are representative of instances where subcontractors and partner focus group participants *voluntarily* mentioned one another in discussion of their top three to five partners. Due to limited data collected from these groups, the graphics do not represent the full picture of subcontractor-partner organization connection.

Figure D- 5. Capital Region Social Network

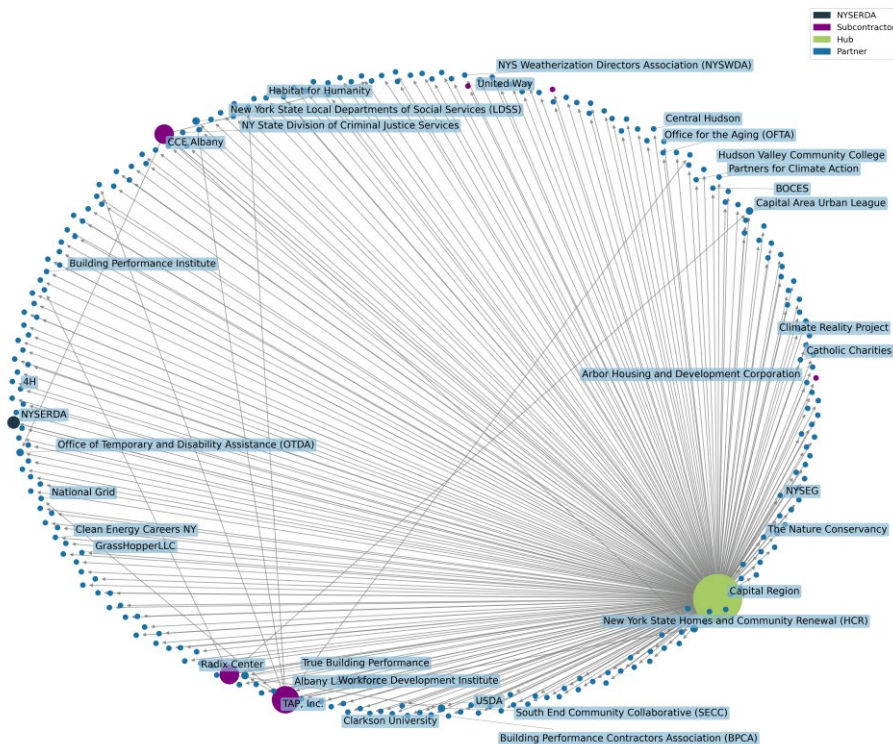


Figure D- 6. Central NY Social Network

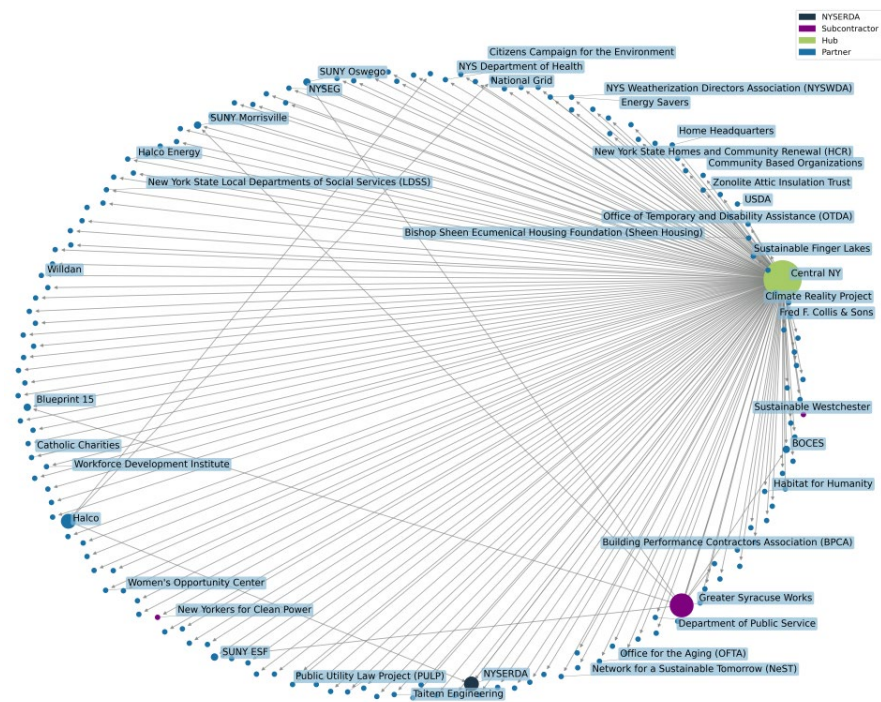


Figure D- 7. Genesee/Finger Lakes Social Network

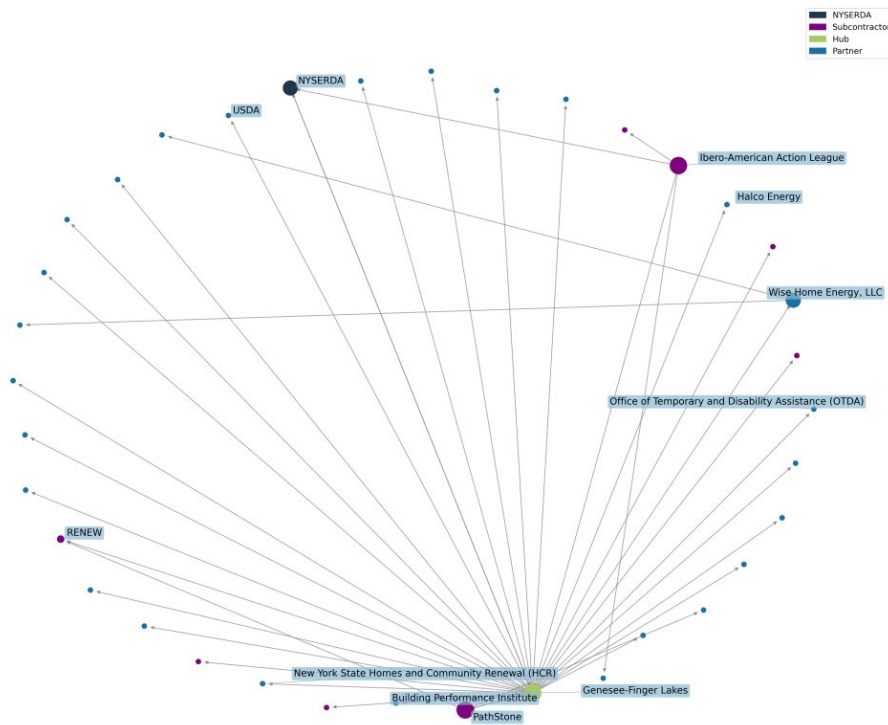


Figure D- 8. Long Island Social Network

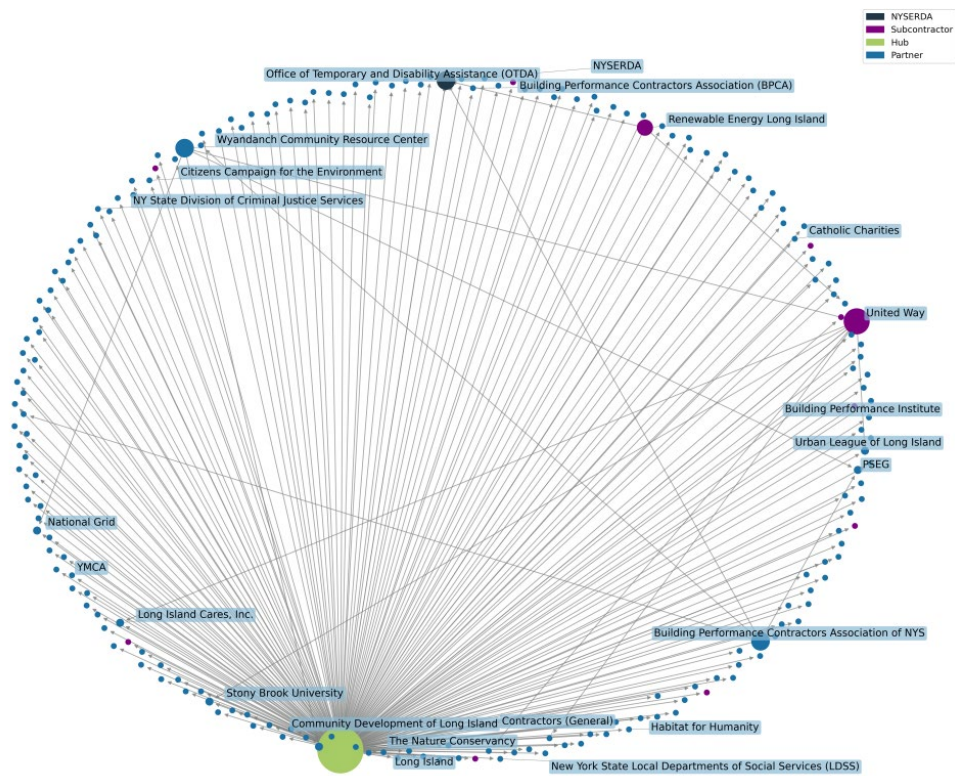


Figure D- 9. Mid-Hudson Social Network

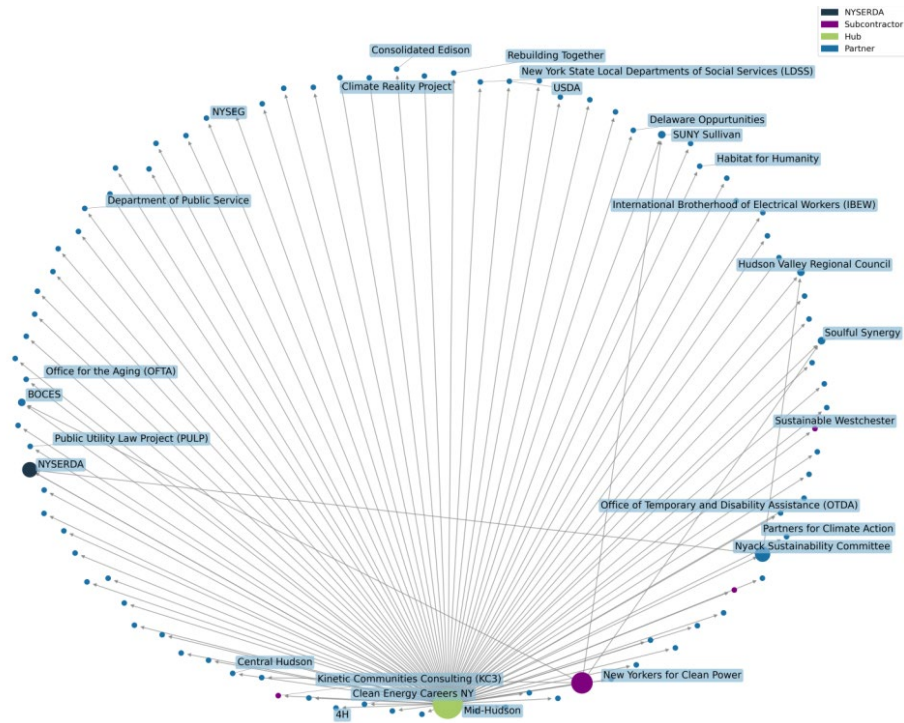


Figure D- 10. Mohawk Valley Social Network

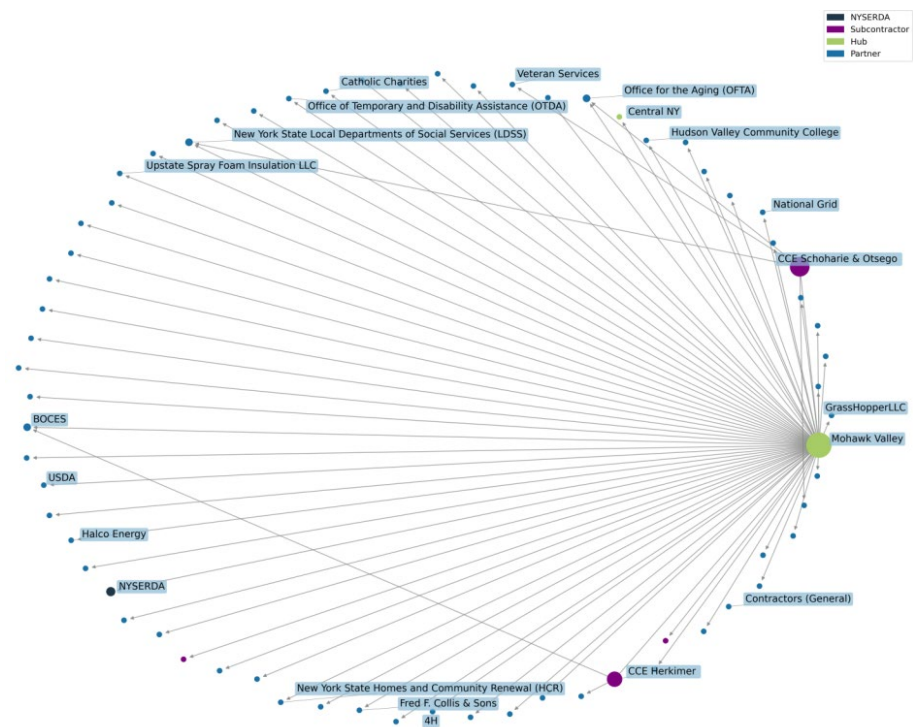


Figure D- 11. North County Social Network

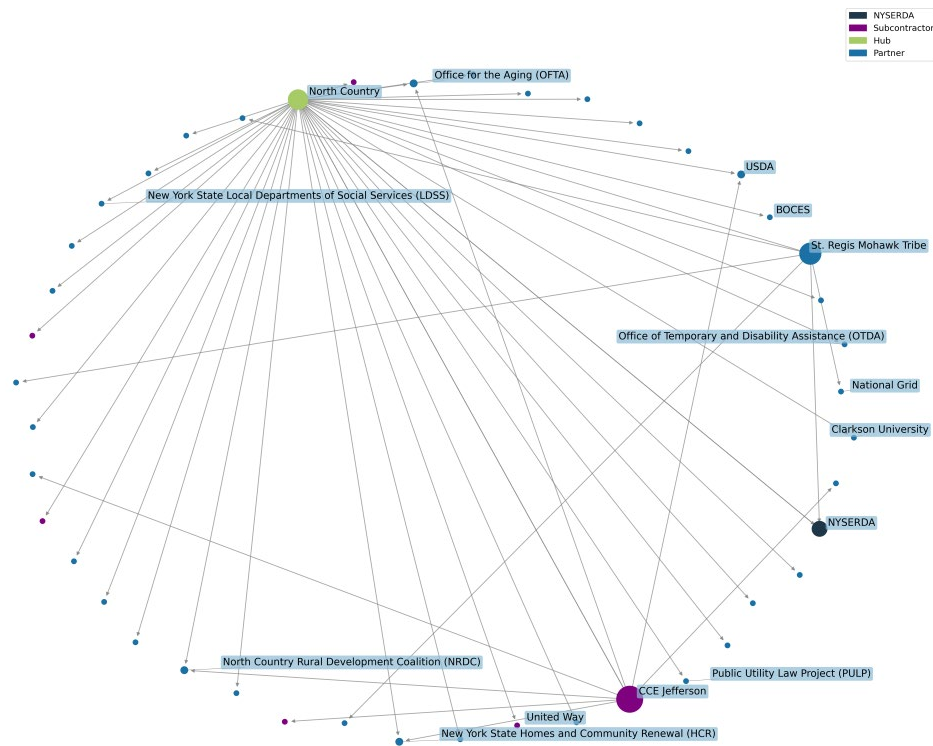


Figure D- 12. NYC - Brooklyn/Bronx Social Network

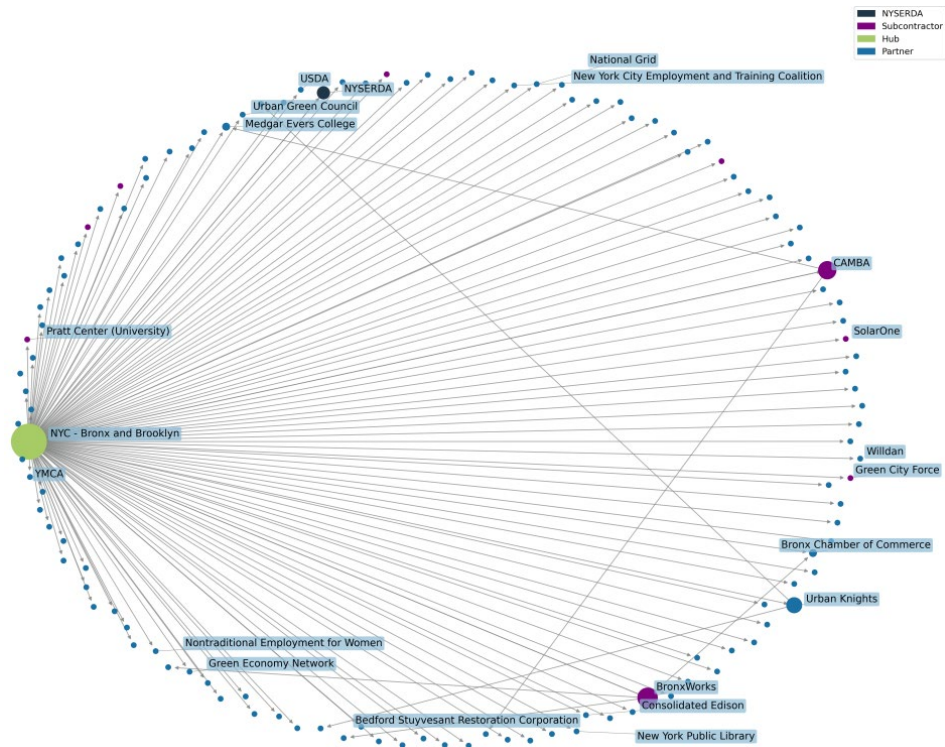


Figure D- 13. NYC - Manhattan

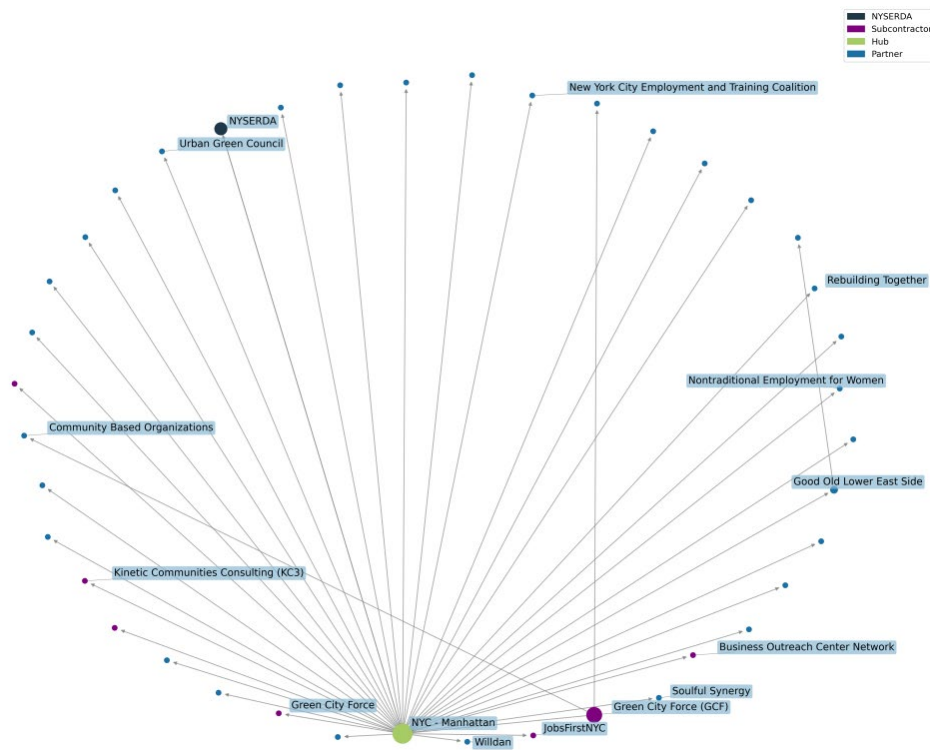


Figure D- 14. NYC - Queens/Staten Island Social Network

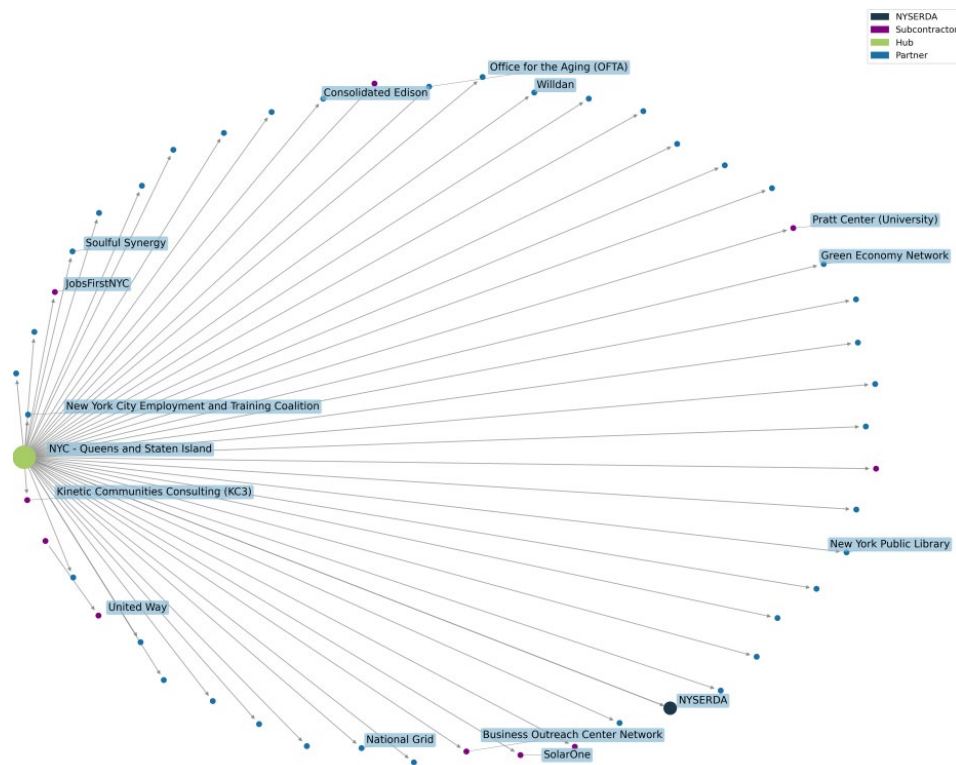


Figure D- 15. Southern Tier Social Network

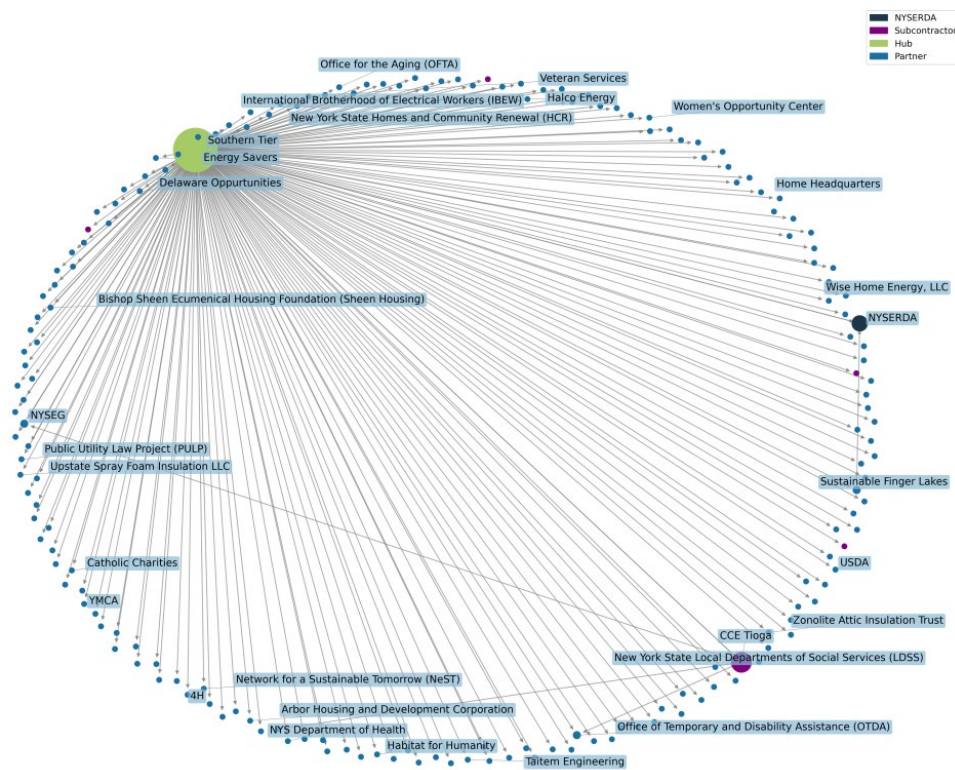


Figure D- 16. Western NY Social Network

