

Illinois Solar For All Phase II Evaluation Final Evaluation Report

October 2021

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Acronyms

ABP – Adjustable Block Program
AC – Alternating Current
ACS – American Community Survey
AHJ – Authority Having Jurisdiction
AMI – Area Median Income
APAC – Austin People’s Action Center
APEEP – Air Pollutant Emissions Experiments and Policy
ARES – Alternative Retail Electric Suppliers
AV – Approved Vendor
BEA – U.S. Bureau of Economic Analysis
C-PACE – Commercial Property Assessed Clean Energy
CAA – Community Action Agency
CBO – Community-Based Organization
CCEF – Colorado Clean Energy Fund
CEDA – Community and Economic Development Association of Cook County, Inc.
CEJF – Clean Energy Jobs and Justice Fund
CIC – Community Investment Corporation
CPC – Community Preservation Corporation
CS – Community Solar
CSV – Comma-Separated Values file type
CTGB – Connecticut Green Bank
DAC – Disadvantaged Community
DAC-SASH - Disadvantaged Community Single-Family Affordable Solar Homes
DC – Direct Current
DCEO – Illinois Department of Commerce & Economic Opportunity
DG – Distributed Generation
eGRID – Emissions & Generation Resource Integrated Database
EIA – U.S. Energy Information Administration
EJ – Environmental Justice
EPA – U.S. Environmental Protection Agency
FAQ – Frequently Asked Questions
FEJA – Future Energy Jobs Act
FNO – Finance New Orleans
FPL – Federal Poverty Level
GATS – Generation Attribute Tracking System
GE – Grassroots Education/Grassroots Educator
GEM\$ – Green Energy Money Saver
GHG – Greenhouse Gases
GHPP – Green Housing Preservation Program
HGIA – Hawaii Green Infrastructure Authority
HUD – U.S. Department of Housing and Urban Development
HVAC – Heating, Ventilation, and Air Conditioning

IACAA – Illinois Association of Community Action Agencies
ICC – Illinois Commerce Commission
IEMF – Income-Eligible Multi-Family Energy Savings Program
IHWAP – Illinois Home Weatherization Assistance Program
ILSFA – Illinois Solar for All
IPA – Illinois Power Agency
IPC – Inclusive Prosperity Capital, Inc.
JOE NYC – Joint Ownership Entity New York City
LBNL – Lawrence Berkeley National Laboratory
LI – Low Income
LICS – Low Income Community Solar
LIHEAP – Low-Income Home Energy Assistance Program
LLR – Loan Loss Reserves
LMI – Low-to-Moderate-Income
LVEJO – Little Village Environmental Justice Organization
M-RETS – Midwest Renewable Energy Tracking System
MASH – Multifamily Affordable Solar Housing Program
MCEC – Maryland Clean Energy Center
MCGB – Montgomery County Green Bank
MHELP – Maryland Home Energy Loan Program
MLPE – Module Level Power Electronic Inspection
MROW – eGRID subregion code
MWBE – Minority or Women-Owned Businesses
NABCEP – National Board of Certified Energy Practitioners
NEI – National Emissions Inventory
NERA – NERA Economic Consulting
NG – Natural Gas
NLEI – National Latin Education Institute
NP/PF – Non-Profit/Public Facility
NPV – Net Present Value
NRC – National Research Council
NYCEEC – New York City Energy Efficiency Corporation
NYSERDA – New York State Energy Research & Development Authority
ODOE – Oregon Department of Energy
OMB – Office of Management and Budget
OSHA – Occupational Safety and Health Administration
PACE – Property Assessed Clean Energy
PDF – Portable Document Format
PM – Particulate Matter
PPA – Power Purchase Agreement
PV – Photovoltaic
PY – Project Year
QA – Quality Assurance
QCT – Qualified Census Tracts
REC – Renewable Energy Credit

RERF – Renewable Energy Resources Fund
RFCW– eGRID subregion code
RFP – Request for Proposal
RGGI – Regional Greenhouse Gas Initiative
RIMS-II – Regional Input-Output Modeling System II
RPS – Renewable Portfolio Standard
RSIP – Residential Solar Investment Program
SASH – Single-Family Affordable Solar Homes
SCC – Social Cost of Carbon
SMART – Solar Massachusetts Renewable Target
SMI – State Median Income
SNAP – Supplemental Nutrition Assistance Program
SOMAH – Solar on Multi-Family Affordable Homes
SREC – Solar Renewable Energy Credits
SRMW – eGRID subregion code
VOC – Volatile Organic Compounds
WAP – Weatherization Assistance Program
ZCTA – Zip Code Tabulation Area

Executive Summary

This report presents findings from the Phase II, Final Evaluation of the Illinois Solar for All (ILSFA) Program. The ILSFA Program was mandated by the state's Public Act 99-0906, colloquially known as the Future Energy Jobs Act (FEJA), which was enacted on December 7, 2016 and went into effect on June 1, 2017. The ILSFA Program provides more generous Renewable Energy Credit (REC) contracts than those offered through the Illinois Adjustable Block Program (ABP)¹ to overcome barriers to participation in the solar market faced by the low-income community.

Evaluation

The Illinois Power Agency (IPA) contracted with APPRISE, and its subcontractor Aeffect, Inc., to conduct an evaluation of the ILSFA Program.

This is the fifth and final report from the first Illinois Solar for All Program evaluation. The research conducted from August 2019 through June 2021 provided a comprehensive assessment of the program design, implementation, and impacts by interviewing IPA, Elevate, Approved Vendors, utilities, stakeholders, Grassroots Educators, Grassroots Education participants, job trainees, other state solar program managers, and green bank representatives; and by analyzing program data and other available data. The research found that the program has successfully approved numerous solar vendors, constructed solar projects, employed job trainees, and will provide benefits to low-income households and organizations in Environmental Justice and low-income communities around the state.

Key challenges were faced in quickly developing the infrastructure, tools, and materials for this complicated program in a short time period, and adjusting to many changes that were made during the first years of implementation. Because of these challenges, the systems that were developed were not optimized to provide a smooth process for Approved Vendors to meet the numerous program requirements. Additionally, sufficient outreach to AVs and key partnerships and collaborations with energy efficiency programs and other organizations that serve low-income households were not developed soon enough to utilize much of the available funding for the DG sub-program.

This evaluation report presents results from the final part of the Phase II Evaluation which was conducted from January 2021 through June 2021. Four previous evaluation reports provided findings from the inception of the program through December 2020.²

Illinois Solar for All Program Design and Implementation

FEJA required the development of the ILSFA Program to bring photovoltaics to low-income communities in Illinois. The objectives of the program are to maximize the development of

¹The Adjustable Block Program (ABP) supports the development of new photovoltaic distributed generation systems and new photovoltaic community generation projects in Illinois through the purchase of Renewable Energy Credits. The ABP is not targeted to low-income households and Environmental Justice communities like the ILSFA Program is.

²Reports are available at <https://www.illinoissfa.com/evaluation/>.

new photovoltaic generating facilities; create a long-term, low-income solar marketplace throughout the State; integrate with existing energy efficiency initiatives; and minimize administrative costs.

FEJA mandated the ILSFA Program to include four sub-programs and indicated the funding percentages from the Renewable Energy Resources Fund (RERF) for each of them.

1. *Low-Income Distributed Generation (DG)*: This sub-program provides funding for photovoltaic projects for individual homes and multi-family buildings. Benefits to participants are achieved through net metering or reduction of energy costs.
2. *Low-Income Community Solar (CS)*: These projects provide the opportunity for low-income participants to subscribe to a share of a CS system and receive credits on their utility bill for the energy produced by their share of the system. The projects must identify partnerships with community stakeholders where the project will be located.
3. *Non-Profits and Public Facilities (NP/PF)*: Non-profits and public facilities may receive incentives for on-site photovoltaic generation. These projects must serve the energy loads of non-profit or public sector customers, be installed at facilities within low-income or Environmental Justice (EJ) communities within the State of Illinois that have sufficient connection to and input from the low-income or EJ community, and be a qualified critical service provider, defined as a non-profit or public sector entity that offers essential services to low-income or EJ communities.
4. *Low-Income Community Solar Pilot Projects (LICS Pilot)*: This sub-program is based on a competitive procurement approach for CS projects, based only on the price for 15 years of delivery of all Renewable Energy Credits (RECs).

Some of the key characteristics of the ILSFA Program are as follows.

- An emphasis on EJ communities and a requirement that 25 percent of the incentives for the first three ILSFA sub-programs are allocated within those communities.
- Requirements for community partnerships.
- Requirements for job training opportunities and hiring job trainees.
- Extensive consumer protections to ensure that participants receive the benefits of the ILSFA Program.

The IPA was directed to develop a Long-Term Plan with a proposed approach to the design, implementation, and evaluation of the ILSFA Program. The Long-Term Plan was filed at the Illinois Commerce Commission (ICC) for review and approval on December 4, 2017 and was approved by the ICC on April 3, 2018. In 2019, the IPA undertook the Long-Term Plan update process. The ICC approved the Revised Long-Term Plan with some changes on February 18, 2020 and the Revised Long-Term Plan was published on April 20, 2020.

A draft of the second Revised Long-Term Plan was released on August 16, 2021. However, because the Climate and Equitable Jobs Act³ was signed into law on September 15, 2021 and this Act required changes to that plan, the IPA withdrew the second Revised Long-Term Plan and will develop a new draft Revised Long-Term Plan reflecting modified statutory requirements. The new Revised Long-Term Plan will be released for public comment no later than January 13, 2022. The IPA anticipates holding workshops and providing other opportunities for stakeholder input during that draft Long-Term Plan development.

ILSFA Resources

The ILSFA Program is funded through three sources.

- **The Renewable Energy Resources Fund (RERF):** This fund was created as a special fund in the State Treasury and is administered by the IPA for the procurement of renewable energy resources. The fund was created with Alternative Compliance Payments remitted by Alternative Retail Electric Suppliers (ARES) to comply with the State’s Renewable Portfolio Standard established by the Public Utilities Act.
- **Utility Funding:** A portion of the funds collected by the utilities under their Renewable Portfolio Standard (RPS) tariffs is available for the ILSFA Program. Utility funding does not support the LICS Pilot projects sub-program.

The IPA has projected a gap between RPS expenses and available funds for the 2021-2022 delivery year. The IPA hopes to resolve this issue through an act of the General Assembly to extend the deadline by which prior years’ collections can be used.

- **Additional Utility Funding:** Additional funds from the utilities’ renewable resources budgets were potentially available for program funding, however the triggering “funding shortfall” conditions have not been met.

Available funding is summarized in Table ES-1.

**Table ES-1
ILSFA Funding Summary**

Program Year	Funding Source	DG	CS	NP/PF	CS Pilot
2018-2019	RERF	\$4,500,000	\$7,500,000	\$3,000,000	\$20,000,000
	Utility	\$3,000,000	\$5,000,000	\$2,000,000	\$0
	Total	\$7,500,000	\$12,500,000	\$5,000,000	\$20,000,000
2019-2020	RERF	\$4,500,000	\$7,500,000	\$3,000,000	\$0
	Utility	\$3,518,697	\$5,864,494	\$2,345,798	\$0
	Total	\$8,018,697	\$13,364,494	\$5,345,798	\$0

³Public Act 102-0662, see: <https://www.ilga.gov/legislation/publicacts/102/PDF/102-0662.pdf>

Program Year	Funding Source	DG	CS	NP/PF	CS Pilot
2020-2021	RERF	\$4,950,000	\$8,250,000	\$3,300,000	\$0
	Utility	\$3,418,081	\$5,696,802	\$2,278,721	\$0
	Total	\$8,368,081	\$13,946,802	\$5,578,721	\$0
2021-2022 ⁴	RERF	\$4,950,000	\$8,250,000	\$3,300,000	\$0
	Utility	\$3,384,018	\$5,640,031	\$2,256,012	\$0
	Total	\$8,334,018	\$13,890,031	\$5,556,012	\$0

Unallocated funds from previous program years were rolled into additional funding for following years, as shown in Table ES-2. Most of these funds were for the DG sub-program.

Table ES-2
ILSFA Funding Rollover

Program Year	Funding Source	DG	CS	NP/PF
2019-2020	RERF Rollover	\$3,946,634	\$599	\$65,911
	Utility Rollover	\$2,786,566	\$0	\$1,658,276
	Total	\$6,733,200	\$599	\$1,724,187
2020-2021	RERF Rollover	\$3,421,410	\$35,144	\$0
	Utility Rollover	\$6,161,458	\$10,785	\$3,184
	Total	\$9,582,868	\$45,929	\$3,184
2021-2022 ⁵	RERF Rollover	\$7,273,296	\$0	\$51,984
	Utility Rollover	\$8,114,081	\$26	\$260
	Total	\$15,387,377	\$26	\$52,244

Implementation Statistics

Elevate, the Program Administrator, provided AV data, project data, participant data, Grassroots Education data, job training data, and quality assurance results. Analyses in this report were based on data as of April 2021.

Key findings with respect to the AVs were as follows.

- Approved Vendors: As of April 2021, there were 58 AVs.
- Minority or Women-Owned Business AVs: Eight of the 58 AVs were MWBEs.⁶
- AV Participation: Thirty different AVs submitted projects and 20 different AVs had selected projects.

⁴This funding is outside the timeframe of this evaluation report.

⁵This funding is outside the timeframe of this evaluation report.

⁶One AV was sold and became an MBWE, increasing the number of approved MWBE AVs to nine.

As of April 2021, 25 projects had received Part II approval and an additional 15 were in the inspection phase of the process.

Project-level statistics relating to each sub-program are summarized below.

- NP/PF Projects: There were six projects selected in the first program year, 23 in the second program year, and 19 in the third program year.
- CS Projects: There were four projects selected in the first program year, four in the second program year (excluding the LICS Pilot projects), and three in the third program year. The volume of submitted projects significantly exceeded the funding available for the sub-program.
- DG Projects: There were nine projects selected in the second program year and 48 in the third program year. An additional 13 projects were under review.

Project-level statistics relating to EJ communities, low-income communities, and MWBE representation are summarized below.

- Urbanicity of Project Locations: Overall, 63 selected projects were characterized as being in urban locations, 30 in suburban locations, and 23 in rural locations. Of the selected CS projects (excluding LICS pilot projects), two were characterized as being in urban locations, three in suburban locations, and six in rural locations.
- Minority Composition of Project Locations: The census tracts that had selected projects were comprised of an average of 58 percent minorities (non-white), compared to an average of 29 percent minorities in census tracts that did not have selected projects.
- EJ Communities: Seventy-one of the 116 selected projects were in EJ communities.
- Low-Income Census Tracts: Ninety-four of the 116 selected projects were in low-income census tracts.
- MWBE Projects: Two of the selected NP/PF projects were submitted by MWBEs. (This does not include AVs who received MWBE points for subcontracting to MWBEs.)⁷

Project-level statistics relating to project size and REC value are summarized below.

- Project Size: The mean size for the NP/PF projects was 138 AC kW, the mean size for CS projects was 1,188 AC kW, and the mean size for the DG projects was 47 AC kW. Without the one large DG project, the average DG size was 12.1 AC kW.
- REC Value: The NP/PF projects averaged about \$300,000, the CS projects averaged about \$2.92 million, and the DG projects averaged \$100,000 in REC value.⁸
- Urbanicity of REC Value: Thirteen percent of the REC value was in urban areas, 25 percent was in suburban areas, and 62 percent was in rural areas. However, of the NP/PF projects, 42 percent of the REC value was in urban areas, 39 percent was in suburban areas, and 20 percent was in rural areas.
- REC Value in EJ Communities and Low-Income Census Tracts: While 63 percent of the REC value for NP/PF projects was in EJ communities, 83 percent of the REC value for

⁷One AV was sold and became an MBWE, increasing the number of selected MWBE projects to 19.

⁸The DG average REC value was skewed by the one large multi-family project and the CS average was drawn down by the two small CS projects. Without that one large project, the average DG REC value was \$27,100. Without the two small CS projects, the average CS REC value was \$3.54 million.

CS projects, and eight percent of the REC value for DG projects was in EJ communities⁹ (the EJ goal was not met because funding remains in the budget and additional projects will be funded in future program years). Almost all of the REC value was in low-income census tracts.

Information on DG participants were as follows.

- Participant Income: Participating single-family DG households ranged from no reported income to 282 percent of the poverty level and to 69 percent of AMI.
- Projected Savings: The average first-year projected savings for single-family DG projects was \$908, and the projected savings were on average 93 percent of the total energy value.

There were 121 Grassroots Education events completed by the second cohort of Grassroots Educators between November 2020 and March 2021. These included one-on-one contacts, phone banking, and virtual events due to COVID-19 restrictions.

Twelve AVs with a combined portfolio of 63 projects submitted 107 job training affidavits as of May 2021. Across these projects, job trainees worked an average of 28 percent of total project hours. On average, 44 percent of trainee hours were spent on installation.

Quality Assurance (QA) findings were provided for 20 ILSFA projects. The total mean score across the 20 projects was 99.8 percent of the total possible score. Only four projects missed points in the general electrical category, but projects received all points on all other categories, indicating that they were highly compliant.

ILSFA Impacts

The evaluation team translated the projected electric production from ILSFA projects into energy and emission equivalencies to provide a context for understanding the benefits of the ILSFA Program. The following equivalencies are estimated and are expected from the projected kWh production for projects selected in the first three program years of the ILSFA Program (as opposed to completed and energized projects). The expected 20-year lifetime impacts are as follows.¹⁰

- Tons of coal burned: 606,000
- Cubic feet of natural gas burned: 7,969 million
- Barrels of oil consumed: 2.04 million
- Gallons of gasoline consumed: 107.26 million
- Homes powered: 100,720
- iPhones charged: 90 billion
- Cars taken off the road for one year: 190,840
- Trees planted over 10-year growth period: 13.90 million

⁹This is due to one large DG project that was not in an EJ community.

¹⁰Production degradation is not factored into these estimates.

The estimated value of avoided emissions was over \$4 million in first year benefits from the first three years of selected ILSFA projects and \$66.5 million in lifetime benefits from the first three ILSFA Program years.

The estimated value of the increase in economic output in Illinois was over \$34 million in first year benefits and \$40.8 million in lifetime benefits from the first three ILSFA Program years.

The evaluation team estimated the creation of 100 full-time job years from first-year economic benefits and 265 job years from lifetime economic benefits from the first three ILSFA Program years.

Approved Vendor Feedback

Key findings from in-depth telephone interviews with 25 of ILSFA's Approved Vendors are summarized below.

- *Single-Family DG Barriers:* All 14 interviewed AVs who attempted to develop DG projects experienced barriers when doing so. Six AVs reported financing issues, five faced challenges with the extensive requirements of the sub-program and administrative burden, three struggled to fulfill the batch requirement, three indicated the project timeline is long, two stated the documentation is redundant, two struggled to find solar-ready homes, and two reported the economies of scale make it difficult to develop smaller projects.
- *Multi-Family DG Barriers:* Eleven of the 15 interviewed AVs who tried to develop multi-family DG projects experienced barriers. Six AVs stated the lack of common meters is a challenge, four reported financing issues, three struggled to find cooperative property owners, and three faced difficulties understanding how to pass on benefits to participants if residents' energy bills were already subsidized.
- *Single-Family DG Recommendations:* AVs recommended streamlining and clarifying documentation, making projects more financially feasible, removing the batch requirement, reducing redundancies in document submissions, allowing repurposed panels to be used, establishing a green bank, increasing community outreach, allowing participants in other assistance programs to automatically enroll, reducing requirements for successful AVs, only allowing companies based in Illinois to receive incentives, and allowing for multiple methods to evaluate shading.
- *Multi-Family DG Recommendations:* AVs recommended making projects more financially feasible, providing incentives to landlords, and encouraging utilities to consolidate meters.
- *Time to Develop Projects:* Nineteen interviewed AVs reported working on 103 selected projects. Vendor timelines varied widely, and AVs reported that they have been working on projects from six months to over three years. The mid-point was one and a half years.

- *Barriers to Development and Construction:* All except one of the interviewed AVs experienced barriers during project implementation. The most common barriers included delays due to the pandemic and weather, and difficulties obtaining permits.
- *Barriers to Part II Approval:* Seven of the nine interviewed AVs that worked on the Part II approval process reported barriers. The most common issues included challenges uploading documentation and photos to the portal, difficulties taking required pictures during construction, issues collecting job training documents, and redundancies in required documentation.
- *Community Solar Subscriptions:* Six interviewed AVs were developing CS projects. The most common challenges to recruiting subscribers included collecting documentation from interested subscribers and COVID restrictions on in-person outreach.
- *Project Implementation Assistance:* Eighteen of the 19 interviewed AVs with selected projects reported that they requested help with project implementation from Elevate. Sixteen of the 18 AVs reported that Elevate had been helpful and responsive to their requests for help.
- *DG Housing Stock Issues:* Seven interviewed AVs experienced housing stock issues when developing DG projects, including unsuitable roofs or electric systems, insufficient shading, or poor home condition. Two AVs were able to remediate these issues.
- *Factors Impacting Success:* Nine interviewed AVs reported barriers that caused them or could cause them to cancel projects. Fourteen AVs reported factors that positively impacted their success in the ILSFA Program; and previous working relationships was the most common factor. Fourteen AVs reported factors that negatively impacted their experience, and the most common factors were COVID, financing issues, and long timelines.
- *Recommendations for Elevate:* Five interviewed AVs recommended presenting program information in a more synthesized and simplified manner. Four AVs recommended improving the portal by creating a manual, fixing continuity issues, and allowing AVs to upload a large number of photos. Two AVs suggested improving the website. Two AVs stated that Elevate should be timelier with their responses and two AVs recommended making program materials more consistent. Other recommendations included notifying AVs when new submission windows are open, hosting an information session on the program financing structure, being more proactive about implementing feedback from AVs, and providing realistic expectations about the work AVs go through to participate in the program.¹¹

¹¹Elevate released several announcements in the months leading up to the project submission windows.

- *Recommendations for the ILSFA Program:* AVs provided many recommendations about various aspects of the ILSFA Program.
 - *Community Solar Recommendations:* AVs recommended that CS projects should be permitted in areas other than low-income or EJ communities as long as they are providing benefits to those communities¹²; implementation of a step-down incentive program to incentivize CS subscribers to enroll early (where subscribers sign on earlier to receive higher benefits which will drive up interest in CS projects early on); and reduced required paperwork for subscribers.
 - *Project Financing Recommendations:* AVs recommended incorporating financiers into the program more and removing the cash deposit requirement.¹³
 - *Program Funding Recommendations:* AVs recommended increasing the available program funding, reducing incentives per project to award more solar projects, and providing grants for participants to make their homes solar-ready.¹⁴
 - *Job Training Recommendations:* AVs recommended allowing updating the job training requirements to allow union labor, providing additional assistance connecting job trainees to AVs, and providing more training programs outside of the Chicago area.¹⁵
 - *Project Submission Recommendations:* AVs recommended streamlining the front-end submission process by removing or changing the non-ministerial and interconnection requirements. One AV suggested using a hosting map instead of a full interconnection agreement.
 - *Project Selection Recommendations:* AVs recommended that the 65 percent savings requirement be reconsidered¹⁶, and more points should be allocated to projects on brownfield sites.
 - *Other Recommendations:* Other recommendations included adopting best practices from other states, changing the invoicing submission process to be monthly, helping AVs coordinate with utilities, and allowing more flexibility for projects to be changed after they are submitted.

¹²Projects are permitted in areas other than low-income or EJ communities. However, projects in low-income or EJ communities are prioritized in the point selection, and many projects are sited in EJ or LI areas to be competitive in project selection.

¹³Collateral can be posted either as cash or a letter of credit.

¹⁴The IPA is not able to increase program funding or provide grants for participants to make their homes solar-ready.

¹⁵Under FEJA, Job Training Programs were administered by ComEd.

¹⁶This is a specific requirement for NP/PF projects that take the Federal tax credit.

Job Trainee Feedback

The APPRISE team conducted in-depth telephone interviews with 16 job trainees to assess their experiences with the job training programs and the ILSFA Program. The trainees generally provided very positive reviews of the training and the impact of the program on their lives. This section provides a summary of findings and recommendations from these interviews.

- *Job Training Background:* Interviewed job trainees were most likely to hear about the training by word-of-mouth and outreach from the job training organization. Eleven trainees had prior experience in construction, electricity, and/or solar.
- *Motivation for Participation:* The most common reasons for participating in the training were to learn more about the solar industry and to find a job. Five of the 16 interviewed job trainees were interested in working under the ILSFA Program prior to attending the training.
- *Job Training:* Job training programs ranged in length from two weeks to three months with most programs lasting ten to 12 weeks. None of the trainees were charged to participate in their job training program. Eleven trainees received a stipend of \$10 per hour or a set incentive of \$500 or \$1,000 for participating in the training.
- *Barriers to Participation:* Six of the 16 trainees experienced barriers to attending the program. The most common barrier was balancing work while attending the training.
- *Topics Covered:* Eight trainees stated the training covered soft skills and professional development in addition to solar industry training. The most common soft skills covered were resume writing and interviewing, how to apply to jobs, and employer expectations. Almost all trainees reported that they were educated in solar installation, design, and visual or mechanical inspections. Other common topics reported by trainees included introductions to solar energy, electricity, construction work, and power tools.
- *Satisfaction:* Thirteen of the 16 trainees were very satisfied or satisfied with the program, and three trainees were neutral.
- *Recommendations for Job Training Programs:* Trainees recommended providing more hands-on experience, offering trainings in more convenient locations, covering a wider variety of solar jobs, setting realistic expectations about the number of solar jobs, increasing job placement support, shortening the training, updating materials, and providing tools that align with those currently used.
- *Solar Preparation:* Of the 12 trainees who obtained solar employment, ten believed their program sufficiently prepared them for solar work and two stated the program somewhat prepared them. Ten trainees received additional training from their employers.

- *Solar Work:* Ten trainees have worked as solar installers. Other work completed for ILSFA projects included electrical work, sales, project management, and solar design.
- *Wage Expectations:* Hourly rate expectations from working in solar ranged from \$15 to greater than \$25 per hour. Nine trainees received the amount of employment they expected and eight of the 12 job trainees who were employed in solar received their expected wages or somewhat received their expected wages. Seven reported that their income in their solar position has been greater than it was before attending the job training.
- *Current Employment:* Ten trainees were working in the solar industry at the time of the interview, either full-time or taking intermittent jobs. Four were employed in another capacity and two were unemployed.
- *COVID Impacts:* Two trainees reported that they completed their training online because of the pandemic. Five trainees reported that the pandemic impacted ILSFA jobs and general solar work since they must follow safety guidelines while at job sites. Four stated solar work had slowed or stopped during the pandemic while four other trainees reported that the pandemic did not affect the solar industry.
- *ILSFA Recommendations:* Trainees recommended increasing the geographic distribution of training programs, increasing the number of women in solar, stabilizing the solar market, increasing ILSFA awareness, continuing the program, providing incentives for panels produced in Illinois, and offering assistance to solar entrepreneurs.

Stakeholder Feedback

The APPRISE team conducted in-depth telephone interviews with 27 ILSFA stakeholders and Community Action Agencies (CAAs) to assess their experiences with the ILSFA Program. This section provides a summary of findings and recommendations from these interviews.

- *Participation in Stakeholder Feedback Process:* A majority of Participant Stakeholders engaged in the ILSFA feedback process in the past year; however, participation was less common among CAA Stakeholders. Eleven respondents attended ILSFA presentations and listened to online recordings.
- *Program Comments:* Seven Participant Stakeholders and two CAA Stakeholders provided feedback to ILSFA requests, which addressed equitable access to the program, program selection protocols, AV manual updates, how to make the DG sub-program work better, Grassroots Education, and the DG referral program. Almost all respondents said that they will provide feedback in the future.
- *Stakeholder Outreach:* Nine of the 27 respondents felt the program did not provide sufficient outreach. Three participants suggested that the program could be more proactive in reaching out to stakeholders to discuss how the program could be improved.

- *Stakeholder Participation:* Most respondents did not know if there was sufficient stakeholder participation. Seven respondents felt the program has been open to feedback and ideas from stakeholders and three noted that the program administrators have been transparent and working to improve the program.

Five stakeholders believed the program incorporated stakeholder comments into the program and 20 did not know. Two respondents reported that the program did not take their technical input or the program has not followed-up on comments to share when they have been adopted.

- *Sub-Program Comments:* The most common comments about the DG sub-program were that the process is arduous, the paperwork is too complex, it is difficult to find solar ready homes, and the project timeline is too long. Comments about CS projects included that the program is working well since more low-income residents are better suited to CS but there is not enough funding for this sub-program. Three stakeholders were confused by the LICS Pilot program and one stakeholder noted that the NP/PF program is working well.
- *Community Solar Changes:* Nine of the 27 respondents were concerned that primarily large CS projects have been submitted as opposed to smaller, community-based projects. Ten stakeholders recommended changes to encourage smaller CS projects. The most common recommendations included improving financing for small projects, having the community organizations serve as AVs, changing project selection guidelines, and increasing awareness of CS.
- *Distributed Generation Changes:* Twelve stakeholders were concerned that DG project submissions have been slow to increase. The most common recommended changes to encourage DG submissions included increasing trust in the program, streamlining the process for both AVs and customers, and increasing AV availability.

Fifteen stakeholders suggested ways for AVs to more effectively recruit participants for DG. Common suggestions included promoting the program through other low-income programs or pre-qualifying participants for the ILSFA Program and using trusted messengers, including CAAs, churches, and other community organizations, to spread awareness about the program.

Eight respondents provided ideas to encourage more multi-family DG projects, which included working with landlords and organizations that provide rental assistance, educating residents about solar, and collaborating with weatherization programs.

- *Market-Based Approach:* Ten of the 11 Participant Stakeholders felt that the market-based approach should be replaced. Most were unaware of alternative approaches.

- *Additional CAA Feedback:* Five of the eight CAA respondents reported that they were knowledgeable about the ILSFA Program. Two reported that the COVID pandemic meant that solar is not a priority for their agency or their constituents.

Three CAA Stakeholders had referred energy efficiency participants through Grassroots Education efforts. All eight provided suggestions on how the ILSFA Program can coordinate with low-income energy efficiency programs, which included collaborating with other programs, providing more education about the ILSFA Program, and providing agencies with outreach materials.

Seven CAA Stakeholders noted barriers to coordination with energy efficiency programs. The most common barriers included the pandemic, lack of AVs, and project financing issues.

All interviewed CAA Stakeholders said that they would be able to screen for ILSFA eligibility during energy efficiency service delivery, but four would require additional training, guidelines, or compensation. Four respondents said that they would be able to provide lists of energy efficiency program participants who would be good candidates for solar to the ILSFA administrators. However, four reported they either could not provide lists or did not know if they would be able to because of client confidentiality issues.

- *ILSFA Recommendations:* Fourteen stakeholders offered recommendations to improve the program more generally. The most common suggestions were to increase outreach, improve communication materials, align the ILSFA Program with the ABP, and increase program funding.

Distributed Generation Model Review

APPRISE conducted in-depth telephone interviews with Program Managers of 13 state residential distributed generation solar programs that provide incentives for low-to-moderate-income (LMI) households. This section provides a summary of findings from these interviews.

- *Program Launch:* All but one of the 13 programs were launched between 2015 and 2020. This reflects a recent focus on increasing solar access for LMI communities. Many of the newer programs built on incentive models used by earlier non-LMI-targeted solar programs.
- *Program Size:* Programs' installed capacity ranged from less than 100 kilowatts to 150 megawatts. The number of households served ranged from only one LMI household to over 21,000. Many programs were small, with fewer than 100 projects in each program year. However, as with the ILSFA Program, this was often because the programs were only recently introduced, and several were expanding.
- *Eligibility:* Program eligibility requirements were based on area median income (AMI), state median income (SMI), or the federal poverty level (FPL). The highest income threshold was 140 percent of AMI, while the lowest was 200 percent of the FPL. The

ILSFA income guidelines are fairly consistent with those of the other programs, falling in the middle of the range of the income thresholds.

- *Verification:* The most common forms of income verification were enrollment in another energy program or benefit, or a prior year tax return or transcript. Two programs had no verification requirement beyond self-reported eligibility. Verification has not been a major ongoing challenge for most programs, including most of those that used similar verification approaches to the ILSFA Program.
- *Income Distribution:* Most programs did not have data on the distribution of participants' incomes. Many had relatively high income guidelines for LMI programs, so the lowest-income households may not be participating in solar. Just as there has been a shift from general solar deployment to LMI solar deployment, some programs were beginning to consider equity within their LMI populations.
- *Barriers to Participation:* The most common barriers to participation were housing stock issues and a lack of trust in the target communities. Other barriers were COVID, the eligibility verification process, the incentive amount, and language barriers. The less common barriers (verification, incentive amount, and language) were avoided or overcome through program design and implementation. Most programs have not successfully overcome housing stock barriers for residential solar, and this has generally been accepted as a constraint to work within. Where programs had goals to reach these LMI households, their focus was generally on providing access to community solar, rather than rooftop solar.
- *Outreach:* As in the ILSFA Program, contractors typically played a primary, or important, role in outreach and recruitment. Several program administrators did minimal outreach and relied on contractors to drive recruitment. Where programs did substantial outreach, they usually partnered with community organizations or local authorities. Outreach methods included mailers, digital resources, virtual and in-person events, canvassing, co-branding, and direct engagement with community leaders. Extensive outreach was not always necessary to reach participation goals but may be valuable for overcoming trust barriers.
- *Program Incentives:* Most programs either provided upfront incentives based on installed capacity or as production-based credits. Upfront payments ranged from \$0.80 per watt to \$3.04 per watt. Production-based incentives ranged from \$0.045 per kWh to \$0.073 per kWh. The ILSFA incentives were relatively high compared to other programs, but the participant benefit requirement may mean that contractors find projects financially difficult despite the high incentives.
- *Contribution of LMI Households:* Most programs involved some contribution from participants, either covering the cost of the installation, or making an ongoing lease payment to a third-party owner. Only one of the 13 programs covered the full installation costs with no ongoing payments, and two other programs covered full costs for most

participants. This suggests that the ILSFA Program may be able to increase participation with the current structure of no participant payment or ongoing participant payments that are lower than the energy benefits.

- *Housing Stock:* Housing stock issues were encountered by most programs. However, it was relatively uncommon for programs to have any mechanism for addressing these issues. Only one program provided additional funds to cover remediation issues. Modest remediation may be incorporated into overall project costs by contractors, but typically homes with significant issues were not served. While this limited the proportion of the LMI population that programs could reach, it had not prevented contractors in other states from identifying enough LMI households to meet participation goals.
- *Project Implementation:* Most programs experienced delays and disruption to construction and project implementation as a result of COVID. These included periods where onsite work was halted, and slower progress once construction was able to resume. Wildfires were also mentioned as having an impact on construction work in California and Oregon.
- *Innovations:* Innovative aspects of programs included job training, multi-lingual outreach, transparency and public data, incorporation into WAP, covering electrical panel upgrades, transformation of solar markets, use of on-bill financing, extending access to renters, use of self-reported income eligibility, and including community partners in program design decisions. The ILSFA Program has many of these innovative components. Some which it does not have, such as on-bill financing or incorporation into WAP, were unique to specific program designs. Others, such as self-reported income eligibility or funding remediation, may not be possible within the ILSFA Program framework.
- *Program Goals:* For most programs, the primary goal was the number of installed systems, and households served. Newer programs often aimed to expand their operations. Many programs also had secondary goals of improving access to subsets of the eligible population, such as minorities, lower-income households, or underserved regions. In the same way that there has been a shift from programs that aim to deploy solar generally to those aiming to provide access to LMI households, as these LMI solar programs become more established and successful, the secondary goals of equity within the LMI population may become increasingly important.

Green Bank Model Review

APPRISE conducted in-depth telephone interviews with 11 green bank representatives to assess how green banks have been used, how they have benefited LMI households, and how they could potentially help in ILSFA implementation. This section provides a summary of findings from these interviews.

- *Green Bank Launch:* Six of the green banks interviewed were created between 2007 and 2013. Another four were created after 2015, and one other was expanding into green bank financing. Green banks often had a startup period that lasted from one to three years before operations began. The Climate and Equitable Jobs Act of 2021 established the Clean

Energy Jobs and Justice Fund and the Illinois Finance Authority Climate Bank. However, based on the experience of the other green banks, it may be several years before the green banks could be effective.

- *Green Bank Funding:* Green banks generally required the backing of states to get started, and direct grants from states have been the most important source of funding for green banks. Other sources of funding included emissions trading, private foundations, and bond issuances. Over time green banks were also able to raise revenue through their financing activities, and sometimes through other activities such as consulting or administering other energy programs. The Climate and Equitable Jobs Act of 2021 provided capital through the Clean Energy Jobs and Justice Fund and the Illinois Finance Authority Climate Bank.
- *Capital Deployed:* Green banks typically deployed their capital in partnership with private lenders to leverage more capital for energy projects. Four of the green banks interviewed had used less than \$20 million of their own capital, while another four had used more than \$20 million of their own capital. However, when leveraged funds were included, seven out of eight green banks had supported over \$20 million in capital for projects, and five had facilitated over \$100 million of capital. The Climate and Equitable Jobs Act of 2021 directs the Illinois Clean Energy Jobs and Justice Fund to consider solar products to complement and grow the ILSFA Program. However, financing for LMI projects may not be able to achieve the high leverage that other non-targeted banks achieve.
- *Projects Financed:* Most green banks financed a range of energy projects, with solar power and energy efficiency improvements among the most common. Others included electric vehicle infrastructure, energy storage, and other types of clean energy. The Clean Energy Jobs and Justice Fund and the Illinois Finance Authority Climate Bank in Illinois could finance many projects beyond the ILSFA Program.
- *Solar Projects:* All green banks that were interviewed and fully operational had provided financing for at least some solar installations. One green bank had not financed any residential solar projects. The number of households that benefited ranged from around 500 to over 40,000. Several green banks specifically targeted LMI households, with three green banks providing residential solar exclusively to LMI households, and two with more than half of their solar installations benefiting LMI households. Green bank financing is a proven way to help states expand solar deployment, and the new Clean Energy Jobs and Justice Fund and the Illinois Finance Authority Climate Bank in Illinois could adopt or learn from these models.
- *Loan Recipients:* Green banks typically provided or supported financing for all types of borrowers, including households, businesses, residential property owners, contractors, and public entities. Green banks sometimes lent directly to LMI households, but in other cases structured programs so that financing was provided to third-party contractors who sold power or leased systems to LMI households. The ILSFA Program could be aided by the Illinois Clean Energy Jobs and Justice Fund to provide funding to solar vendors and

allow for inclusion and development of smaller solar contractors, further transforming the market for solar in Illinois. A program to provide bridge financing for vendors until REC payments are made could be especially beneficial.

- *LMI Borrowers:* Green banks faced a number of barriers in lending directly to LMI households. Where green banks had not designed programs and products with LMI households in mind, the loans were often unaffordable to them. Where green banks did have products and programs suitable for LMI households, they often faced barriers including trust and communication. Given the structure of the ILSFA Program, LMI households are already served and would not need a new lending vehicle. Instead, the Clean Energy Jobs and Justice Fund could benefit AVs, who may find it difficult to secure financing for ILSFA projects. The Fund could also help nonprofits and public facilities finance their own projects.
- *Financing Tools:* Green banks used a range of financing tools. In addition to direct lending and co-lending with partners, green banks provided Loan Loss Reserves and other credit enhancements, Property Assessed Clean Energy (PACE) financing, on-bill financing, and warehousing and securitization. Some green banks focused on one or two financing tools, while others used multiple approaches.
- *Incentives:* Green banks usually did not use their own capital to provide grants or incentives. However, several green banks administered other programs, or worked closely with them. In some cases, green bank financing may support the success of an incentive program, or an incentive program might be an important factor in making green bank projects financially viable. This type of relationship may be beneficial to the ILSFA Program.
- *Partnerships:* Green banks often worked closely with government bodies and non-profits, usually in outreach and education. Partners could also originate projects, or play a role in funding and financing projects with multiple components. The ILSFA Program could be a good partner for the new Clean Energy Jobs and Justice Fund in Illinois, as it could provide connections to AVs and grassroots organizations, and help to originate financing opportunities.
- *Innovations and Accomplishments:* Green banks were diverse in their approaches, and showed innovation in the markets they targeted, the tools they used, the overall structuring of their operations, and the way they came into being. Innovations included focus on a niche market or financing tool, providing pre-development project financing which could be helpful for ILSFA AVs, building replicable programs, and designing products specifically to benefit LMI households.
- *Challenges and Opportunities:* For many green banks, securing predictable funding and becoming self-sufficient has been an ongoing challenge. However, most green banks were optimistic about the current environment and saw more opportunities for funding and a potential boost to green bank activities from a proposed federal green bank. Therefore,

both newer and more established green banks were often looking towards expansion, and the challenges of developing and deploying new programs. The Clean Energy Jobs and Justice Fund is a positive development for the ILSFA Program, but not all barriers can be overcome through access to greater funding.

Program Administrator Assessment

This section assesses Elevate's role in administering the ILSFA Program.

- *Outreach:* Elevate has taken steps to increase outreach to critical groups by adding to their stakeholder list, having discussions with the Illinois Department of Commerce and Economic Opportunity (DCEO), reaching out to utility energy efficiency managers, and providing ILSFA information to past Elevate program participants. Elevate has taken a more active role in working with the IPA to address barriers to DG participation, including the development of a DG referral process and an in-house income verification process.

Elevate should increase their proactive outreach and more directly seek participation from key groups in the stakeholder process in addition to sending email blasts.

- *Call Center:* Elevate has a call center to field questions about the ILSFA Program and provide guidance and information. Elevate's call center metrics report does a very good job of providing information on the volume and type of calls handled.
- *Program Materials:* Elevate has developed and updated a large amount of materials over the past six months. These include available DG and CS projects, additional case studies (released in June and July 2021), and updated and Spanish language disclosure forms. Elevate should place increased emphasis on simplifying customer-facing materials.
- *ILSFA Website:* Elevate made some improvements to the ILSFA website and plans additional updates. Significant additional improvement to the website organization could make the program more accessible to the public, potential participants, and AVs. Recommendations include a clear overview of the program on the home page, additional menus and links to information that is only available in announcements, provision of information on web pages instead of only in PDFs, and additional menus to provide easier access to information.
- *Approved Vendor Portal:* Elevate has continued to update the portal with additional capabilities that are needed as projects move forward, as well as to improve the process for AVs. Many AVs still report that using the portal for project submission is challenging. Elevate should continue to advance and test the portal to make it easier for AVs to use, including simplifying the structure for project submissions.
- *Grassroots Education:* Elevate implemented the third Grassroots Education RFP and selected twelve organizations. Elevate increased their communication with the GEs during the past year and have had several checkpoints. At these meetings, GEs share ideas and Elevate receives more information about challenges the GEs face. Additionally, Elevate has set up calls between GEs and AVs to open communication lines between these

two groups. They are specifically setting up calls so AVs can present to GEs when they have CS offers available and to increase communication about participant and AV challenges.

- **Energy Efficiency:** Elevate has continued to reach out to utilities and DCEO to develop plans for coordinating programs and information. The CAAs may provide a better opportunity for coordination than the utilities. Elevate should focus their work on DCEO and the CAAs that deliver IHWAP.
- **Vendor Administration and Support:** Elevate has responsibilities for administering and supporting the vendor registration and project submission process. Elevate has provided extensive support to the AVs and they speak favorably about their experience with Elevate and the tremendous assistance that Elevate provided.
- **Environmental Justice Communities:** Elevate was responsible for working with the IPA to develop the EJ community determination process and the self-designation process. They developed a rigorous and well-documented process for determining the EJ communities, and the map and list of EJ communities is provided on the ILSFA website.

Elevate continues to work with the IPA and community groups to score incoming EJ self-designation applications. They have also developed a systematic process for this scoring and meet with the scoring group on a regular basis to score EJ self-designation applications as they come in.

- **Reporting:** Elevate is responsible for providing quarterly reports to the IPA and the ICC on the status of the program. Elevate has also developed comprehensive and useful reports on call center metrics, technical assistance, newsletters, and use of the ILSFA website.
- **Quality Assurance:** Elevate is responsible for developing a process for quality assurance, including photos of projects under construction and on-site inspection of a random sample of installations. To date, 24 projects have been inspected using mostly off-site video review due to the COVID pandemic. These inspections have found that the projects are consistent with their plans and with the ILSFA requirements.

Recommendations

This section presents recommendations based on the research presented in this report.

ILSFA Program Design

Recommendations relating to the ILSFA Program design are summarized below.

- **DG Project Barriers:** Continue to reduce barriers to DG projects. This may include examining where requirements can be reduced, removing redundancies in required documentation, reducing or removing the waiting period between disclosures and contract

execution, and reducing the batch requirement for the first set of projects. Some of these changes may require modifications to the Long-Term Plan.

- *Utility Screening:* Future legislation that specifies how utilities engage with the ILSFA Program and provides funding to support other aspects of project development could be considered.
- *Limit Program Changes:* Program design changes should focus on refinements that reduce barriers to DG project development and participation. Limiting program changes in this manner will allow Elevate to focus more of their attention on streamlining the project development and implementation processes and increasing DG project implementation.
- *ILSFA Website:* The ILSFA website provides a large amount of important program information, but Elevate can improve the website design to make it easier to find information and understand the program. Key recommendations include providing an overview of the ILSFA Program on the home page, adding pages with information that is currently only included in the announcements, including information on webpages instead of only in PDF downloads, and adding menus for improved navigation.
- *ILSFA Portal:* The portal was adapted as program changes were made and new stages of project implementation were reached. These additions were not made in a way that reviewed and adjusted the entire program process. As a result, there are opportunities for Elevate to continue to improve, streamline, reduce redundancies, remove glitches, and increase user-friendly design elements.
- *Green Bank:* Develop plans for how the Clean Energy Jobs and Justice Fund can aid AVs in project financing and support current and new MWBE AVs.

Program Implementation

Recommendations relating to the ILSFA Program implementation are summarized below.

- *Stakeholder Outreach:* Implement proactive outreach to stakeholders beyond the current email blasts to engage CAAs and other organizations that serve low-income households.
- *DG AV Outreach:* Conduct outreach to AVs to develop more offers to include on the offer list for potential participants.
- *DG Participant Outreach:* The Chicago Porch and Roof Replacement Program that Elevate implements is a good target for potential DG customers with solar-ready homes. Elevate should provide increased outreach to past and current participants and investigate whether participants in similar programs around the state can be targeted.
- *Community DG Outreach:* Elevate should promote the ILSFA Program through trusted messengers, including CAAs, churches, and other community organizations.

- *DG Screening*: All interviewed CAA Stakeholders said that they would be able to screen for ILSFA eligibility during energy efficiency service delivery. Some stated that they would require additional training, guidelines, or compensation. Some CAA respondents said that they would be able to provide lists of energy efficiency program participants who would be good candidates for solar to the ILSFA administrators. Elevate should develop and implement a process to work collaboratively with the CAAs.¹⁷
- *Job Training*: Qualify additional job training programs outside of the Chicago area. Both job trainees and AVs stated that the limited locations of the job training programs was a barrier.
- *Project Submission*: Review the entire process and streamline wherever possible. AVs recommended presenting program information in a more synthesized and simplified manner, creating a manual for the portal, and allowing AVs to upload a large number of photos.
- *Part II Process*: Reduce barriers within this process. AVs reported challenges uploading documentation and photos, difficulties taking required pictures during construction, issues collecting job training documents, and redundancies in required documentation.

¹⁷Elevate reported that they are working to set up trainings and engage with CAAs on a screening process.

I. Introduction

This report presents the findings from the final part of the Phase II Evaluation of the Illinois Solar for All (ILSFA) Program. The ILSFA Program was mandated by the state's Public Act 99-0906, colloquially known as the Future Energy Jobs Act (FEJA), which was enacted on December 7, 2016 and went into effect on June 1, 2017. The ILSFA Program provides more generous Renewable Energy Credit (REC) contracts than those offered through the Illinois Adjustable Block Program (ABP) to overcome barriers faced by the low-income community to participation in the solar market.¹⁸

The Illinois Power Agency (IPA) contracted with APPRISE, and its subcontractor Aeffect, Inc., to conduct an evaluation of the ILSFA Program. This evaluation report presents results from the final part of the Phase II Evaluation, which was conducted from January 2021 through June 2021. Four previous evaluation reports assessed the program from its inception through January 2021.

A. ILSFA Program Overview

FEJA required the development of the ILSFA Program to bring photovoltaics to low-income communities in Illinois. The objectives of the program are to maximize the development of new photovoltaic generating facilities, create a long-term, low-income solar marketplace throughout the State, integrate with existing energy efficiency initiatives, and minimize administrative costs.

FEJA mandated the creation of the ILSFA Program to include four sub-programs and indicated the funding percentages from the IPA Renewable Energy Resources Fund (RERF) for each of the four sub-programs.

1. *Low-Income Distributed Generation (DG)*: This sub-program provides funding for photovoltaic projects for individual homes and multi-family buildings. Benefits to participants are achieved through net metering or reduction of energy costs.
2. *Low-Income Community Solar (CS)*: These projects provide the opportunity for low-income participants to subscribe to a share of a CS system and receive credits on their utility bill for the energy produced by their share of the system. The projects must identify partnerships with community stakeholders where the project will be located.
3. *Non-Profits and Public Facilities (NP/PF)*: Non-Profits and Public Facilities may receive incentives for on-site photovoltaic generation. These projects must serve the energy loads of NP/PF customers, be installed at facilities within low-income or Environmental Justice (EJ) communities in Illinois that have sufficient connection to and input from the low-income or EJ community, and are a qualified critical service provider, defined as a non-profit or public sector entity that offers essential services to low-income or EJ communities.

¹⁸The Adjustable Block Program (ABP) supports the development of new photovoltaic distributed generation systems and new photovoltaic community generation projects in Illinois through the purchase of Renewable Energy Credits. The ABP is not targeted to low-income households and Environmental Justice communities like the ILSFA Program is.

4. *Low-Income Community Solar Pilot Projects (LICS Pilot)*: This sub-program is based on a competitive procurement approach for CS projects, based only on the price for 15 years of delivery of all RECs. Payments will be made over the first ten years of the contract for the first round procurement and for 15 years for the second procurement.

Some of the key characteristics of the ILSFA Program are as follows.

- An emphasis on EJ communities and a requirement that 25 percent of the incentives for the first three ILSFA sub-programs are allocated within those communities.
- Requirements for community partnerships.
- Requirements for job training opportunities and hiring job trainees.
- Extensive consumer protections to ensure that consumers receive the benefits of the ILSFA Program.

B. ILSFA Evaluation

FEJA requires an independent evaluation of the ILSFA Program with objective criteria developed through a public stakeholder process. FEJA calls for an evaluation at least every two years. The evaluation is required to review the program and the third-party program administrator.

The Phase I Evaluation provided initial feedback and recommendations to the IPA for use in updating the Long-Term Renewable Resources Procurement Plan (Long-Term Plan) in Fall 2019 (implemented, following approval by the Illinois Commerce Commission (ICC), beginning in early 2020). This research focused on the stakeholder outreach process, development of program materials and guidelines, initial Approved Vendor (AV) registration, initial project application, and the development of Grassroots Education. The final Phase I Evaluation report was published on the ILSFA website in October 2019.

The first part of the Phase II Evaluation included a more detailed assessment of the ILSFA Program's implementation and results, including metrics required by FEJA and additional priorities identified in the Long-Term Plan. The Phase II First Interim Evaluation report was published on the ILSFA website in April 2020.

The second and third parts of the Phase II Evaluation continued the review of program design changes and implementation. The reports addressed key metrics required by FEJA, including installations, capacity, costs, jobs created, and non-energy impacts; jobs and job opportunities; incentive dollars awarded, AV satisfaction, and Grassroots Education impacts; and an overall program administrator assessment. The Phase II Second Interim Evaluation report was published on the ILSFA website in August 2020 and the Phase II Third Interim Evaluation report was published in April 2021.

This evaluation report presents results from the final part of the Phase II Evaluation which was conducted from January 2021 through June 2021.

C. Report Overview

Ten sections follow this introduction.

- Section II – Illinois Solar for All Design and Implementation: Provides a review of the ILSFA Program design and the implementation experience.
- Section III – ILSFA Implementation Statistics: Provides statistics on AVs, submitted and selected projects, DG participants, Grassroots Education, job training, and quality assurance.
- Section IV – ILSFA Impacts: Calculates equivalent changes in energy use from the projected ILSFA production and provides estimates of environmental and economic impacts of the ILSFA.
- Section V – Approved Vendor Feedback: Provides findings and recommendations on the AV experience based on in-depth interviews with 25 AVs.
- Section VI – Job Trainee Feedback: Provides findings from in-depth telephone interviews with the 16 individuals who participated in ILSFA job training.
- Section VII – Stakeholder Feedback: Provides findings from in-depth interviews with 27 ILSFA Participant, Nonparticipant, and Community Action Agency Stakeholders.
- Section VIII – Distributed Generation Program Review: Provides findings from in-depth interviews and background research on 13 low- and moderate-income single-family and multi-family Distributed Generation programs around the country.
- Section IX – Green Bank Program Review: Provides findings from in-depth interviews and background research on 11 Green Banks around the country.
- Section X – Program Administrator Assessment: Provides an assessment of Elevate’s performance to date. Findings in this section are based upon review of publicly available material on the ILSFA website; additional program information and data provided by Elevate; and interviews conducted with Elevate staff, AVs, and stakeholders.
- Section XI – Findings and Recommendations: Provides findings and recommendations based on all of the research presented in this report.

APPRISE prepared this report under contract to the IPA. The IPA and Elevate facilitated this research by furnishing data and information to APPRISE. Any errors or omissions in this report are the responsibility of APPRISE. Further, the statements, findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of the IPA.

II. Illinois Solar for All Design and Implementation

This section provides background on the design and implementation of the ILSFA Program.

A. *Future Energy Jobs Act*

FEJA mandated the creation of the ILSFA Program to include four sub-programs and indicated the funding percentages from the IPA Renewable Energy Resources Fund for each of the four sub-programs.

- Low-Income Distributed Generation
- Low-Income Community Solar
- Non-Profits and Public Facilities
- Low-Income Community Solar Pilot Projects

Other specific requirements of FEJA were as follows.

Economic Benefits

- Tangible economic benefits must flow directly to program participants except in multi-family housing where the low-income customer does not pay directly for energy.
- LICS Pilot projects must provide economic benefits for members of the community where the project is located and include a partnership with at least one Community Based Organization (CBO).

Community Partnerships

- Priority should be given to projects that demonstrate meaningful involvement of low-income community members.
- CS developers must identify partnerships with community stakeholders.
- The IPA should ensure collaboration with community agencies and allocate up to five percent of the funds available under the ILSFA Program to community-based groups to assist in Grassroots Education.

Environmental Justice

- At least 25 percent of the incentives for DG, CS, and NP/PF projects must be allocated within EJ communities.

Income Eligibility

- Low-income households are persons and families whose income does not exceed 80 percent of the area median income, adjusted for family size and revised every five years.

Job Training

- Projects must include job training opportunities if available and should coordinate with job training programs.

Administration

- LICs Pilot projects must be competitively bid by the IPA.
- The IPA should select a third-party program administrator through a competitively bid process.

Incentives

- The IPA (or a utility) will purchase RECs from generation for the first 15 years of operation as an upfront payment per installed kilowatt of nameplate capacity, paid when the device is interconnected at the distribution system level of the utility and is energized.

Evaluation

- The IPA should select an independent evaluator to review and report on the ILSFA Program and the performance of the third-party administrator at least every two years. The evaluation should be based on objective criteria developed through a public stakeholder process. The report should include the following metrics.
 - Total installed capacity in kilowatts.
 - Average cost per kilowatt of installed capacity.
 - Number of jobs or job opportunities created.
 - Economic, social, and environmental benefits created.
 - Total administrative costs expended by the IPA and the program administrator to implement and evaluate the program.

The IPA was directed to develop a Long-Term Plan with a proposed approach to the design, implementation, and evaluation of the ILSFA Program. FEJA specified that the following would be included in this Long-Term Plan.

- Program terms, conditions, and requirements.
- Prices to be paid for RECs.
- The level of energy and economic benefits to be accrued by low-income customers.
- A definition of EJ community that is compatible with other agencies' definitions.

B. Long-Term Renewable Resources Procurement Plan

The IPA published a Draft Long-Term Plan on September 29, 2017 and stakeholders were provided with 45 days to provide written comments. The IPA answered questions, provided presentations on the Long-Term Plan, received public comments, and revised the Long-Term Plan. The Long-Term Plan was filed at the ICC for review and approval on December 4, 2017 and was approved by the Illinois Commerce Commission (ICC) on April 3, 2018.

The Long-Term Plan provided more detail on the requirements for the ILSFA Program.

- Economic Benefits: Economic benefits for participants will be accrued through net metering or avoided consumption from the energy the system produces. The IPA developed the following requirements to ensure that benefits flow to low-income participants.
 - Eligible low-income residential participants should not pay up-front costs for the DG installation or pay an up-front fee to subscribe to a CS project.

- Participation should result in immediate, reliable reductions in energy costs for residents or subscribers.
- Any ongoing annual payments (for financed or leased projects) must be less than 50 percent of the annual first year estimated production and/or utility default service net metering value to be received by the customer.
- While incentives must flow to the intended recipients, the incentives will not be customized to each participant's specific economic circumstances. The evaluation will review the impact on participants' energy burden and that information will be used to inform any future modifications to incentive levels. The IPA and the program administrator will educate AVs about utility programs, weatherization assistance programs, and other alternative sources of funding.
- Net Metering: Projects are required to participate in the utility's or ARES' net metering program. This may prevent projects in the service territory of a municipal utility or rural electric cooperative that does not offer net metering.
- Project Viability: Roof repairs or wiring upgrades may be needed to implement the solar installations. The ILSFA Program will not provide funding for those upgrades.
- Capacity Factor: The Long-Term Plan describes the options for the capacity factor used in the ABP to convert the kilowatt size of a project to the number of RECs the system would be expected to generate over 15 years.
 - Standard Capacity Factor: For each kW of capacity, approximately 21 RECs would be generated over 15 years for a fixed-mount system and 25 RECs would be generated over 15 years for a tracking system.
 - Alternative Capacity Factor: AVs have the option of proposing an alternative capacity factor based on an analysis using PV Watts or an equivalent tool.
- REC Payments
 - The price will be expressed on a dollar per REC basis.
 - Payments will be based on the 15-year expected REC production of the system.
 - A system must be registered in GATS or M-RETS to verify it will produce RECs.
- Contracts
 - Contracts will be with the IPA if the funding source is the Renewable Energy Resources Fund (RERF) and with the utility if the funding source is the utility.
 - Contracts will be applied to the annual Renewable Portfolio Standard (RPS) goals of the utility to which the project is interconnected, but will not count toward each utility's new photovoltaic targets.
 - RECs from projects in the service territories of municipal utilities, rural electric cooperatives, or Mt. Carmel Public Utility would not be applied to the utility RPS goals if they are procured through contracts with the IPA. Any RECs procured through contracts with a utility would be applied to the RPS goals of the contracting utility.
 - Projects that receive a contract through the ILSFA Program cannot receive one through the ABP.

In 2019, the IPA undertook the Long-Term Plan update which involved the following steps.

- Workshops were held in June 2019 to discuss the Long-Term Plan update.
- A Request for Comments on the Long-Term Plan workshops was posted in early July 2019.
- Responses to the Request for Comments on the Long-Term Plan workshops were posted in late July 2019.
- The Draft Revised Long-Term Plan was released on August 15, 2019.
- Public hearings on the Draft Revised Long-Term Plan were held in early September.
- Written comments on the Draft Revised Long-Term Plan were accepted until September 30, 2019.
- Comments on the Draft Revised Long-Term Plan were posted in early October 2019.
- The IPA filed the Revised Long-Term Plan with the ICC on October 21, 2019.
- The ICC approved the Revised Long-Term Plan with some changes on February 18, 2020.
- The IPA published the Revised Long-Term Plan on April 20, 2020.
- The IPA worked with the Program Administrator to implement the program changes contained in the Revised Long-Term Plan (as approved by the ICC).

The next update of the Long-Term Plan (the Second Revised Plan) that covers activities in 2022 and 2023 is expected to proceed as follows.

- The IPA held a series of workshop sessions in June and July 2021 that covered the following topics.
 - Structure of the RPS and RPS achievements, goals, targets, and budgets.
 - Updates to ILSFA requirements
 - REC pricing
 - Increasing the diversity of CS project types
 - Geographic diversity of projects
 - How IPA procurements can increase equity and diversity in the renewable energy industry
- The law required the IPA to release a draft Second Revised Long-Term Plan for public comment on August 16, 2021.
- Stakeholders had 45 days to comment on the draft Second Revised Long-Term Plan.

Because the Climate and Equitable Jobs Act¹⁹ was signed into law on September 15, 2021 and this Act required changes to that plan, the IPA withdrew the second Revised Long-Term Plan and will develop a new draft Revised Long-Term Plan reflecting modified statutory requirements. The new Revised Long-Term Plan will be released for public comment no later than January 13, 2022. The IPA anticipates holding workshops and providing other opportunities for stakeholder input during that draft Long-Term Plan development.

¹⁹Public Act 102-0662, see: <https://www.ilga.gov/legislation/publicacts/102/PDF/102-0662.pdf>

C. Resources

The ILSFA Program is funded through three sources.

- The Renewable Energy Resources Fund (RERF): This fund was created as a special fund in the State Treasury and is administered by the IPA for the procurement of renewable energy resources. The RERF was created with Alternative Compliance Payments remitted by ARES to comply with the State’s RPS established by the Public Utilities Act.
- Utility Funding: A portion of the funds collected by the utilities under their RPS tariffs. The utility funding is not required to be applied in the same percentages as the RERF funds, and will not provide funding for the LICS Pilot projects sub-program.

The IPA has projected a gap between RPS expenses and available funds for the 2021-2022 delivery year. The IPA hopes to resolve this issue through an act of the General Assembly to extend the deadline by which prior years’ collections can be used.

- Additional Utility Funding: Additional funds from the utilities’ renewable resources budgets were potentially available for program funding, however, the triggering “funding shortfall” conditions have not been met.

The funding allocations are to support the following.

- REC Payments
- Program Administration
- Grassroots Education
- Evaluation

Available funding is summarized in Table II-1A. Unallocated funds from previous program years were rolled into additional funding for following years, as shown in Table II-1B. Most of these funds were for the DG sub-program.

**Table II-1A
ILSFA Funding Summary**

Program Year	Funding Source	DG	CS	NP/PF	CS Pilot
2018-2019	RERF	\$4,500,000	\$7,500,000	\$3,000,000	\$20,000,000
	Utility	\$3,000,000	\$5,000,000	\$2,000,000	\$0
	Total	\$7,500,000	\$12,500,000	\$5,000,000	\$20,000,000
2019-2020	RERF	\$4,500,000	\$7,500,000	\$3,000,000	\$0
	Utility	\$3,518,697	\$5,864,494	\$2,345,798	\$0
	Total	\$8,018,697	\$13,364,494	\$5,345,798	\$0
2020-2021	RERF	\$4,950,000	\$8,250,000	\$3,300,000	\$0
	Utility	\$3,418,081	\$5,696,802	\$2,278,721	\$0
	Total	\$8,368,081	\$13,946,802	\$5,578,721	\$0

Program Year	Funding Source	DG	CS	NP/PF	CS Pilot
2021-2022*	RERF	\$4,950,000	\$8,250,000	\$3,300,000	\$0
	Utility	\$3,384,018	\$5,640,031	\$2,256,012	\$0
	Total	\$8,334,018	\$13,890,031	\$5,556,012	\$0

*Not included in the timeframe of this evaluation report.

Table II-1B
ILSFA Funding Rollover

Program Year	Funding Source	DG	CS	NP/PF
2019-2020	RERF Rollover	\$3,946,634	\$599	\$65,911
	Utility Rollover	\$2,786,566	\$0	\$1,658,276
	Total	\$6,733,200	\$599	\$1,724,187
2020-2021	RERF Rollover	\$3,421,410	\$35,144	\$0
	Utility Rollover	\$6,161,458	\$10,785	\$3,184
	Total	\$9,582,868	\$45,929	\$3,184
2021-2022 ²⁰	RERF Rollover	\$7,273,296	\$0	\$51,984
	Utility Rollover	\$8,114,081	\$26	\$260
	Total	\$15,387,377	\$26	\$52,244

D. ILSFA Sub-Programs

There are four sub-programs within the Illinois Solar for All Program.

1. *Low-Income Distributed Generation (DG)*: This sub-program provides funding for photovoltaic projects for individual homes and multi-family buildings. Benefits to participants are achieved through net metering or reduction of energy costs. Residents of master-metered buildings may not receive the direct benefits of the solar installation because they do not pay for their electric bill. In such a case, the building owner/manager must commit to passing along at least 50 percent of the energy savings from net metering to tenants through reduced rents or by other means.
2. *Low-Income Community Solar (CS)*: These projects provide the opportunity for low-income participants to subscribe to a share of a CS system and receive credits on their utility bill for the energy produced by their share of the system. The projects must identify partnerships with community stakeholders where the project will be located. The AV must identify those partnerships in the project application, and provide a description of how the partnership shows that it is responsive to the priorities and concerns of low-income members of the community. Incentives for these projects are for the portion of the project that is subscribed by low-income households.

²⁰This funding is outside the timeframe of this evaluation report.

3. *Non-Profits and Public Facilities (NP/PF)*: NP/PF may receive incentives for on-site photovoltaic generation. These projects must serve the energy loads of NP/PF customers, be installed at facilities within low-income or EJ communities in Illinois that have sufficient connection to and input from the low-income or EJ community, and are a qualified critical service provider, defined as a non-profit or public sector entity that offers essential services to low-income or EJ communities. Critical service providers include youth centers, hospitals, schools, homeless shelters, senior centers, community centers, places of worship, or affordable housing providers including public housing sites.

These entities may not be able to capture the tax benefits that an ABP participant would be able to capture. Therefore, the adjusted incentive level can help overcome the financing barriers that NP/PF may face compared to private entities.

4. *Low-Income Community Solar Pilot Projects (LICS Pilot)*: This sub-program is based on a competitive procurement approach, based only on the price for 15 years of delivery of all RECs.

LICS Pilot projects are community-based photovoltaic generation projects that provide benefits to low-income subscribers through net metering and monthly bill credits.

The following other criteria established in the Long-Term Plan are minimum criteria for eligibility to participate in the competitive procurement.

- Projects must result in economic benefits for the members of the community where the project will be located. This requirement can be met by including partnerships with community stakeholders. Projects must provide a commitment to local hiring, describe the impact on payments to community residents or organizations as part of the development process, or offer subscriptions to community residents and organizations.
- The project must also include a partnership with at least one community-based organization, an existing non-profit organization that provides programs and services within the community where the proposed project will be located.
- The funds may not be distributed solely to a utility.
- At least some funds must include community ownership by the project subscribers.

Unlike the other three sub-programs, the incentives for LICS Pilot projects are determined through a competitive bidding process. The procurement for LICS Pilot projects is bid on a dollar/REC basis. Contracts are for 15 years of delivery of all RECs from the project to the IPA once the project is energized.

The LICS Pilot procurement process is conducted by NERA Economic Consulting, the Procurement Administrator selected by the IPA. NERA is responsible for handling the intake of all LICS Pilot project proposals, evaluating each proposal, and recommending proposals for approval by the ICC. Additionally, Bates White, LLC, the Procurement Monitor appointed by the ICC, observes the entire procurement process and reports on the progress and fairness of the proceedings to the ICC.

The LICS Pilot contracts are with the IPA and use RERF funding.

Information on the results of the first LICS Pilot bidding process were released on December 19, 2019 at the time of Commission approval of the procurement event. There were two suppliers selected with an average price of \$72.02 per REC.

E. Distributed Generation Sub-Program Participation

Unlike the other sub-programs, the DG sub-program has not had sufficient participation to expend the allocated budget. There is a concern that changes are needed to increase DG project submissions, develop a market for limited-income DG in Illinois, and provide limited-income households with an opportunity to participate in DG throughout the state.

The ILSFA has taken the following actions in response to concerns about participation.

- Households are able to request verification of income eligibility directly through the Program Administrator instead of through an AV. This process was implemented in June 2021 for participants interested in the Low-Income Distributed Generation sub-program. Interested participants are now able to receive eligibility letters from Elevate that are valid for six months.
- Elevate has published a chart of standard AV offers for 1-4 unit residential buildings which will be updated on a regular basis. This chart is published on the ILSFA website and distributed by Grassroots Educators.
- The IPA and Elevate proposed a referral process to connect income-eligible households with AVs and increase participation in the DG sub-program. A draft proposal was published in early November 2020. Stakeholders provided feedback through a virtual workshop and written comments. The finalized DG referral process was implemented in late April 2021.

The program is using the following six-step referral process for 1-4 unit DG projects.

1. AVs will indicate interest to the Program Administrator by submitting a DG offer.
2. Participants will indicate interest to the Program Administrator via the ILSFA website, email, call center, or other communication channels.
3. Interested participants will be informed of the number of AVs and offers available in their area. If no AVs are available, the Program Administrator will check monthly and follow-up with the participant if an AV becomes available.
4. Interested households will be “pre-screened” for income eligibility by self-reporting their household size and income.
5. Participants will share basic information about their home to assess site suitability. They will then agree to share their information with AVs.
6. Weekly, the Program Administrator will compile referral requests and provide them to AVs.

Participants have their income verified in one of three ways.

1. Provide proof of enrollment in an income-eligible program.
2. Have their income verified through a credit reporting agency.
3. Use an income affidavit form when income documentation is required but not available. This method cannot be used if Options 1 or 2 are feasible.

By submitting a DG offer to participate in the referral program, AVs agree to adhere to the following consumer protections.

- AVs must contact an interested household within five business days of receiving a referral.
- AVs cannot share participants' information with a third party. If the household does not continue with the program, the AV will not continue to use the customer's information.
- Calls and emails are limited to four attempts and will be immediately suspended if a household asks not to be contacted again or declines services.

If an AV does not comply with the requirements, they may be removed from the referral program at the discretion of the Program Team.

Another method for increasing participation in the DG sub-program is to provide greater coordination with utility energy efficiency programs or with the Illinois Home Weatherization Assistance Program (IHWAP). Such coordination could be accomplished by having the energy efficiency program screen participants for solar-readiness and refer participants to the DG or CS sub-programs depending on their homes and interest, or provide a list of energy efficiency participants who are interested in ILSFA.

- Utility Energy Efficiency: Under FEJA, ComEd is required to spend at least \$25 million per year and Ameren is required to spend at least \$8.35 million per year for low- and moderate-income energy efficiency. These programs target the same income-eligible households as the ILSFA Program. However, utility managers and staff expressed concerns about coordination.
 - Funding: Utilities were concerned that funding was not available to pay for the solar assessment and/or referral. They were concerned that they could not obtain cost recovery for this work. They stated that the legislation was written to require that ILSFA coordinate with energy efficiency services and not the other way around.
 - Education: Utilities were concerned that they would need to train their contractors to educate customers about solar and that this customer education would result in significant calls to the utility.

Based on utility concerns, it does not appear that they will meaningfully engage with ILSFA unless there is a mandate and associated funding to do so.

- IHWAP: This program serves households up to 200 percent of the federal poverty level. Agency directors appeared more receptive to coordinating services or making referrals for the ILSFA Program. However, little progress has been made in this area to date.

- Elevate-Administered Programs: Elevate serves as the Program Administrator for the Income-Eligible Multifamily Savings Program and the Chicago Porch and Roof Replacement Program. They are now providing ILSFA information to past participants and will do so with future program participants. The Chicago Porch and Roof Replacement Program will provide good opportunities for households who have recently received roof replacements, but will not provide the geographic diversity that is needed in the program.

F. Other ILSFA Guidelines

This section provides a brief description of additional ILSFA guidelines and requirements. More details for the DG, CS, and NP/PF sub-programs are provided in the Phase I Evaluation Report.

Income Eligibility

The ILSFA uses income eligibility guidelines from the U.S. Department of Housing and Urban Development (HUD) which bases its housing assistance programs on 80 percent of area median income (AMI) adjusted for family size. Because the income guidelines for LIHEAP and IHWAP are lower than these guidelines, all LIHEAP-eligible and IHWAP-eligible (state funded) households are eligible for the ILSFA Program.

Qualified Census Tracts (QCTs) have 50 percent of households with incomes below 60 percent of the area median gross income or have a poverty rate of 25 percent or more. QCTs are used as a streamlined method for determining eligibility for CS subscribers.

Consumer Protections

The ILSFA Program has developed extensive procedures to ensure that consumers are protected. The IPA felt that it was important to ensure these protections given the experience with ARES taking advantage of low-income customers in Illinois.

The key financial protections with respect to the DG and CS sub-programs include no upfront customer payments, ongoing costs and fees paid by the participant must not exceed 50 percent of the value of energy generated by the system or by the participant's share of the system, loans must not be secured by the program participant's home or home equity, financing terms must be based on an assessment of the participant's ability to repay the debt, and contracts for loans must offer terms that include forbearance.

AVs must also ensure that marketing materials are accurate and do not contain misleading statements.

Environmental Justice Communities

EJ communities are defined as having a higher risk of exposure to pollution based on environmental and socioeconomic factors. FEJA requires that 25 percent of the funds in the following sub-programs be allocated to projects located in EJ communities.

- Low-Income Distributed Generation
- Non-Profit and Public Facilities
- Low-Income Community Solar Projects

The IPA worked with Elevate to develop a systematic evaluation and scoring system using the EJ Screen tool developed by the US EPA and the CalEnviroScreen tool developed by the California Office of Environmental Health Hazard Assessment as guidance.²¹ Communities with scores in the top 25 percent were defined as EJ communities. Communities that were not in the top 25 percent of scores and thus not initially defined as being an EJ community may request consideration to be self-designated.

EJ community self-designation is an ongoing process with periodic review and approval by the EJ review committee. Elevate worked with the IPA to determine the make-up of the EJ review committee. The committee was designed to have representatives from the administrative team, individuals from the community with environmental justice backgrounds, and a balance of downstate and Chicago area representation. The committee includes two IPA staff members, two Elevate staff members, a representative from the Illinois EPA, and two representatives from community organizations. Since the initial applications in May 2019, there have been 29 submissions (five were re-submissions). Eight of these communities received EJ self-designation status and two are under review.

Approved Vendor Requirements and Registration

There are five different types of AVs that can develop projects for the ILSFA Program – Approved Vendors, Aggregator Approved Vendors, Designees, Single Project Approved Vendors, and Subcontractors. The Original Long-Term Plan required all AV types, except for the AV Designees, to register and maintain their status as an AV in the ABP to participate in the ILSFA Program. The Revised Plan requires AV Designees to be officially registered with the ABP and ILSFA Programs.

AVs who participate in the ABP must meet additional requirements to participate in the ILSFA Program, and must register to participate in the program. Requirements include community involvement, job training, hiring job trainees, income verification, marketing, and consumer protections.

Incentives

ILSFA incentives are REC prices that are adjusted from the ABP and are based on system size, building size, and geography. LICS Pilot incentives are based on the competitive bid price.

²¹This was based on methodology described in the Long-Term Plan.

Site Suitability Guidelines

The ILSFA Program has site suitability guidelines that identify the site conditions that are considered to be barriers to the installation of rooftop DG and ground-mounted photovoltaic systems.²² These conditions relate to roofing, structural issues, electrical conditions, space and accessibility, health and safety, and ground-mounted systems.

Interconnection Requirements

Illinois utilities have specific requirements for interconnection agreements. The ILSFA requires projects submitted for approval to the ILSFA Program with a nameplate capacity above 25 AC kW to have a valid, signed interconnection agreement at submission. A limited exception will be made under certain conditions regarding previous agreements and new applications outlined in the guidelines.

Project Selection

ILSFA projects are selected from those submitted by AVs during the project submission window at the beginning of the program year if there are more submissions than funding available for the sub-program.

1. The initial assessment reviews that the projects meet the requirements for community engagement, participant benefit and protections, job trainees, site eligibility, and interconnection.
2. Projects (which must be submitted to a specific sub-program) are sorted by priority grouping (EJ community, low-income community, and project diversity) for scoring.
3. Projects are scored based upon the unique protocols of each sub-program. Factors include location in EJ and LI communities, MWBE AVs, participant savings, subscriber ownership for CS, NP or PF ownership for CS, and diversity by utility groups, number of units, system size, and non-profits and public facilities.

Quality Assurance

The ILSFA quality assurance process includes photo documentation of all projects while under construction and on-site inspection of a random sample of installations. The AV is responsible for remedying any deficiencies that are found, and AVs that have a disproportionately high number of deficient systems may lose eligibility to continue to participate in the ILSFA Program.

G. Net Metering

Under Illinois law, net metering is available to any retail customer that “owns or operates a solar, wind, or other eligible renewable energy generating facility with a rated capacity of not more than 2,000 kilowatts that is located on the customer’s premises and is intended primarily to offset the customer’s own electrical requirements.”²³ Illinois net metering law requires investor owned utilities (ComEd, Ameren, and MidAmerican) to offer one-to-one net metering for renewable energy generation for small customers, where customers are credited at the same rate they are charged for electricity (larger customers receive supply-only net metering). In a given month, if a resident’s installation produces more electricity than they

²²ILSFA Site Suitability Guidelines dated 5/7/2019. Available on the ILSFA Program website.

²³Illinois Solar for All. “[FAQ: Is the value of net metering changing in Illinois?](#)” October 2020.

use, the excess net metering credits will roll over to the next month and can help offset future electricity usage. Any remaining credit will expire once per year.²⁴

According to the Future Energy Jobs Act of 2016, when the installed net metering capacity reaches five percent of the total peak demand supplied by a utility in the previous year, new net metering customers will not receive the full retail credit for their excess electricity production, only for the supply portion. Instead, the full retail rate will be replaced with a “distributed generation rebate.”²⁵

Ameren Illinois notified the ICC on April 2, 2020 that their installed net metering capacity could reach five percent of their total peak demand before the end of the year, and in October 2020, Ameren Illinois notified the ICC that they had reached five percent.

The ICC completed its investigation into Ameren Illinois’ Rider on December 2, 2020 and found that Ameren’s Rider requires revisions to the calculation of the five percent threshold, and that the volume of installed net metering capacity in the Ameren service territory had not yet reached that threshold. Ameren was required to file updated tariff language reflecting changes to how Ameren calculates the threshold and to compensate any customers who became net metering customers during the time when net metering credits were reduced. Ameren Illinois now estimates that it will reach the five percent net metering penetration under the ICC’s interpretation of the Public Utilities Act in late 2022 or early 2023.²⁶

ComEd reported that the net metering penetration in its service territory as of March 1, 2021 was 1.48 percent. The Commission’s investigation of ComEd’s tariffs is ongoing.²⁷

H. Grassroots Education

The third Grassroots Education RFP was released on March 15, 2021 and was due on April 27, 2021. A total of \$500,000 was available for this round of Grassroots Education. The third round of Grassroots Educators was announced in July 2021.

The RFP had some new specific directives for applicants, including the following.

- Applicants must take COVID-19 adaptations into account in their proposals.
- Applicants must indicate whether events are planned as virtual or in-person events (if COVID restrictions are lifted) in their proposals.
- Applicants must describe how they will focus their campaign on existing opportunities or work to open up new opportunities for participation.
- Applicants must describe if they will provide a broad foundation on solar education and/or provide in-depth assistance and follow-up to individuals as they participate in the program.
- Selected GEs will be required to collect information from interested participants and provide information on participation for the evaluation.

²⁴Citizens Utility Board. “[Illinois Net Metering](#).” November 2020.

²⁵Illinois Solar for All. “[FAQ: Is the value of net metering changing in Illinois?](#)” October 2020.

²⁶See ICC Docket Nos. and 20-0389 and 20-0738.

²⁷<https://www.icc.illinois.gov/docket/P2021-0196/documents>

Elevate has shared two offer handouts, one on the CS sub-program and one on the DG sub-program to provide potential participants with a good understanding of the program. These handouts provide steps for signing up to the CS project that is enrolling subscribers or with existing offers from AVs for DG. However, it is difficult to educate potential participants because savings are not standardized. Because the process is complicated, GEs meet repeatedly with customers to educate them and ensure they understand that they will save money.

Elevate and the GEs are also conducting income-eligibility pre-screening by phone, asking about their roof quality and lifetime, and using Google's Project Sunroof. Elevate calls individuals who requested information through the website. They will refer individuals with unsuitable roofs to the CS sub-program and/or share the resource guide that provides information on organizations that could help individuals repair their roof. However, there is insufficient funding available for the need.

Elevate reported that GEs have been instrumental in moving NP/PF projects forward. GEs are using non-profits that received solar through the ILSFA as an example to show constituents how the ILSFA works and that they can trust the program.

Elevate reported that COVID has posed challenges for the GEs because the organizations are prioritizing other needs and the potential participants are dealing with other issues. Partner organizations that the GEs might work with are focusing on other programs or not holding meetings. Additionally, many residents in disadvantaged communities do not have the technical skills or equipment to participate in virtual meetings.

Elevate would like to have more GE participation in the stakeholder feedback process. They suggested this could be done by meeting residents and organizations where they are, including workshops, surveys, and other methods to solicit feedback from EJ and low-income communities. They suggested that convenient locations and times, compensation, and childcare could improve participation by making meetings more accessible.

I. Job Training

The ILSFA Program requires that AVs meet the following job training requirements.

- **Portfolio Requirement:** Annual installations across an AV's portfolio of projects must include a minimum percentage of hours from qualified job trainees. The minimum percentage requirement increases with years of program participation.
 - 10% in Year 1
 - 20% in Year 2
 - 33% in Year 3 and beyond

- **Low-Income Distributed Generation Requirement:** Thirty-three percent of all DG projects annually must include at least one qualified job trainee.

AVs have begun to report on the use of job trainees as they reach the implementation stage of their projects. Elevate now provides data on the job training affidavits received and verified, and the number and percent of project hours worked by qualified trainees by job task category.

Elevate also moved the job training component forward in the following ways.

- **Job Training Programs:** They developed a list of 30 job training programs that are potentially eligible to become “Other Qualifying Programs” that can be used by AVs to satisfy the job training requirements if the AV is not able to find trainees from the FEJA Workforce Development programs.
- **Other Qualifying Program Application:** They created a form which job training programs that are not FEJA Workforce Development Programs can use to apply to become a Qualifying Job Training Program for ILSFA.
- **Job Training Affidavits:** They updated the affidavits to clarify requirements based on the submission date. The Project Summary Affidavit was also provided for AVs to use when employing job trainees on ILSFA projects.
- **Job Training Portal Video:** They created a video explaining how to use the ComEd Job Training Portal.

J. Interconnection

Projects larger than 25 kW are required to have an interconnection agreement signed by the utility and the customer at the time of Part I Project Submission, the point at which it is determined whether projects are eligible for selection. The interconnection agreement is one of the challenges repeatedly discussed by AVs.

The first step in the process is the utility investigation. AVs must make payments to the utilities to conduct an investigation of the costs for interconnection. The utility review includes field visit(s), detailed design, and cost estimation. The AV then must pay the costs for the interconnection upgrades within 30 days, prior to the time when the AV knows whether or not the project has been selected. If the AV’s project is not selected, the utility will refund the construction costs if the utility has not yet expended those funds for construction. However, the utility sometimes needs to order equipment. The utility checks with the AV prior to ordering the equipment, but if the ordering is delayed, the interconnection may not be completed by the date the AV needs it to be completed.

Based on their investigation, the utilities provide their best estimate of the interconnection cost, but as with any construction project, there are uncertainties. If the costs are appearing to reach 25 percent above the estimate (which is very rare according to the utility), the utilities are required to notify the AV so that the AV can decide whether to proceed or withdraw. (If the projects are \$100,000 or less, Ameren will provide a fixed price option.)

One previous challenge for ILSFA projects with respect to interconnection was that the ABP started first and the ILSFA requests for interconnection were behind the ABP. At the current time the ABP is closed and this allows for faster processing of ILSFA interconnection agreement requests.

K. Implementation

Key dates in the implementation of the ILSFA Program are provided in Table II-2.

- Items related to legislation and plans are shaded in blue.
- Items related to program contractors and partners are shaded in green.
- Items related to project submission and selection are shaded in pink.
- Items related to EJ communities are shaded in purple.

Table II-2
Key ILSFA Program Implementation Dates

Date	Milestone
12/7/2016	Future Energy Jobs Act Legislation Enacted
6/1/2017	Future Energy Jobs Act Effective Date
9/29/2017	Draft Long-Term Renewable Resources Procurement Plan Published
12/4/2017	Long-Term Renewable Resources Procurement Plan Filed with Illinois Commerce Commission
4/3/2018	Long-Term Renewable Resources Procurement Plan Approved by Illinois Commerce Commission
9/14/2018	ILSFA Program Administrator, Elevate, Selected
11/1/2018	ILSFA Website Launch
1/17/2019	Environmental Justice Communities List Published
2/19/2019	Approved Vendor Registration Launched
5/6/2019	Environmental Justice Community Self-Designation Application Opened
5/15/2019	Approved Vendor Portal Opened for Project Submissions, Standard REC Contract Published
6/13/2019	Low-Income Community Solar Submission Window Closed
6/27/2019	Grassroots Educators Announced
6/28/2019	Low-Income Distributed Generation and Non-Profit / Public Facilities Submission Window Closed
8/7/2019	ILSFA Program Evaluator, APPRISE, Selected
8/15/2019	Draft Revised Long-Term Renewable Resources Procurement Plan Released for Public Comment
8/22/2019	Non-Profit / Public Facilities Projects Selected for 2018/2019
8/29/2019	Low-Income Community Solar Projects Selected for 2018/2019
9/4/2019	2019/2020 Project Submission Window Opened
9/17/2019	2019/2020 Project Submission Window Closed
10/2/2019	Illinois Commerce Commission Approved 2018/2019 Project Selections
10/21/2019	Revised Long-Term Renewable Resources Procurement Plan Filed for Illinois Commerce Commission Approval
11/7/2019	2019/2020 Final Project Selections Announcement
1/30/2020	Second Grassroots Education RFP Released
4/6/2020	Second Grassroots Education Proposals Due
6/5/2020	EJ Community Self-Designation Submission Deadline for 2020-2021 DG and NP/PF Sub-Program Submissions
6/12/2020	New AV Application Deadline for Submissions
7/6/2020	Project Submission Window Opened for 2020-2021 DG and NP/PF Sub-Programs

Date	Milestone
7/17/2020	Project Submission Window Closed for 2020-2021 DG and NP/PF Sub-Programs
7/20/2020	Rolling Submission Opened if Sub-Program Funding is Available
7/24/2020	EJ Community Self-Designation Submission Deadline for 2020-2021 CS Sub-Program Submissions
8/24/2020	Project Submission Window Opened for 2020-2021 CS Sub-Program
9/4/2020	Project Submission Window Closed for 2020-2021 CS Sub-Program
9/9/2020	Selected DG and NP/PF Sub-Programs Projects Announced
10/27/2020	Selected CS Sub-Program Projects Announced
3/15/2021	Third Grassroots Education RFP Released
4/27/2021	Third Grassroots Education Proposals Due
5/7/2021	EJ Community Self-Designation Submission Deadline for 2021-2022 DG and NP/PF Sub-Program Submissions
5/14/21	New AV Application Submission Deadline for 2021-2022 DG and NP/PF Sub-Program Submissions
6/7/21	Project Submission Window Opens for 2021-2022 DG and NP/PF Sub-Program Submissions
6/21/21	Project Submission Window Closes for 2021-2022 DG and NP/PF Sub-Program Submissions
6/21/21	Rolling Submission Opens if Sub-Program Funding is Available for 2021-2022 DG and NP/PF Sub-Programs
7/23/21	EJ Community Self-Designation Submission Deadline for 2021-2022 CS Sub-Program Submissions
7/23/21	New AV Application Submission Deadline for 2021-2022 CS Sub-Program Submissions
8/11/21	Selected DG and NP/PF Sub-Programs Projects Announced
8/23/21	Project Submission Window Opens for 2021-2022 CS Sub-Program Submissions
9/3/21	Project Submission Window Closes for 2021-2022 CS Sub-Program Submissions
	PROPOSED SCHEDULE FOR 2021-2022 PROGRAM YEAR MAY REQUIRE CHANGES DUE TO COVID-19 PANDEMIC
9/9/21	Rolling Submission Opens if Sub-Program Funding is Available for 2021-2022 CS Sub-Program Submissions
10/27/21	Selected CS Sub-Program Projects Announced

LICS Pilot Implementation

The LICS Pilots were implemented in Fall 2019 according to the following schedule.

- 10/23/19: Final RFP Documents Posted
- 10/24/19 – 11/6/19: Part One Submission Window
- 11/20/19 – 12/4/19: Part Two Submission Window
- 12/13/19: Bid Date
- 12/19/19: ICC Decision on Procurement Event Results
- 12/24/19: REC Contracts Fully Executed

The IPA had planned to hold another procurement for the remaining balance of funds in the LICS Pilot sub-program during either the 2020-2021 or 2021-2022 program years. However, the Climate and Equitable Jobs Act of 2021 removed from the Illinois Power Agency Act the provisions that provided funding for that procurement. The remaining funds will be

reallocated to the remaining ILSFA sub-program budgets in the next update of the Long-Term Renewable Resources Procurement Plan.

Project Contracting and Implementation Steps

Elevate has developed a document that provides a clear list of steps for project contracting and implementation. The steps are as follows.

1. Project sent to the ICC for approval.
2. The ICC approves project. This is the “Trade Date”.
3. The IPA or utility counterparties execute the contract. (Prior to contract execution, vendors contracting with the State of Illinois must provide additional contracting documents.)
4. The AV executes the contract (within seven days of receipt).
5. Five percent collateral is due from the AV in the form of cash or a letter of credit (within 30 days of “Trade Date”).
6. System status reports are due from the AV every six months (after “Trade Date”) until energization.
7. Energization is completed (within 12 months for DG and within 18 months for CS).
8. AVs complete Part II Submission of final project data. Installed project is reviewed and approved.
9. AV submits invoicing for full payment.
10. First REC delivery (90 days for ≥ 5 kW; 180 days for < 5 kW).
11. AV submits the Annual Report (followed by collateral draws, if necessary, for underperformance).

COVID Procedures

The IPA adopted an emergency amendment on March 20, 2020 in response to the COVID-19 pandemic. As of April 21, 2021, the emergency amendment remained in place. The amendment stated the following.

In-person marketing and solicitation: Given the public health emergency posed by the COVID-19 virus, in-person marketing or solicitation of photovoltaic system sales, installations, or financing; in-person marketing or solicitation of community solar subscriptions; or similar in-person solar marketing or solicitation activity are prohibited.

The restrictions were loosened slightly in June 2020. While door-to-door sales and solicitation were still prohibited, passive forms of in-person marketing and solicitation were no longer prohibited. This included outreach such as tabling at retail stores or events and door-to-door distribution of marketing materials. In-person meetings with prospective or existing customers were no longer prohibited if agreed to by the customer.

On June 4, 2021, the IPA announced a further update to the guidelines beginning June 11, 2021. This change allowed the resumption of door-to-door marketing with additional guidelines related to masks and social distancing.

The ILSFA Program has faced challenges in implementation due to COVID-19 and the IPA's moratorium on on-site marketing. This has included the need to provide extensions to AVs, marketing restrictions, and a slowdown in customer acquisition, especially with some CS projects. Marketing has been done remotely through phone calls, social media, online events, word-of-mouth, and working with partner programs and community programs. The AVs have engaged more with the GEs and the GEs have needed to shift outreach from in-person to virtual.

Due to COVID-19, inspections have been done remotely. The inspectors conduct a test call the day before to ensure the technology works and all the components are visible. Then they conduct the actual test. If there is something that cannot be done live, the inspectors will follow up with the AV and ask for pictures. Elevate reports that the remote inspections have provided the information needed to fully assess the projects. If there are any problems, they will follow up with the AVs and have them fix the issue. They have been able to get the information they need from the remote inspections.

III. ILSFA Implementation Statistics

This section provides detailed statistics and analysis on Approved Vendors, submitted and approved projects, program participants, Grassroots Education, job training, and quality assurance.

A. *Approved Vendors*

Analyses provided below are based on vendor registration data in the ILSFA Program database as of April 2021.

Table III-1 displays the status of the AVs. Fifty-eight vendors had been approved (up from 51 approved as of November 2020), three were withdrawn, and two were rejected.

Table III-1
Approved Vendor Registration Status

Status	Vendors	
	#	%
Approved	58	92%
Withdrawn	3	5%
Rejected	2	3%
Total	63	100%

Table III-2 displays the number of AVs that were qualified as Minority or Women-Owned Businesses (MWBEs). Approved Vendors are considered to be MWBEs if they are registered with public or non-public third-party certifying bodies approved by ComEd and Ameren Illinois, including but not limited to, the National Minority Supplier Development Council and its regional affiliates, and the Women's Business Enterprise National Council and its regional affiliates.

While in November 2020, six of the 51 Approved Vendors were qualified as MWBEs, in April 2021, eight of the 58 AVs were qualified as MWBEs.²⁸

Table III-2
Approved Vendors Minority or Women-Owned Status

Minority or Women Owned	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
MWBE	8	14%	0	0%	1	50%	9	14%
Not MWBE	45	78%	1	33%	0	0%	46	73%

²⁸One AV was sold and became an MBWE, increasing the number of approved MWBE AVs to nine.

Minority or Women Owned	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
Unknown/Pending	5	9%	2	67%	1	50%	8	13%
Total	58	100%	3	100%	2	100%	63	100%

Table III-3 displays the types of projects that the AVs stated they would provide in their registrations. Of the 58 Approved Vendors, 49 stated that they would do NP/PF projects, 36 said they would do CS projects, 31 said they would do 1-to-4 unit DG projects, and 33 said they would do multi-family DG projects. AVs respond to questions on the registration based on the types of projects they select. While they are permitted to work on all types of projects that they select, they are not required to do so.

Table III-3
Approved Vendor Project Types

Project Types	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
Total	58	100%	3	100%	2	100%	63	100%
Non-Profit/Public Facilities	49	84%	3	100%	2	100%	54	86%
Community Solar	36	62%	1	33%	1	50%	38	60%
Distributed Generation: 1-4 Unit	31	53%	3	100%	2	100%	36	57%
Distributed Generation: 5+ Unit	33	57%	3	100%	2	100%	38	60%

Note: Vendors can pursue multiple project types.

Table III-4 displays the utility territories where the AVs stated they would work in their registration applications. While 51 planned to perform work in ComEd's territory, 48 planned to perform work in Ameren's territory, 28 in the territories of municipal utilities, 24 in the territories of rural electric cooperatives, 22 in the Mid-American territory, and 16 in the Mt. Carmel territory. As with the sub-programs, these are vendor-reported and require further review and confirmation with AVs.

Table III-4
Approved Vendors by Utility Territories

Utility Territories	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
Total	58	100%	3	100%	2	100%	63	100%
ComEd	51	88%	3	100%	2	100%	56	89%

Utility Territories	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
Ameren	48	83%	2	67%	1	50%	51	81%
Municipal Utilities	25	43%	3	100%	0	0%	28	44%
Rural Electric Cooperatives	24	41%	2	67%	0	0%	26	41%
Mid-American	22	38%	2	67%	0	0%	24	38%
Mt. Carmel	16	28%	2	67%	0	0%	18	29%

Note: Vendors can work in multiple utility territories.

Table III-5 displays the types of vendors. While 41 of the AVs are in the general AV category, eight are Designees, five are Single Project Approved Vendors, and four are Aggregators.

Table III-5
Vendor Type

Vendor Type	Vendors							
	Approved		Withdrawn		Rejected		Total	
	#	%	#	%	#	%	#	%
Approved Vendor	41	71%	2	67%	2	100%	45	71%
Designee	8	14%	1	33%	0	0%	9	14%
Single Project Approved Vendor	5	9%	0	0%	0	0%	5	8%
Aggregator	4	7%	0	0%	0	0%	4	6%
Total	58	100%	3	100%	2	100%	63	100%

Note: Two approved Aggregators initially applied to the Program as Approved Vendors.

B. Projects

This section provides information on the project applications and projects that were selected in program years 2018-2019, 2019-2020, and 2020-2021. Information was updated as of April, 2021.

Table III-6 displays the number of projects selected, eligible, ineligible, withdrawn, and under review by sub-program and program year. Projects that were re-submitted are included in the table more than once. There were 18 projects that were re-submitted one time and five projects that were re-submitted two times. The table provides the following information.

- Non-Profit / Public Facility Projects: 102 projects were submitted, 51 were eligible, and 48 were selected. While six projects were selected in the first program year, 23 were selected in the second program year, and 19 were selected in the third program year.
- Low-Income Community Solar Projects: 92 projects were submitted, 69 were eligible, and 11 were selected across the three program years (excluding the two LICS Pilot projects).

The volume of submitted projects significantly exceeded the amount of funding available for the sub-program.²⁹

- Low-Income Distributed Generation Projects: 80 projects were submitted, 57 were eligible, and 57 were selected. The DG sub-program was not fully subscribed and additional projects from the third program year are under review and in the pre-application stage.

Table III-6
All Submitted Projects, 2018-2021
Eligibility Status

Status	PY1: 2018-2019				PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	DG	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Selected	6	4	0	10	23	4	9	36	19	3	48	70	48	11	57	116
Eligible	6	28	0	34	24	29	9	62	21	12	48	81	51	69	57	177
Ineligible	10	8	0	18	4	1	1	6	11	0	7	18	25	9	8	42
Withdrawn	12	9	1	22	11	0	1	12	3	5	0	8	26	14	2	42
Under Review	0	0	0	0	0	0	0	0	0	0	13	13	0	0	13	13
Total	28	45	1	74	39	30	11	80	35	17	68	120	102	92	80	274

Note: 23 projects that were not selected in program year one or two were re-submitted in program year three.

Table III-7 provides information on the stage that selected projects have reached. As of April 2021, 11 NP/PF, one CS, and 13 DG projects had received Part II approval.

Table III-7
All Selected Projects, 2018-2021
Project Stage

Project Stage	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
ICC Approved/ Construction	1	3	4	9	4	1	14	17	3	16	36	27	10	17	54
Part II Submitted and Under Review	0	0	0	1	0	0	1	0	0	14	14	1	0	14	15
Further Part II Information Requested	2	0	2	4	0	0	4	1	0	0	1	7	0	0	7
Inspection	0	0	0	2	0	0	2	0	0	13	13	2	0	13	15
Part II Approved	3	1	4	7	0	8	15	1	0	5	6	11	1	13	25
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

²⁹This is similar to what was seen in ABP and in the recent NJ community solar application process.

Over the three program years, 42 projects were withdrawn, most commonly for issues obtaining documentation or lack of a signed interconnection agreement. These details are displayed in Appendix Table A-1.

Tables III-8A, III-8B, and III-8C display whether mitigation was required for each sub-program. Mitigation is required when a proposed project does not meet the ILSFA's site suitability guidelines that were developed to ensure that there are no barriers to the safe installation of photovoltaic systems.³⁰ While 14 of 48 selected NP/PF projects required mitigation, three of 11 selected CS projects required mitigation, and 24 of 57 selected DG projects required mitigation.

Table III-8A
Non-Profit and Public Facility Projects
Mitigation Required

Mitigation	Non-Profit / Public Facility Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
Required	1	4	5	9	7	16	4	3	7	14	14	28
Not Required	5	18	23	14	9	23	15	13	28	34	40	74
Total	6	22	28	23	16	39	19	16	35	48	54	102

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

Table III-8B
Low-Income Community Solar Projects
Mitigation Required

Mitigation	Low-Income Community Solar Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1-PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
Required	1	9	10	1	4	5	1	3	4	3	16	19
Not Required	3	31	34	3	21	24	2	11	13	8	63	71
Missing	0	1	1	0	1	1	0	0	0	0	2	2
Total	4	41	45	4	26	30	3	14	17	11	81	92

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, or rejected as of April 2021.

³⁰Examples of mitigation that may be required include repair or replacement of an existing roof so that it has a warranty of at least 15 years, or provisions made for the removal and reinstallation of the PV system to allow for reroofing on a future date; a plan to minimize the impact on wetlands or protected natural resources if present; a plan for dealing with flood risks; and resolution of electrical system deficiencies.

Table III-8C
Low-Income Distributed Generation Projects
Mitigation Required

Mitigation	Low-Income Distributed Generation Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1-PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
Required	0	0	0	1	0	1	23	5	28	24	5	29
Not Required	0	1	1	8	2	10	25	15	40	33	18	51
Total	0	1	1	9	2	11	48	20	68	57	23	80

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

The vendors that submitted the most projects were Sunrun Installation, Affordable Community Energy, Central Road Energy, and Novel Energy Solutions. Thirty different vendors submitted projects, indicating a successful AV participation rate. While 16 AVs submitted NF/PF projects and 17 submitted CS projects, only four submitted DG projects. These data are shown in Appendix tables A-2 and A-3.

Table III-9 displays the number of selected projects by AV. There were 20 different AVs that had selected projects. Sunrun had 39 selected projects, Central Road Energy had 17 selected projects, and Affordable Community Energy had 11 selected projects. Seventeen other vendors had between one and ten selected projects. There were seven AVs that each had one selected project.

Table III-9
All Selected Projects
Approved Vendors

Vendor	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Sunrun	0	0	0	0	0	0	0	0	0	39	39	0	0	39	39
Central Road	0	0	0	7	0	0	7	10	0	0	10	17	0	0	17
Affordable Comm. Energy	0	0	0	2	0	0	2	0	0	9	9	2	0	9	11
Solar Sense, Inc.	3	2	5	4	0	0	4	1	0	0	1	8	2	0	10
Certasun	0	0	0	0	0	8	8	0	0	0	0	0	0	8	8
Envelop Group	2	0	2	3	0	0	3	0	0	0	0	5	0	0	5
Groundswell, Inc.	0	0	0	0	1	0	1	2	0	0	2	2	1	0	3
Nexamp Solar	0	2	2	0	1	0	1	0	0	0	0	0	3	0	3
Promethean Solar	0	0	0	0	2	0	2	0	1	0	1	0	3	0	3

Vendor	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Windfree	0	0	0	2	0	0	2	1	0	0	1	3	0	0	3
Xolar Renewable	0	0	0	0	0	0	0	3	0	0	3	3	0	0	3
Day and Night	0	0	0	2	0	0	2	0	0	0	0	2	0	0	2
Trajectory Energy	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2
CIC Energy	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Centralia School	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
Novel Energy	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1
PSG Energy	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
Renewable Energy Evolution	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
SA Energy	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
VLV	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

The ILSFA website, with one more project added since the data were received, shows four AVs with 58 Distributed Generation projects approved. The DG projects are described in Table III-10.

Table III-10
Selected Distributed Generation Projects

Approved Vendor	Number of DG Projects	Type of DG	Nameplate Capacity (AC kW)	Total Size (AC kW)
Sunrun	39	1-4 unit	2.4 – 13.2	216.44
Certasun LLC	9	1-4 unit	4.8 – 9.6	58.00
Affordable Community Energy Services	9	5+ unit	20 – 62.5	424.13
SA Energy LLC	1	5+ unit	-	2,000
Total	58	-	-	2,699

There were 11 selected Community Solar projects. Table III-11 shows that the CS projects plan for a wide range of subscriber bases, with most based on geographic location.³¹

³¹Some indicated that they may subscribe from all households within the utility territory.

Table III-11
Community Solar Projects
Subscriber Base

Subscriber Base	Number of CS Projects
Low-income Urbana, Champaign County Residents	2
Kankakee, Cook, and Winnebago County Residents	2
Low-income Pregnant Women and Children	2
Low-income Knox County Residents	1
Low-income St. Clair County Residents	1
Low-income Rockford Residents	1
Low-income Residential Households	1
Cahokia Residents	1
Total	11

AVs partnered with various organizations, listed below, to identify low-income subscribers for the projects.

- Carle Hospital Foundation Healthy Beginnings
- Housing Action Illinois
- Rockford Solar for All Coalition
- Solar Urbana-Champaign
- Solstice

Eight of the 11 projects had a NP/PF anchor, which are further broken down into the following categories.

- Affordable Housing Organization – 3
- School – 2
- City of Urbana – 2
- Religious Institution – 1

Table III-12 provides information on the number of expected subscribers for each CS project. This value was calculated using the average electricity consumption for an Illinois household. The number of expected subscribers ranged from three to approximately 500. Most CS projects will support around 250 to 350 households.

Table III-12
Community Solar Projects
Expected Number of Subscribers

Expected Number of Subscribers	Number of CS Projects
< 10	2
75 – 175	3
250 – 350	4
400	1
500	1
Total	11
Total Number of Expected Subscribers	2,500

Note: The average number of expected subscribers is included in the table if a range was provided.

There were 48 selected Non-Profit and Public Facilities projects. Table III-13 displays information on the NP/PF type.

Table III-13
Non-Profit or Public Facilities Type

NP/PF Type	Number of NP/PF Projects
Religious Institutions	15
Community Services & Advocacy Organizations	8
Schools	7
Healthcare Providers	6
Youth Organizations	4
Housing Organizations	2
Parks & Recreation	2
Senior Services	2
Transportation	2
Total	48

Table III-14A displays the number of submitted projects by utility territory. The table shows that 172 projects were submitted in ComEd's territory, 95 projects were submitted in Ameren's territory, six were submitted in the territory of rural or municipal utilities, and one was submitted in Mid-American territory.

**Table III-14A
All Submitted Projects
Utility Territory**

Utility Territory	PY1: 2018-2019				PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	DG	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
ComEd	3	23	1	27	26	12	11	49	22	6	68	96	51	41	80	172
Ameren	22	22	0	44	11	18	0	29	11	11	0	22	44	51	0	95
Rural Elec Co-op	2	0	0	2	1	0	0	1	1	0	0	1	4	0	0	4
Municipal Utility	1	0	0	1	1	0	0	1	0	0	0	0	2	0	0	2
Mid-American	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Total	28	45	1	74	39	30	11	80	35	17	68	120	102	92	80	274

Table III-14B displays the number of selected projects by utility territory. The table shows that 84 projects in ComEd’s territory, 31 in Ameren’s territory, and one in Mid-American’s territory were selected.

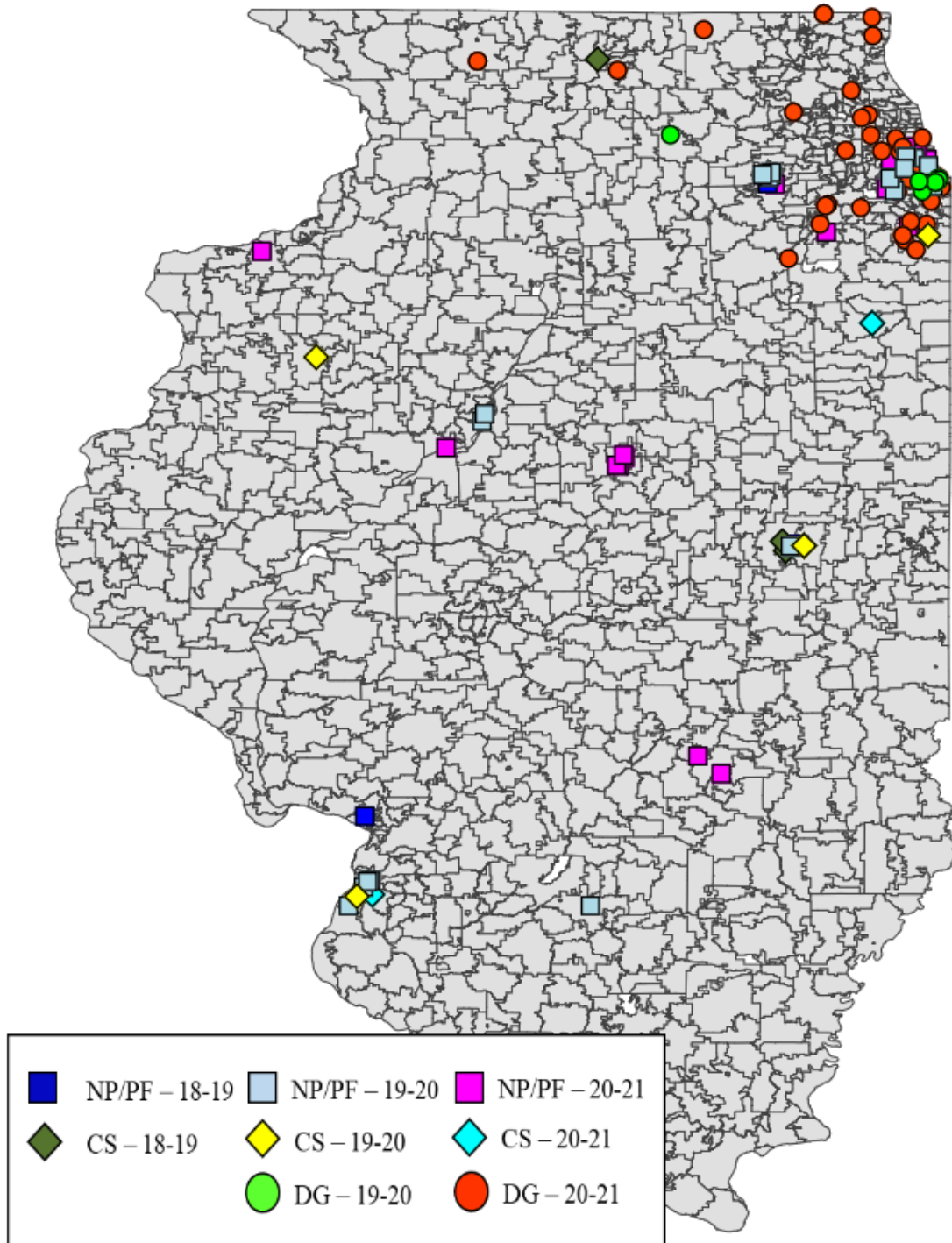
**Table III-14B
All Selected Projects
Utility Territory**

Utility Territory	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
ComEd	2	1	3	12	1	9	22	9	2	48	59	23	4	57	84
Ameren	4	3	7	11	3	0	14	9	1	0	10	24	7	0	31
Mid-American	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

Figure III-1 displays the location of the selected projects by sub-program and program year and Appendix Table A-4 displays the number of projects selected by city. While 38 selected projects were located in Chicago, seven were located in Champaign, and six were located in Aurora and Urbana.

Figure III-1
ILSFA Program Selected Project Locations

ILSFA Program Selected Project Locations, 2018-2021



To characterize the urbanicity of the selected projects, the evaluation team used a definition from the Department of Health and Human Services, as published in the Federal Register³² and applied the following methodology.

- The five-digit zip code for each project’s installation was matched to the corresponding Census Zip Code Tabulation Area (ZCTA). ZCTAs are the Census Bureau’s geographical approximation of zip codes, which are used to report Census data.
- Data from the 2010 Census on population density (number of people per square mile of land area) at the ZCTA-level was used to classify each project as urban, rural, or suburban using the following schema.
 - Urban is defined as a five-digit ZCTA in which the population density is greater than 3,000 persons per square mile.
 - Suburban is defined as a five-digit ZCTA in which the population density is between 1,000 and 3,000 persons per square mile.
 - Rural is defined as a five-digit ZCTA in which the population density is less than 1,000 persons per square mile.

Table III-15 shows that 63 selected projects were characterized as being in urban locations, 30 in suburban locations, and 23 in rural locations. Of the selected CS projects, two were characterized as being in urban locations, three in suburban locations, and six in rural locations.

Table III-15
All Selected Projects
Urbanicity

Urbanicity	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Urban	2	2	4	13	0	8	21	10	0	28	38	25	2	36	63
Suburban	2	0	2	7	2	0	9	6	1	12	19	15	3	12	30
Rural	2	2	4	3	2	1	6	3	2	8	13	8	6	9	23
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

Table III-16 shows that the census tracts that had selected projects were comprised of an average of 58 percent minority (non-white), compared to an average of 29 percent minority in census tracts that did not have selected projects. While 54 percent of the census tracts with selected projects had more than 50 percent minority households, 20 percent of the census tracts without selected projects had more than 50 percent minority households. The census tracts without selected projects were similar to the overall state composition and the census tracts with selected projects were more likely to have large minority populations.

³²<https://www.cms.gov/Regulations-and-Guidance/Regulations-and-Policies/QuarterlyProviderUpdates/downloads/cms40631fc.pdf>

Table III-16
All Selected Projects
Minority Communities

Percent Minority	Census Tracts Without Selected Projects	Census Tracts With Selected Projects	All Census Tracts in Illinois
Number of Census Tracts	3,017	99	3,116
≤ 10%	32%	7%	31%
11% - 25%	28%	14%	27%
26% - 50%	21%	25%	21%
> 50%	20%	54%	21%
Total	100%	100%	100%
Mean	29%	58%	30%

Table III-17 displays the number of submitted projects in EJ communities, in low-income census tracts, and by minority or women-owned businesses. The 274 submitted projects had the following characteristics.

- About half, 127, were in EJ communities.
- About two-thirds, 185, were in low-income census tracts.
- Eleven were submitted by MWBEs.³³
- 197 of the 274 projects had at least one of these characteristics.
- Seventy-seven projects had none of these characteristics.

Table III-17
All Submitted Projects
EJ Community, Low-Income Census Tract, and MWBE Businesses

Category	PY1: 2018-2019				PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	DG	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
EJ Community	14	17	0	31	32	7	9	48	15	7	26	48	61	31	35	127
LI Census Tract	22	25	1	48	38	13	11	62	33	10	32	75	93	48	44	185
MWBE	2	0	1	3	4	0	0	4	3	1	0	4	9	1	1	11
At Least One of Above	22	26	1	49	39	14	11	64	35	13	36	84	96	53	48	197
None of the Above	6	19	0	25	0	16	0	16	0	4	32	36	6	39	32	77
Total Submitted	28	45	1	74	39	30	11	80	35	17	68	120	102	92	80	274

³³One AV was sold and became an MBWE, increasing the number of submitted MWBE projects to 40.

Table III-18 displays the number of selected projects in EJ communities, in low-income census tracts, and by minority or women-owned businesses.³⁴

- Thirty-three of the 48 selected NP/PF projects were located in EJ communities, and 47 were located in LI census tracts.
- Seven of the 11 selected CS projects were located in EJ communities and nine were located in LI census tracts.
- Thirty-one of the 57 selected DG projects were located in EJ communities and 38 were located in LI census tracts.
- Two of the selected projects, both NP/PF projects, were submitted by MWBEs. (This does not include AVs who received MWBE points for subcontracting to MWBEs.)³⁵

Table III-18
Selected Projects
EJ Community, Low-Income Census Tract, and MWBE Businesses

Category	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
EJ Community	4	2	6	19	2	7	28	10	3	24	37	33	7	31	71
LI Census Tract	6	2	8	23	4	9	36	18	3	29	50	47	9	38	94
MWBE	0	0	0	0	0	0	0	2	0	0	2	2	0	0	2
At Least One of Above	6	2	8	23	4	9	36	19	3	33	55	48	9	42	99
None of the Above	0	2	2	0	0	0	0	0	0	15	15	0	2	15	17
Total Selected Projects	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

Table III-19 breaks down the NP/PF projects into the two sub-program segments. The table shows that 35 of the selected projects were non-profits and 13 were public facilities.

³⁴The vast majority of EJ communities are low-income census tracts and many low-income census tracts are also EJ communities.

³⁵One AV was sold and became an MBWE, increasing the number of selected MWBE projects to 19.

Table III-19
Non-Profit and Public Facility Projects
Non-Profit or Public Facility

Type of Project	Non-Profit / Public Facility Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
Non-Profit	3	14	17	16	15	31	16	15	31	35	44	79
Public Facility	3	8	11	7	1	8	3	1	4	13	10	23
Total	6	22	28	23	16	39	19	16	35	48	54	102

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

Table III-20 displays the agreement type for NP/PF projects. While 32 selected projects were power purchase agreements (PPAs), 12 were leases, and four were purchases.

Table III-20
Non-Profit and Public Facility Projects
Agreement Type

Agreement Types	Non-Profit / Public Facility Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
PPA	3	11	14	16	9	25	13	2	15	32	22	54
Lease	3	9	12	5	3	8	4	0	4	12	12	24
Purchase	0	2	2	2	4	6	2	0	2	4	6	10
Unknown*	0	0	0	0	0	0	0	14	14	0	14	14
Total	6	22	28	23	16	39	19	16	35	48	54	102

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

*Fourteen PY3 projects which were not selected lack information on the agreement type.

Table III-21 provides the term of agreement for the NP/PF projects. The table shows that eight of the selected projects had a six to seven year term, 17 had a 15-year term, eight had a 20-year term, 13 had a 25-year term, and one was missing these data. Selected projects with less than a 15-year term reflect a buyout.

Table III-21
Non-Profit and Public Facility Projects
Term of Agreement

Term of Agreement (Years)	Non-Profit / Public Facility Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
0 ³⁶	0	2	2	0	2	2	1	0	1	1	4	5
6-7	0	1	1	1	0	1	7	0	7	8	1	9
12	0	2	2	0	1	1	0	0	0	0	3	3
15	4	8	12	5	12	17	8	0	8	17	20	37
20	0	8	8	7	1	8	1	0	1	8	9	17
25	2	1	3	9	0	9	2	2	4	13	3	16
Unknown*	0	0	0	1	0	1	0	14	14	1	14	15
Total	6	22	28	23	16	39	19	16	35	48	54	102

Note: “Not Selected” includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

*Fourteen PY3 projects lack data on the term of agreement. One PY2 project that was selected lacks data on the term of agreement because it is for a Single Project Approved Vendor.

Table III-22 displays the anchor type for the CS projects. While three of the selected CS projects had a public facility as an anchor, five had a non-profit as an anchor, two had another type of anchor, and one did not have an anchor.

Table III-22
Low-Income Community Solar Projects
Projected Anchor Type

Anchor Type	Community Solar Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
Public Facility	2	14	16	1	11	12	0	4	4	3	29	32
Non-Profit	0	7	7	2	5	7	3	8	11	5	20	25
Other	2	15	17	0	0	0	0	2	2	2	17	19
None	0	5	5	1	10	11	0	0	0	1	15	16
Total	4	41	45	4	26	30	3	14	17	11	81	92

Note: “Not Selected” includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

³⁶The selected project with a 0-year term was a no-cost purchase.

Table III-23 displays the projected anchor share for the CS projects. The table shows that three of the selected projects did not have an anchor share, six had an anchor share between ten and 25 percent, and two had an anchor share of 40 percent.

**Table III-23
Low-Income Community Solar Projects
Projected Anchor Share**

Anchor Share	Community Solar Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
0%	2	20	22	1	10	11	0	2	2	3	32	35
2% - 5%	0	4	4	0	2	2	0	1	1	0	7	7
10%	0	2	2	0	2	2	2	4	6	2	8	10
12% - 20%	1	0	1	1	0	1	0	1	1	2	1	3
24% - 25%	0	2	2	1	0	1	1	1	2	2	3	5
33% - 37%	0	3	3	0	2	2	0	1	1	0	6	6
40%	1	10	11	1	10	11	0	4	4	2	24	26
Total	4	41	45	4	26	30	3	14	17	11	81	92

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

Table III-24 displays the distribution of DG projects between 1-4 unit buildings and 5+ unit buildings. Forty-seven of the selected projects were in one-to-four unit buildings and ten were in five-or-more unit buildings.

**Table III-24
Low-Income Distributed Generation Projects
1-4 Units or 5+ Units**

Housing Type	Distributed Generation Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
1-4 Units	0	0	0	8	2	10	39	13	52	47	15	62
5+ Units	0	1	1	1	0	1	9	7	16	10	8	18
Total	0	1	1	9	2	11	48	20	68	57	23	80

Note: "Not Selected" includes eligible projects that were not selected and all projects that were ineligible, withdrawn, rejected, or under review as of April 2021.

Table III-25 displays the funding source for the selected projects. Twenty of the 48 NP/PF projects, seven of the 11 CS projects, and one of the 57 DG projects will be funded through the RERF.

Table III-25
All Selected Projects
Funding Source

Funding Source	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
RERF	5	3	8	11	2	1	14	4	2	0	6	20	7	1	28
Utility	1	1	2	12	2	8	22	15	1	48	64	28	4	56	88
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

Table III-26 displays the projected project size for the selected projects. The mean size for the NP/PF projects was 138 AC kW, the mean size for CS projects was 1,188 AC kW, and the mean size for the DG projects was 47 AC kW. Without the one large DG project, the average DG size was 12.1 AC kW.

There has been some concern that many of the CS projects are large in size and not truly community-driven. This relates to the project economics and the developers looking for economies of scale in project implementation. The project selection criteria was changed prior to the third program year to provide increased priority for selection of smaller projects.

Table III-26
All Selected Projects
Projected Project Size (AC kW)

Project Size (AC kW)	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
2-10 kW	0	0	0	0	0	8	8	1	0	36	37	1	0	44	45
11-25 kW	0	1	1	6	0	0	6	5	0	4	9	11	1	4	16
26-50 kW	0	1	1	5	0	0	5	4	0	4	8	9	1	4	14
51-100 kW	3	0	3	5	0	0	5	4	0	4	8	12	0	4	16
101-1,000 kW	3	0	3	7	2	0	9	4	1	0	5	14	3	0	17
1,001-1,999 kW	0	1	1	0	2	0	2	1	0	0	1	1	3	0	4
2,000 kW	0	1	1	0	0	1	1	0	2	0	2	0	3	1	4
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116
Mean Size	215	976	519	113	1,042	228	245	144	1,667	13	120	138	1,188	47	193

Table III-27 displays the projected estimated production from the PV Watts tool for the selected projects. The mean production for the NP/PF projects was 428 MWh per year and the mean for CS was 2,443 MWh per year. The mean DG project production was 109 MWh per year.

Table III-27
All Selected Projects
Projected Estimated Production (MWh/Year)

Projected Estimated Production (MWh/Year)	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
3 – 8	0	0	0	0	0	4	4	0	0	24	24	0	0	28	28
9 – 20	0	0	0	0	0	4	4	1	0	14	15	1	0	18	19
21 – 40	0	0	0	4	0	0	4	3	0	1	4	7	0	1	8
41 – 50	0	1	1	5	0	0	5	2	0	0	2	7	1	0	8
51 – 100	0	1	1	6	0	0	6	5	0	7	12	11	1	7	19
101 – 200	4	0	4	1	0	0	1	3	0	1	4	8	0	1	9
201 – 300	0	0	0	3	0	0	3	0	0	0	0	3	0	0	3
301 – 500	1	0	1	2	0	0	2	3	0	0	3	6	0	0	6
691 – 890	1	0	1	2	1	0	3	1	0	0	1	4	1	0	5
1,000 – 1,670	0	0	0	0	1	0	1	0	1	1	2	0	2	1	3
2,285	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
3,701 – 4,200	0	2	2	0	1	1	2	0	0	0	0	0	3	1	4
4,661 – 4,750	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2
11,970	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116
Mean	317	1,942	967	172	2,138	473	466	774	3,517	40	388	428	2,443	109	462

Table III-28 displays the contracted number of RECs for the selected projects. The table shows that the mean was 2,888 for the NP/PF projects, 35,199 for the CS projects, and 1,316 for the DG projects.

Table III-28
All Selected Projects
Contracted Number of RECs

Contracted # of RECs	PY1 – PY3: 2018-2021			
	NP/PF	CS	DG	Total
29 – 100	0	0	29	29
101 – 262	1	0	18	19
301 – 500	2	0	1	3
501 – 750	12	1	1	14
751 – 1,000	5	1	2	8
1,001 – 3,000	14	0	5	19
3,001 – 4,700	4	0	0	4
5,001 – 8,600	6	0	0	6
9,501 – 13,000	3	1	0	4
16,001 – 17,000	1	1	0	2
23,396 – 32,378	0	2	0	2
52,823 – 55,425	0	3	0	3
60,693 – 68,564	0	2	1	3
Total	48	11	57	116
Mean RECs	2,888	35,199	1,316	5,180

Table III-29 displays the REC value for the selected projects. The table shows that the NP/PF projects averaged about \$300,000, the CS projects averaged about \$2.92 million, and the DG projects averaged \$100,000 in REC value. However, the DG average REC value is skewed by the one very large project and the CS average REC value is drawn down by the two small CS projects. Without the one large DG project, the average DG REC value was \$27,100. Without the two small CS projects, the average CS REC value was \$3.54 million.

Table III-29
All Selected Projects
REC Value (\$ Millions)

REC Value (\$ Millions)	PY1 – PY3: 2018-2021			
	NP/PF	CS	DG	Total
<\$0.03	1	0	46	47
\$0.03 - <\$0.10	11	1	5	17
\$0.10 - <\$0.20	17	1	5	23
\$0.20 - <\$0.30	4	0	0	4
\$0.30 - <\$0.40	3	0	0	3

REC Value (\$ Millions)	PY1 – PY3: 2018-2021			
	NP/PF	CS	DG	Total
\$0.40 - <\$0.60	5	0	0	5
\$0.60 - <\$0.90	3	0	0	3
\$0.90 - <\$1.00	2	0	0	2
\$1.00 - <\$2.00	2	2	0	4
\$2.60 - <\$3.45	0	3	0	3
\$3.90 - <\$4.05	0	1	1	2
\$4.70 - <\$5.45	0	3	0	3
Total	48	11	57	116
Mean Value	\$0.30	\$2.92	\$0.10	\$0.45

Table III-30 displays the dollars and percent of REC dollars in Ameren, ComEd, and Mid-American service territories. The table shows that 44 percent of the REC value was in Ameren's service territory, 54 percent was in ComEd's service territory, and two percent was in Mid-American's territory. The submitted projects were weighted more to Ameren's territory, with 54 percent of REC value in Ameren's territory and 44 percent in Com-Ed's territory.

Table III-30
All Selected Projects
REC Value (\$ Millions) by Utility Territory

Utility Territory	PY1-PY3: 2018-2021							
	NP/PF		CS		DG		Total	
	\$	%	\$	%	\$	%	\$	%
Ameren	\$6.03	43%	\$16.81	52%	\$0.00	0%	\$22.84	44%
ComEd	\$7.31	52%	\$15.27	48%	\$5.52	100%	\$28.10	54%
Mid-American	\$0.82	6%	\$0.00	0%	\$0.00	0%	\$0.82	2%
Total	\$14.16	100%	\$32.08	100%	\$5.52	100%	\$51.76	100%

Table III-31 displays the dollars and percent of REC dollars by urbanicity. The table shows that 13 percent of the REC value was in urban areas, 25 percent was in suburban areas, and 62 percent was in rural areas, due to the location of the large CS projects and the large DG project.

Table III-31
All Selected Projects, 2018-2021
REC Value (\$ Millions) by Urbanicity

Urbanicity	PY1-PY3: 2018-2021							
	NP/PF		CS		DG		Total	
	\$	%	\$	%	\$	%	\$	%
Urban	\$5.88	42%	\$0.21	1%	\$0.60	11%	\$6.69	13%
Suburban	\$5.46	39%	\$7.28	23%	\$0.43	8%	\$13.17	25%
Rural	\$2.82	20%	\$24.59	77%	\$4.49	81%	\$31.90	62%
Total	\$14.16	100%	\$32.08	100%	\$5.52	100%	\$51.76	100%

Table III-32 displays the dollars and percent of REC dollars in EJ communities and low-income Census Tracts. The table shows that 63 percent of the REC value for NP/PF projects, 83 percent of the REC value for CS projects, and eight percent of the REC value for DG projects were in EJ communities.³⁷ Almost all of the REC value was in low-income Census Tracts.³⁸

Table III-32
All Selected Projects
REC Value (\$) in Environmental Justice Communities and Low-Income Census Tracts

Community Type	PY1-PY3: 2018-2021							
	NP/PF		CS		DG		Total	
	\$	%	\$	%	\$	%	\$	%
In EJ	\$8.91	63%	\$26.49	83%	\$0.45	8%	\$35.85	69%
Not in EJ	\$5.25	37%	\$5.59	17%	\$5.07	92%	\$15.91	31%
In LI Tracts	\$14.05	99%	\$31.87	99%	\$4.76	86%	\$50.68	98%
Not LI Tracts	\$0.11	1%	\$0.21	1%	\$0.76	14%	\$1.08	2%
Total	\$14.16	100%	\$32.08	100%	\$5.52	100%	\$51.76	100%

Table III-33 displays the first year projected costs savings, total costs, and savings for the NP/PF projects over the three program years. The projects averaged a total savings of \$223,218 across the lifetime. Given the 47 projects, this amounts to estimated lifetime savings of almost \$10.5 million. Details on savings by the program year of the projects are shown in Appendix Table A-5. The total projected savings over the term of the agreement averaged 71 percent, greater than the required 50 percent, for the selected NP/PF projects. This information is displayed in Appendix Table A-6. Table A-7 displays the total expected

³⁷This is due to one large DG project that was not in an EJ community.

³⁸The CS locations relate to the project's location and not the subscribers' locations. The subscribers' locations will be examined once the projects are energized and have subscribers.

savings for NP/PF projects that were not selected by detailed status. The average for these projects was 68 percent.

Table III-33
Non-Profit and Public Facility Projects, 2018-2021
Projected Project Costs and Savings for Selected Projects

Project Year	Costs and Savings	#	Selected Non-Profit/ Public Facility Projected Project Costs and Savings							
			Mean	Min	Percentile					Max
					P10	P25	P50	P75	P90	
PY1-PY3: 2018-2021	First Year Costs	47	\$6,081	\$0	\$12	\$162	\$2,134	\$8,288	\$24,164	\$32,800
	Total Costs	47	\$116,082	\$0	\$181	\$3,135	\$28,603	\$133,332	\$377,117	\$948,692
	First Year Savings	47	\$9,659	\$409	\$2,128	\$3,164	\$4,706	\$10,953	\$27,998	\$44,786
	Total Savings	47	\$223,218	\$14,379	\$20,987	\$54,095	\$110,677	\$300,744	\$581,070	\$1,163,011

Note: One PY2 project with a Purchase Agreement only had data for First Year Costs and was excluded from the table.

C. DG Participant Statistics

This section provides information on the customers participating in DG projects.

Table III-34 displays the type of income verification used for each participant. The most common method used was verification through another income-eligible program, followed by confirmed affordable housing.

Table III-34
Selected Distributed Generation Projects
Type of Verification Used

Type of Verification	Number of Projects
Third-Party Program	30
Confirmed Affordable Housing	9
Affidavit	7
Tax Transcript Request	6
Paycheck	5
Rent Rolls (5+ unit project)	1
All Projects	57*

*One project used two verification methods: Third Party Program and Paycheck. Therefore, the figures do not add up to the total.

Table III-35 displays the household income, poverty level, and percent of area median income (AMI) for the 47 selected single-family projects. The ten selected multi-family projects did not have income data available. The table shows that participating households ranged from no income to 282 percent of the poverty level and to 69 percent of AMI. Households at the lowest income levels will experience the greatest impacts on energy burden and affordability.

Table III-35
Selected Single-Family DG Projects
Household Income and Poverty Level³⁹

Observations with Data	Income			Poverty Level			Percent of AMI		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
47	\$0	\$24,527	\$55,722	0%	132%	282%	0%	37%	69%

Note: Ten multi-family projects were excluded from this table because household income was not provided.

Table III-36 displays the energy value and first-year costs. Energy values ranged from \$323 to \$2,634 and first-year costs ranged from \$0 to \$585.

Table III-36
Selected Single-Family DG Projects
Energy Value and First Year Costs

Observations with Data	Customer Energy Value			First Year Costs		
	Min	Mean	Max	Min	Mean	Max
47	\$323	\$977	\$2,634	\$0	\$69	\$585

Note: Ten multi-family projects were excluded from this table because data on first year costs were not provided.

Table III-37 displays the first-year projected savings and percent savings as a percent of total energy value. The average first-year projected savings was \$908, and the projected savings were on average 93 percent of the total energy value.

Table III-37
Selected Single-Family DG Projects
Customer Projected Savings and Percent Savings

Observations with Data	Customer Projected Savings			Customer % Projected Savings		
	Min	Mean	Max	Min	Mean	Max
47	\$323	\$908	\$2,634	56%	93%	100%

Note: Ten multi-family projects were excluded from this table because data on first year costs, needed to calculate the percent savings, were not provided.

Table III-38 displays the projected production and REC values for all selected DG projects. Estimated production averaged 109 MWh and the REC value averaged \$96,797. However, these numbers were skewed by one large multi-family project. Excluding that project, estimated production averaged 36 MWh and the REC value averaged \$27,081.

³⁹The 2021 U.S. poverty guidelines from the Office of the Assistant Secretary for Planning and Evaluation (ASPE) were used to calculate poverty level. <https://aspe.hhs.gov/2021-poverty-guidelines>

Table III-38
Selected Distributed Generation Projects
Production and REC Value

Type of Project	Observations with Data	Est. Production (MWh)			Projected REC Value		
		Min	Mean	Max	Min	Mean	Max
Single-Family	47	3	29	1,004	\$4,150	\$13,894	\$33,418
Multi-Family	10	34	483	4,190	\$46,397	\$486,440	\$4,000,883
Multi-Family (Excluding Largest Project)	9	34	71	103	\$46,397	\$95,946	\$132,067
Total	57	3	109	4,190	\$4,150	\$96,797	\$4,000,883
Total (Excluding Largest Project)	56	3	36	1,004	\$4,150	\$27,081	\$132,067

The ILSFA Program reduces energy burden by lowering the costs for electricity due to the savings realized through the program each year. Energy burden is defined as energy costs divided by income. The percentage point reduction in energy burden is the projected savings divided by household income. Table III-39A displays the mean energy burden impacts for projects with income and projected savings data available. The projects reduced energy burden from one percentage point for higher income households to over 36 percentage points for the lowest income household. The average first-year projected savings was \$859.

Table III-39A
Energy Burden Impact
Selected Single-Family DG Projects
Actual Income Data Used

Observations with Data	Household Income			First Year Projected Savings			Projected Energy Burden Reduction		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
44*	\$2,051	\$26,199	\$55,722	\$323	\$859	2,157	1.1%	4.7%	36.4%

* In addition to the ten multi-family projects where verification does not necessarily track household level income (such as rent rolls that confirm below-market rent), three single-family projects had an income of zero and energy burden reduction could not be calculated.

Table III-39B displays the energy burden impacts for the ten selected multi-family projects which provide savings to 515 households. Since these projects did not have household income information available, 80 percent of the AMI in the project zip code and average household size were used to estimate income level for each household. The 80 percent of AMI represents the maximum income a household could have to be eligible for the ILSFA Program. The projects reduced energy burden by 1.1 percentage points on average. The average first-year energy savings ranged from \$116 to \$786.

Table III-39B
Energy Burden Impact
Selected Multi-Family DG Projects
80% AMI in County Used as Income Estimate

Number of Households	Household Income			First Year Projected Savings			Projected Energy Burden Reduction		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
515	\$33,850	\$47,868	\$52,500	\$116	\$563	\$786	0.3%	1.1%	1.5%

D. Grassroots Education Statistics

This section provides information on the Grassroots Education events completed by the third cohort of GEs from November 2020 through the end of March 2021.

Table III-40 displays the number of completed events by GE. Each organization had a different funding award and a different scope of work. The table shows that Community Organizing and Family Issues, the GE with the greatest number of events, completed 22 events, while North River Commission completed six events. Most GEs completed between six and 13 events by March 2021.

Table III-40
Grassroots Education Events by Educator

Grassroots Educator	Completed Events*
BCMW Community Services	13
Blacks in Green	7
Community Organizing and Family Issues (COFI)	22
Ecology Action Center	7
Faith in Place	17
Garfield Park Community Council	11
North River Commission	6
Pilsen Environmental Rights and Reform Organization (PERRO)	18
People for Community Recovery	9
Prairie Rivers Network	11
Total	121

* Completed between November 1, 2020 and March 31, 2021.

Table III-41 displays the number of attendees by GE. Overall, 36,857 individuals attended. While there were events that had only one attendee, the largest “event” had 9,117 attendees. The following table provides additional information on these counts.

Table III-41
Grassroots Education Events
Number of Attendees by Grassroots Educator

Grassroots Educator	Completed Events*	Number of Attendees			
		Min.	Mean	Max.	Total
BCMW Community Services	12	12	76	299	912
Blacks in Green	7	1	663	4,617	4,642
Community Organizing and Family Issues	22	7	16	70	352
Ecology Action Center	7	3	1,694	7,500	11,857
Faith in Place	16	3	18	68	281
Garfield Park Community Council	11	3	305	1,200	3,352
North River Commission	6	3	2,246	9,117	13,473
Pilsen Environmental Rights and Reform Organization (PERRO)	18	1	22	100	402
People for Community Recovery	8	6	48	300	381
Prairie Rivers Network	11	2	110	715	1,205
All Events	118	1	312	9,117	36,857

* Completed between November 1, 2020 and March 31, 2021.

Note: Three events were missing information on the number of attendees.

Table III-42 displays the number of attendees by event type. The table shows the largest participation “event” was “media” which included newsletters. The one-on-one events have up to five attendees because GEs can choose to submit these as individual events or as many attendees within a single event, which is a lower administrative burden for the GEs. Additionally, these events can included meetings attended by multiple partners.

Table III-42
Grassroots Education Events
Number of Attendees by Event Type

Event Type	Completed Events*	Number of Attendees			
		Min.	Mean	Max.	Total
1:1	11	1	2	5	18
Canvassing	14	12	119	350	1,662
Community Meeting	45	3	17	70	748
House Party	1	15	15	15	15
Mailer	10	18	1,023	4,617	10,228

Event Type	Completed Events*	Number of Attendees			
		Min.	Mean	Max.	Total
Media	6	12	3,192	9,117	19,149
Networking	5	3	856	4,210	4,281
Phone Banking	2	71	76	80	151
Steering Committee	1	14	14	14	14
Tabling	1	80	80	80	80
Training	1	3	3	3	3
Workshop	21	3	24	325	508

* Completed between November 1, 2020 and March 31, 2021.

Note: Three events were missing information on the number of attendees.

Table III-43 displays the discussion topics for the events. Events were most likely to cover 1-4 unit DG, CS, and NP/PF programs. Other events covered five or more unit DG programs, AVs, and job training. Events were likely to cover more than one topic.

Table III-43
Grassroots Education Events
Discussion Topic by Grassroots Educator

Grassroots Educator	Completed Events*	Discussion Topic					
		1-4 DG	5+ DG	CS	NP/PF	AVs	Job Training
BCMw Community Services	13	13	2	12	2	2	0
Blacks in Green	7	5	0	2	1	1	2
COFI	22	22	0	22	0	1	1
Ecology Action Center	7	3	0	6	5	0	0
Faith in Place	18	17	0	14	13	0	12
Garfield Park Community Council	11	11	3	1	3	0	1
North River Commission	6	6	5	6	6	0	4
PERRO	18	17	2	9	7	0	4
PCR	9	6	1	4	3	0	1
Prairie Rivers Network	10	5	0	8	1	0	0
All Events	121	105	13	84	41	4	25

* Completed between November 1, 2020 and March 31, 2021.

Note: Events may cover more than one topic.

E. Job Training Statistics

AVs are required to submit an affidavit for each hired qualified job trainee as part of the Part II project submission process. The affidavit captures the relationship between the trainee and AV, summarizes the trainee's participation in the project, and provides the current contact

information for the trainee. The information in the affidavit is verified by the program administrator.

Table III-44 displays the number of verified job training affidavits submitted as of May 2021. The table shows that of the 107 submitted affidavits, 91 were verified, six were reviewed but could not be verified, and ten were not yet reviewed. The ten affidavits that had not yet been reviewed were for projects that had not yet submitted their Part II requirements for approval or further Part II information was requested as of May 2021 when the data were collected.

**Table III-44
Job Training Affidavit Verified**

Job Training Affidavit Verified	Observations
Affidavit Reviewed & Verified	91
Affidavit Reviewed & Not Verified	6
Affidavit Not Reviewed	10
Total	107

Table III-45 shows the number of job training affidavits submitted by each Approved Vendor. Twelve AVs submitted affidavits.

**Table III-45
Number of Affidavits Submitted by Approved Vendors**

Approved Vendor	Number of Affidavits
Affordable Community Energy Services	2
Carbon Solutions	2
Central Road Energy	11
Centralia City School District	3
Certasun	15
Envelop Group	19
SA Energy	6
Solar Sense	6
Sunrun	32
VLV Development	4
Windfree Wind and Solar	6
Xolar Renewable Energy	1
Total	107

Table III-46 displays the number of projects and affidavits by project stage. Twelve AVs with a combined portfolio of 63 projects submitted 107 affidavits as of May 2021. Four projects were under construction, 15 were under inspection, 15 had their Part II submission under review, seven required further Part II information, and 22 had their Part II submission approved.

Table III-46
Number of Vendors, Projects, and Affidavits
By Project Stage

Project Stage	Number of Projects	Number of Affidavits
ICC Approved/Construction	4	7
Inspection	15	19
Part II Submitted and Under Review	15	15
Further Part II Information Requested	7	24
Part II Approved	22	42
Total	63	107

Table III-47 displays the percent of total project hours worked by qualified job trainees. Most of the projects had qualified trainees work between 21 and 40 percent of the project hours. Across all projects, job trainees worked an average of 28 percent of total project hours.

Table III-47
Percent of Total Project Hours Worked by Qualified Job Trainees

Percent of Hours Worked by Job Trainees	Observations
1% – 10%	2
11% – 20%	11
21% – 30%	19
31% – 40%	18
41% – 50%	5
51% – 60%	2
61% - 70%	2
91% –100%	3
Total	62
Mean	28%

Note: One project was excluded due to missing total project hours data.

Table III-48 shows that three AVs who submitted affidavits and had DG projects satisfied the DG job training requirement. This was determined by comparing the selected DG projects with projects that submitted an affidavit. One vendor had nine selected DG projects but had not submitted a job affidavit for these projects as of May 2021. The remaining eight approved vendors did not have DG projects selected.

**Table III-48
Low-Income Distributed Generation Requirement**

Satisfied DG Requirement	Vendors
Satisfied DG Requirement	3
Did Not Satisfy DG Requirement	1
Not Applicable	8
Total	12

Table III-49 shows the NABCEP job task categories for all projects and provides a list of activities that fall within each category. Hired job trainees provide a direct or support role to ILSFA projects in one or more of the following capacities.

- System Design
- Installations
- System Commissioning
- Operations & Maintenance
- Technical Sales/Other

**Table III-49
Activities by Job Task Category**

System Design	Installations	System Commissioning	Operations & Maintenance	Technical Sales/Other
<ul style="list-style-type: none"> • Site assessment • Shading analysis • Electric design • Mechanical design • Engineering • Procurement • Permitting • Zoning 	<ul style="list-style-type: none"> • Install electric • Roofing • Structural • Racking • Modules • Carpentry • Fencing • Health and safety • Battery • Monitoring controls • Foundations 	<ul style="list-style-type: none"> • Interconnection • Visual and mechanical inspection • Component testing • Electrical testing • System monitoring • User training • Utility commissioning 	<ul style="list-style-type: none"> • Preventative maintenance • Corrective maintenance • System monitoring • Component testing • Component replacement 	<ul style="list-style-type: none"> • Sales • Customer service • Subscriber management • Financial modeling

Source: AV Manual, Section 15.2. <https://www.illinoissfa.com/announcements/2021/04/approved-vendor-manual-4-0-published/>

Table III-50 displays the total hours worked by all qualified job trainees, by job task category. The table shows that a significant number of job trainee hours were used for installation. On average, job trainees spent 163 hours on installation for each eligible project. The time spent on installation varied greatly between projects, as expected with large variation in project size.

Significantly fewer job trainee hours were used for system design, system commissioning, operations/maintenance, and technical sales/other.

Table III-50
Hours Worked by All Qualified Job Trainees
By Job Task Category

Job Task Category	# Projects	Job Trainee Hours Spent on Job Task Category							
		Mean	Min	Percentile					Max
				P10	P25	P50	P75	P90	
Installation	63	163	0	0	0	8	48	301	2,703
System Design	63	3	0	0	0	0	0	0	95
System Commissioning	63	2	0	0	0	0	0	2	66
Operations/Maintenance	63	3	0	0	0	0	0	0	174
Technical Sales/Other	63	12	0	0	0	21	23	23	60
Total	63	183	9	21	21	23	48	301	2,754

Table III-51 displays a breakdown of the trainee hours. On average, 44 percent of trainee hours were spent on installation, two percent on system design, two percent on system commissioning, two percent on operations/maintenance, and 51 percent on technical sales/other.

Table III-51
Percent of Training Hours Worked by All Qualified Job Trainees
By Job Task Category

Job Task Category	# Projects	Percent of Job Trainee Hours Spent on Job Task Category							
		Mean	Min	Percentile					Max
				P10	P25	P50	P75	P90	
Installation	63	44%	0%	0%	0%	32%	100%	100%	100%
System Design	63	2%	0%	0%	0%	0%	0%	0%	50%
System Commissioning	63	2%	0%	0%	0%	0%	0%	4%	57%
Operations/Maintenance	63	2%	0%	0%	0%	0%	0%	0%	100%
Technical Sales/Other	63	51%	0%	0%	0%	64%	100%	100%	100%

Table III-52 provides a breakdown of the percent of total project hours worked by qualified job trainees. On average, 16 percent of total installation hours were worked by job trainees and 15 percent of technical sales/other hours were worked by job trainees.

**Table III-52
Percent of Total Project Hours Worked by All Qualified Job Trainees
By Job Task Category**

Job Task Category	# Projects	Percent of Total Project Hours Worked by Trainees							
		Mean	Min	Percentile					Max
				P10	P25	P50	P75	P90	
Installation	62	16%	0%	0%	0%	2%	30%	47%	98%
System Design	62	1%	0%	0%	0%	0%	0%	0%	34%
System Commissioning	62	<1%	0%	0%	0%	0%	0%	1%	10%
Operations/Maintenance	62	2%	0%	0%	0%	0%	0%	0%	100%
Technical Sales/Other	62	15%	0%	0%	0%	15%	27%	31%	49%

Note: One project was excluded due to missing total project hours data.

F. Quality Assurance Findings

Quality Assurance (QA) findings were provided for 20 ILSFA projects. There were several inspection types and categories within those types, as displayed in Table III-53.

Some inspection categories were not scored for every project based on the photovoltaic system installation or Authority Having Jurisdiction (AHJ) requirements.

**Table III-53
Inspection Categories**

String Inverter Inspection	Module Level Power Electronic (MLPE) Inspection	General Electrical Inspection	Mount Inspections	General Structural Inspection
String Inverter	Microinverters and AC Modules	PV Array Configuration	Ballast Mount	General Structure
DC Disconnect		Grounding	Rail Mount	
DC/DC Converters	Supply Side Interconnection	Wire Management	Rail-Less Mount	
PV Source Circuit Combining		Conductors		
Load Side Connection		Over Current Protection Devices		
Supply Side Connection		Electrical Connections		
Rapid Shutdown Equipment		Signs and Labels		
		REC Production Metering		

Table III-54 displays the quality assurance scores for each inspection type. Projects were scored on varying inspection categories, so the analysis was conducted based on the percent of points scored. The score for each inspection type was determined by adding up the points received in each applicable category. The percentages were calculated by dividing the number of points a project received for each inspection type by the number of points possible. The total percentage was determined by dividing the number of points a project received overall by the total number of points possible across all inspection types.

The total mean score across 20 projects was 99.8 percent. Only four projects missed points in the general electrical category, but all projects received the maximum number of points possible in all other categories, indicating that the projects were highly compliant.

Points were deducted from projects in the general electrical inspection for the following reasons. (These projects made the required corrections and received updated points.)

- Two projects lost points in the wire management category due to a flex conduit that was too long and wire mismanagement.
- One project had points deducted from the signs and labels category because the interconnection labels were the wrong color.
- One project lost points in the grounding category since the ground rod and wiring were a hazard for pedestrians and loose wiring was not secured to the building.

Table III-54
Quality Assurance Scores

Inspection Type	Number of Projects Inspected	Mean Score	Min Score	Max Score
Total Number of Projects Inspected	20			
String Inverter	12	100%	100%	100%
Module Level Power Electronic	8	100%	100%	100%
General Electrical	20	99%	94%	100%
Angled Roof	15	100%	100%	100%
Flat Roof	7	100%	100%	100%
Ground Mount	2	100%	100%	100%
General Structural	20	100%	100%	100%
Total Score	-	99.8%	97.9%	100%

IV. ILSFA Impacts

This section calculates equivalent changes in energy use from the projected ILSFA production to put the solar production into context, and also monetizes the expected environmental and economic benefits of the ILSFA Program. All of the benefits projections in this section relate to approved projects, most of which had not yet been energized.

A. Equivalencies

This section provides a translation of the projected electric production from ILSFA projects into energy and emission equivalencies to provide a context for understanding the benefits of the ILSFA Program. This analysis was requested by stakeholders during their review of the evaluation plans.

The following equivalencies are estimated and are expected from the projected kWh production for projects selected in the first three program years of the ILSFA Program (as opposed to completed and energized projects). Both first-year and lifetime impacts are presented in the final table at the end of this section.

- Tons of coal burned
- Cubic feet of natural gas burned
- Barrels of oil consumed
- Gallons of gasoline consumed
- Homes powered
- iPhones charged
- Cars taken off the road
- Trees planted

Table IV-1 displays the conversion factors used to calculate each of the target equivalencies. The methodologies and sources used to determine each conversion factor are described below.

Table IV-1
ILSFA Equivalency Conversion Factors

Equivalency	Input Unit	Conversion Factor	Output Unit
Coal Burned	ILSFA Output (kWh)	0.000565 ⁴⁰	Short Tons
	Short Tons	18,856,000 ⁴¹	Btu
	Btu	0.000001	MMBtu
	MMBtu	205.7 ⁴²	CO ₂ Emissions (lbs.)

⁴⁰U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021. <https://www.eia.gov/tools/faqs/faq.php?id=667&t=3>

⁴¹U.S. Energy Information Administration (EIA). Units and Calculators Explained. April 2021. <https://www.eia.gov/energyexplained/units-and-calculators/>

⁴²U.S. Energy Information Administration (EIA). How much carbon dioxide is produced when different fuels are burned? June 17, 2020. <https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>

Equivalency	Input Unit	Conversion Factor	Output Unit
Natural Gas Burned	ILSFA Output (kWh)	7.43 ⁴³	Cubic Ft.
	Cubic Ft.	1,037 ⁴⁴	Btu
	Btu	0.000001	MMBtu
	MMBtu	117 ⁴⁵	CO ₂ Emissions (lbs.)
Fuel Oil Burned	ILSFA Output (kWh)	0.00190 ⁴⁶	Barrels
Gasoline Burned	ILSFA Output (kWh)	0.10 ^{47 48}	Gallons
Homes Powered	ILSFA Output (kWh)	0.000094 ⁴⁹	Homes Powered (1 Year)
Smart Phones Charged	ILSFA Output (kWh)	84 ⁵⁰	Complete iPhone Charges
Cars Taken Off the Road	ILSFA Output (kWh)	1.82	ILSFA CO ₂ Reduction (lbs.)
	ILSFA CO ₂ Reduction (lbs.)	0.000099 ⁵¹	Cars Taken Off the Road (1 Year)
Trees Planted	ILSFA Output (kWh)	1.82	ILSFA CO ₂ Reduction (lbs.)
	ILSFA CO ₂ Reduction (lbs.)	0.007 ⁵²	Trees Planted

Fossil Fuels

The following describes the steps used to calculate the amount of each fossil fuel that would be displaced by solar power from the ILSFA Program and the subsequent emissions that would be avoided by that displacement. Table IV-2 displays the values associated with each step of the calculation for each of the first three program years.

1. *Electric Generation Resource Mix:* Information on the mix of fossil fuels used to produce residential electricity in Illinois was used to calculate the proportion of the ILSFA output that would have otherwise been produced by burning each fuel. Using the 2019 Emissions

⁴³U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021. <https://www.eia.gov/tools/faqs/faq.php?id=667&t=3>

⁴⁴U.S. Energy Information Administration (EIA). Units and Calculators Explained. June 3, 2020.

<https://www.eia.gov/energyexplained/units-and-calculators/>

⁴⁵U.S. Energy Information Administration (EIA). How much carbon dioxide is produced when different fuels are burned? June 17, 2020. <https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>

⁴⁶U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021.

⁴⁷Alternative Fuels Data Center (AFDC). Fuel Properties Comparison. January 2021.

https://afdc.energy.gov/fuels/fuel_comparison_chart.pdf

⁴⁸U.S. Department of Energy (DOE). 12-30% of Energy Put into a Conventional Car is Used to Move the Car Down the Road. August 27, 2018. <https://www.energy.gov/eere/vehicles/articles/fotw-1044-august-27-2018-12-30-energy-put-conventional-car-used-move-car-down>

⁴⁹U.S. Energy Information Administration (EIA). How much electricity does an American home use? October 2020. <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3#:~:text=How%20much%20electricity%20does%20an,about%20914%20kWh%20per%20month.>

⁵⁰GSM Arena. Apple iPhone 11 Technical Specifications. 2019.

https://www.gsmarena.com/apple_iphone_11-9848.php

⁵¹U.S. Environmental Protection Agency (EPA). Greenhouse Gas Emissions from a Typical Passenger Vehicle. May 2018

<https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%20grams%20of%20CO2.>

⁵²U.S. EPA. Greenhouse Gases Equivalencies Calculator – Calculations and References. May 27, 2020.

& Generation Resource Integrated Database (eGRID) from the U.S. Environmental Protection Agency (EPA)⁵³, the evaluation team estimated that approximately 70 percent of the electricity produced for residential consumption in Illinois is sourced from coal and 30 percent is sourced from natural gas.⁵⁴ Thus, the number of coal-fired and natural gas-fired kWh displaced by ILSFA solar power is equal to the total ILSFA output multiplied by 0.7 and 0.3, respectively.

- *Coal-fired electricity displaced by ILSFA (in kWh) = ILSFA output (in kWh) × 0.7*
- *Natural gas-fired electricity displaced by ILSFA (in kWh) = ILSFA output (in kWh) × 0.3*

2. *Amount of Fuel per kWh:* Second, the evaluation team calculated the amount of coal and natural gas needed to produce the proportion of the ILSFA output that would have otherwise been sourced from each fuel.

- *Tons of Coal Burned:* According to the U.S. Energy Information Administration (EIA), the average amount of coal used to generate a kWh of electricity is 1.13 pounds per kWh. There are 2,000 pounds per short ton, therefore $(1.13/2,000) = 0.00057$ short tons of coal are required to produce one kilowatt-hour (kWh) of electricity.⁵⁵
- *Amount of coal displaced (in Tons) =*
Coal-fired electricity displaced by ILSFA (in kWh) × 0.00057 $\left(\frac{\text{Tons}}{\text{kWh}}\right)$
- *Cubic Feet of Natural Gas Burned:* According to the EIA, producing one kWh of electricity requires the burning of 7.43 cubic feet (cf) of natural gas.⁵⁶
- *Amount of natural gas displaced (in Cubic ft.) =*
Natural gas-fired electricity displaced by ILSFA (in kWh) × 7.43 $\left(\frac{\text{Cubic ft.}}{\text{kWh}}\right)$

3. *Total Energy Content by Fuel:* Third, the evaluation team converted the amounts of coal and natural gas displaced to the total amounts of energy (in MMBtu) released from burning those respective amounts of each fuel. According to the EIA, one short ton of coal contains 18,856,000 Btu (18.856 MMBtu) and one cubic foot of natural gas contains 1,037 Btu (0.001037 MMBtu).⁵⁷ The total energy that would have otherwise been released by the displaced coal and natural gas is equal to the amount of coal (in short tons) and natural gas (in cubic feet) multiplied by 18.856 and 0.001037 respectively.

- *Energy released from burning coal (in MMBtu) =*
Amount of coal (in Tons) × 18.856 $\left(\frac{\text{MMBtu}}{\text{Ton}}\right)$

⁵³U.S. Environmental Protection Agency (February 2021). 2019 Emissions & Generation Resource Integrated Database (eGRID2019). <https://www.epa.gov/egrid/emissions-generation-resource-integrated-database-egrid>

⁵⁴This generation mix is changing because of coal plant closures and future numbers may be different.

⁵⁵U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021. <https://www.eia.gov/tools/faqs/faq.php?id=667&t=3>

⁵⁶U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021.

⁵⁷U.S. Energy Information Administration (EIA). Units and Calculators Explained. April 2021. <https://www.eia.gov/energyexplained/units-and-calculators/>

- $\text{Energy released from burning natural gas (in MMBtu)} = \text{Amount of natural gas (in Cubic ft.)} \times 0.001037 \left(\frac{\text{MMBtu}}{\text{Cubic ft.}} \right)$
4. *Carbon Emissions per MMBtu by Fuel:* Fourth, the evaluation team found the CO₂ emissions that would have been produced if the respective amounts of coal and natural gas had not been replaced by solar. According to the EIA, burning one MMBtu of coal produces 205.7 pounds of CO₂ and burning one MMBtu of natural gas produces 117 pounds of CO₂. The reduction in CO₂ emissions (in pounds) attributable to the displacement of coal and natural gas-fired electricity is equal to the MMBtu values multiplied by 205.7 and 117 respectively.⁵⁸
- $\text{CO}_2 \text{ emissions avoided from coal (in Lbs.)} = \text{Energy released from burning coal (in MMBtu)} \times 205.7 \left(\frac{\text{Lb.}}{\text{MMBtu}} \right)$
 - $\text{CO}_2 \text{ emissions avoided from natural gas (in Lbs.)} = \text{Energy released from burning natural gas (in MMBtu)} \times 117 \left(\frac{\text{Lb.}}{\text{MMBtu}} \right)$
5. *Total Reduction in Carbon Emissions:* The reduction in emissions attributable to the displacement of coal and natural gas were added to calculate the total emissions avoided.
- $\text{CO}_2 \text{ emissions avoided (in Lbs.)} = \text{CO}_2 \text{ emissions avoided from coal} + \text{CO}_2 \text{ emissions avoided from natural gas}$

Combining these steps together yields the following equation for calculating the emissions avoided for a given year's estimated ILSFA Output (in kWh).

- $\text{CO}_2 \text{ emissions avoided (in lbs)} = (\text{ILSFA output (in kWh)}) \times ((0.7 \times 0.00057 \times 18.856 \times 205.7) + (0.3 \times 7.43 \times 0.001037 \times 117))$
- $\text{CO}_2 \text{ emissions avoided (in lbs)} = \text{ILSFA output (in kWh)} \times 1.82$

Barrels of Oil

According to the EIA, on average it takes 0.08 gallons of fuel oil to generate one kWh of electricity.⁵⁹ There are 42 gallons in a barrel so the number of barrels of fuel oil that would have been required to produce the same amount of electricity as the ILSFA in a given program year is $(0.08/42) =$ approximately 0.0019 barrels.

Gallons of Gasoline

According to the Alternative Fuels Data Center, the heat energy contained within one gallon of gasoline is equivalent to 33.3 kWh of electricity.⁶⁰ However, the Department of Energy clarifies that modern gasoline engines are only about 30 percent efficient.⁶¹ Combining those

⁵⁸U.S. Energy Information Administration (EIA). How much carbon dioxide is produced when different fuels are burned? June 17, 2020. <https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>

⁵⁹U.S. Energy Information Administration (EIA). How much coal, natural gas, or petroleum is used to generate a kilowatt hour of electricity? April 2021. <https://www.eia.gov/tools/faqs/faq.php?id=667&t=3>

⁶⁰Alternative Fuels Data Center (AFDC). Fuel Properties Comparison. January 2021. https://afdc.energy.gov/fuels/fuel_comparison_chart.pdf

⁶¹U.S. Department of Energy (DOE). 12-30% of Energy Put into a Conventional Car is Used to Move the Car Down the Road. August 27, 2018. <https://www.energy.gov/eere/vehicles/articles/fotw-1044-august-27-2018-12-30-energy-put-conventional-car-used-move-car-down>

two factors, the result is that burning one gallon of gasoline will produce about $(33.3 \times 0.3) = 10$ kWh of electricity, and the amount of gasoline that would have been required to produce the same amount of electricity as the ILSFA Program in a given program year is $(1/10) = 0.10$ gallons.

Homes Powered

According to the most recently available EIA data, the average annual electric consumption for a residential utility customer in the U.S. was 10,649 kWh in 2019.⁶² The number of homes powered by the electricity produced by the ILSFA in a given program year was calculated by multiplying the output of the ILSFA in kWh for that program year by $(1/10,649) =$ approximately 0.000094.

iPhones Charged

According to GSM Arena, who receive their information directly from Apple, the iPhone 11 has a battery size of 11.91 Wh.⁶³ By dividing the battery size in Wh by 1,000 the result is that the iPhone 11's battery holds roughly 0.01191 kWh per charge. Thus, the number of iPhones that could be charged with the electricity produced by the ILSFA was calculated by multiplying the total output in kWh for each program year by $(1/0.01191) =$ approximately 84.

Cars Taken Off the Road

The environmental benefits of transitioning from fossil fuels to the solar power produced by ILSFA are comparable to removing cars from the road because both reduce the amount of CO₂ emitted into the atmosphere. In order to find the number of cars taken off the road that is equivalent to the environmental benefits produced by the ILSFA in each program year, the evaluation team first calculated the carbon emissions that would result from the displacement of fossil fuels with solar power in each year. Since different fossil fuels emit different amounts of CO₂ per unit of energy produced, the carbon emissions calculation had to factor in the mix of resources used for residential electricity generation in Illinois. Next, the total reduction in emissions is used to calculate the equivalent number of cars taken off the road.

According to the U.S. Environmental Protection Agency (EPA), the average passenger car emits approximately 4.6 metric tons, or 10,141 pounds, of CO₂ per year.⁶⁴ Thus, to calculate the equivalent number of cars taken off the road the reduction in emissions resulting from the ILSFA for each program year is multiplied by $(1/10,141) =$ approximately 0.000099.

- *Number of cars removed = CO₂ emissions avoided (in Lbs.) \times 0.000099 $\left(\frac{\text{cars}}{\text{lbs CO}_2}\right)$*

⁶²U.S. Energy Information Administration (EIA). How much electricity does an American home use? October 2020. <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3#:~:text=How%20much%20electricity%20does%20an,about%20914%20kWh%20per%20month>.

⁶³GSM Arena. Apple iPhone 11 Technical Specifications. 2019.

https://www.gsmarena.com/apple_iphone_11-9848.php

⁶⁴U.S. Environmental Protection Agency (EPA). Greenhouse Gas Emissions from a Typical Passenger Vehicle. May 2018

<https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%20C887%20grams%20of%20CO2>.

Trees Planted

The environmental benefits of planting trees and transitioning from fossil fuels to renewable solar energy are comparable because both reduce the overall level of carbon dioxide in the atmosphere. According to the EPA, a deciduous tree planted in an urban setting will sequester about 38 pounds of carbon over a ten-year growth period.⁶⁵ To convert the amount sequestered from pounds of carbon to CO₂, this value is multiplied by 44/12, which represents the ratio of the molecular weight of carbon dioxide (44) to an atom of carbon (12).⁶⁶ This calculation shows that the average deciduous tree will sequester $38 \times (44/12) = 139.33$ pounds of CO₂ over a ten-year growth period.

Next, the evaluation team calculated the number of trees that would need to be planted to reduce emissions by the equivalent of transitioning from fossil fuels to ILSFA solar power by multiplying the total ILSFA reduction in CO₂ emissions (in pounds) by $(1/139.33) =$ approximately 0.00718.

- $Number\ of\ trees\ planted = CO_2\ emissions\ avoided\ (in\ Lbs.) \times 0.00718 \left(\frac{trees}{lbs\ CO_2}\right)$

Table IV-2 displays the values from this analysis.

Table IV-2
ILSFA Output Equivalencies

Equivalencies	Projected First Year Impacts				Projected 20-Year Lifetime Impacts*
	PY1	PY2	PY3	PY1-PY3	Total PY1-PY3
Estimated ILSFA Production (kWh)	9,668,833	16,768,883	27,189,927	53,627,643	1,072,552,860
Tons of Coal Burned	5,463	9,474	15,362	30,300	606,000
Cubic Feet of NG Burned	71,839,429	124,592,801	202,021,158	398,453,387	7,969,067,740
Barrels of Oil Consumed	18,417	31,941	51,790	102,148	2,042,960
Gallons of Gasoline Consumed	966,883	1,676,888	2,718,993	5,362,764	107,255,280
Homes Powered	908	1,575	2,553	5,036	100,720
iPhones Charged	811,824,769	1,407,966,667	2,282,949,370	4,502,740,806	90,054,816,120
Cars Taken Off the Road	1,720	2,984	4,838	9,542	190,840
Trees Planted	125,270	217,258	352,273	694,801	13,896,020

*Note: 20 year estimate does not reduce annual production for degradation.

⁶⁵U.S. Environmental Protection Agency (EPA). Greenhouse Gases Equivalencies Calculator – Calculations and References. May 27, 2020. <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

⁶⁶U.S. EPA. Greenhouse Gases Equivalencies Calculator – Calculations and References. May 27, 2020.

B. Environmental Impacts

Environmental benefits result from the ILSFA Program because the solar energy production from ILSFA projects replaces electricity generation from power plants and the negative environmental impacts that are associated with that usage.

Major air pollutants associated with electric power generation include the following.

- Greenhouse gases (GHG, represented in CO₂-equivalents)
- Sulfur dioxide (SO₂)
- Nitrogen oxides (NO_x)
- Fine particulate matter less than 2.5 micrometers in diameter (PM 2.5)
- Volatile organic compounds (VOCs)

The estimation of environmental benefits associated with the ILSFA Program involved the following steps. These steps were comparable with the procedures used in the evaluation of the National Weatherization Assistance Program (WAP), with minor modifications and updated to use more recent data sources.⁶⁷

1. *Allocate displaced electric grid generation resulting from solar energy production to each grid region in Illinois.*

American Community Survey (ACS) population data from the U.S. Census Bureau was used to estimate the share of households in Illinois who reside in each Emissions & Generation Resource Integrated Database (eGRID) subregion. These population weights were then used to allocate the displaced electric grid generation resulting from the estimated solar energy production by the program to the eGRID subregions in Illinois.

The displaced electric grid generation resulting from the estimated solar energy production by the program does not account for any line losses between the points of consumption and the points of generation. Accounting for the additional displaced electric grid generation resulting from line losses could be added to the analysis in the future. However, since rooftop solar energy production is not estimated to remove the majority of the line loss to the grid, it is not included in this analysis.⁶⁸

2. *Identify non-baseload electric generation in each grid region in Illinois.*

The non-baseload electric generation from each power plant in the eGRID subregions within Illinois was identified using the 2019 eGRID from the U.S. EPA⁶⁹. Non-baseload generation and emissions rates were used to estimate the emissions that were avoided by displacing marginal fossil fuel power generation from the grid. This approach is based on guidance published by the EPA. Since baseload power plants typically supply electricity to the grid at all times, it is the non-baseload power plants most likely to be displaced by

⁶⁷Oak Ridge National Laboratory (September 2014). Environmental Emissions Nonenergy Benefits: Working Paper. https://weatherization.ornl.gov/wp-content/uploads/pdf/WAPRetroEvalFinalReports/ORNLTM-2015_126.pdf

⁶⁸Davis, Lucas (June 2018). "Does Rooftop Solar Help the Distribution System?" Energy Institute Blog, Haas School of Business, University of California, Berkeley.

⁶⁹U.S. Environmental Protection Agency (February 2021). 2019 Emissions & Generation Resource Integrated Database (eGRID2019). <https://www.epa.gov/egrid/emissions-generation-resource-integrated-database-egrid>

clean energy projects that are at least somewhat coincident with peak demand, such as solar energy production.⁷⁰ The eGRID subregions were used as an approximation for the grid operators providing power to Illinois because solar energy production resulting from the ILSFA Program may reduce the power generated from any power plant within the grid, and because the pollutant damages resulting from power generation vary widely by power plant.

3. *Calculate non-baseload emissions rates for each pollutant in each grid region in Illinois.* The non-baseload emissions rates for each pollutant for each eGRID subregion were calculated. For PM 2.5 and VOCs, this involved combining data on emissions from the 2017 National Emissions Inventory (NEI)⁷¹ with the 2019 eGRID database, since the eGRID database does not include PM 2.5 and VOCs.⁷²
4. *Calculate marginal damage values of each pollutant in each grid region in Illinois.* The marginal damage values were calculated using the Air Pollutant Emissions Experiments and Policy (APEEP) model for criteria air pollutants (SO₂, NO_x, PM 2.5, and VOCs) as recommended by the National Research Council (NRC) in its 2010 Report to Congress. For GHGs, based on guidance from the Office of Management and Budget (OMB), the Social Cost of Carbon (SCC)⁷³ was used to estimate the value of avoided CO₂-equivalent emissions. Values from both the APEEP model and SCC were updated to 2020 dollars.
5. *Calculate quantity of avoided emissions of each pollutant in each grid region in Illinois.* The quantity of avoided emissions of each pollutant was calculated by multiplying the amount of displaced electric grid generation allocated to each eGRID subregion by the emissions rates of each pollutant in those subregions. This was calculated for the quantity of first year and lifetime avoided emissions. For the latter, a 20-year measure life and constant solar energy production and displaced electric grid generation was used. However, consistent with the National WAP Evaluation, certain pollutants (SO₂, NO_x, and PM 2.5) were assumed to experience reductions in emissions over the lifetime of the measures due to other efforts toward emission reduction, and the emissions rates were reduced by assuming that the rates would be 50 percent of their current values in 25 years.

⁷⁰Art Diem and Cristina Quiroz (July 2012). How to use eGRID for Carbon Footprinting Electricity Purchases in Greenhouse Gas Emission Inventories. Environmental Protection Agency (EPA), pages 10-11. <https://www.epa.gov/sites/production/files/2015-01/documents/adiem.pdf>

⁷¹U.S. Environmental Protection Agency (April 2020). 2017 National Emissions Inventory (NEI). <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data>

⁷²In July 2020, the EPA published preliminary estimates of PM 2.5 emissions for eGRID (U.S. Environmental Protection Agency (July 2020). Estimating Particulate Matter Emissions for eGRID. https://www.epa.gov/sites/production/files/2020-07/documents/draft_egrid_pm_white_paper_7-20-20.pdf). However, the EPA has not published final guidance and is still seeking comment on the procedures. Accordingly, the evaluation team continued to use the PM2.5 emissions data from NEI and are evaluating whether to use the new procedures in the future depending on action from the EPA.

⁷³Interagency Working Group of Social Cost of Greenhouse Gases (August 2016). Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Analysis. https://obamawhitehouse.archives.gov/sites/default/files/omb/infogov/scc_tsd_final_clean_8_26_16.pdf

6. Calculate value of avoided emissions of each pollutant in each grid region in Illinois.

The evaluation team estimated the value of the avoided emissions of each pollutant by multiplying the quantity of avoided emissions in each eGRID subregion by the marginal damage value of those emissions in each eGRID subregion. The value of first year and lifetime values of avoided emissions were calculated. For the latter, a three percent discount rate was used. In addition, the marginal damage values of criteria air pollutants (SO₂, NO_x, PM 2.5, and VOCs) were assumed to be 150 percent of their current values in 25 years.

Table IV-3 displays the projected estimated solar energy production by program and project year. For the analysis of the emissions reductions benefits associated with the solar energy production, it is assumed that the projects will have the same solar energy production each year over a 20-year lifetime.

Table IV-3
Projected Estimated Solar Energy Production by Program and Project Year

	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021			
	NP/PF	CS	Total PY1	NP/PF	CS	DG	Total PY2	NP/PF	CS	DG	Total PY3
Projected Estimated Production (MWh/year)	1,900	7,769	9,669	3,957	8,554	4,258	16,769	14,700	10,552	1,938	27,190

Table IV-4 displays the estimated share of Illinois households residing in each eGRID subregion based on the ACS data. These shares were used to allocate the displaced electric grid generation to the eGRID subregions.

Table IV-4
Estimated Share of Illinois Households in eGRID Subregions

eGRID Subregion	Percent of Households
RFCW	70.8%
SRMW	27.8%
MROW	1.4%
Total	100.0%

Table IV-5 displays the estimated displaced electric grid generation resulting from the solar energy production allocated to each eGRID subregion. The values shown are in MWh for first year displaced electric grid generation. For example, based on having an estimated 70.8 percent of the household population, the RFCW subregion is allocated 19,255 MWh of the 27,190 MWh estimated total solar energy production in PY3.

Table IV-5
First Year Displaced Electric Grid Generation Allocated to eGRID Subregions

eGRID Subregion	First Year Displaced Electric Grid Generation (MWh)		
	PY1: 2018-2019	PY2: 2019-2020	PY3: 2020-2021
RFCW	6,847	11,875	19,255
SRMW	2,684	4,655	7,548
MROW	138	239	387
Total	9,669	16,769	27,190

Table IV-6A displays the estimated share of each fuel type used in generating non-baseload power in the eGRID subregions, weighted according to the estimated share of Illinois households residing in each eGRID subregion. Because each subregion has a different fuel mix for non-baseload generation, the pollutant emissions rates vary by subregion. For example, burning coal emits more CO₂ per energy produced than burning gas, so all else being equal, a subregion that has more non-baseload generation from coal compared to gas will have a higher emissions rate of CO₂-equivalents.

Table IV-6A
Share of Fuel Types Used in Generating Non-Baseload Power
By eGRID Subregion

Fuel Type	Fuel Share			
	RFCW	SRMW	MROW	Weighted Share
Coal	66.23%	81.46%	67.32%	70.47%
Gas	30.99%	18.15%	30.18%	27.41%
Other fossil	1.27%	0.01%	0.22%	0.93%
Oil	0.67%	0.11%	0.33%	0.51%
Biomass	0.85%	0.17%	1.76%	0.67%
Hydro	0.00%	0.00%	0.03%	0.00%
Wind	0.00%	0.00%	0.17%	0.00%
Solar	0.00%	0.00%	0.00%	0.00%
Nuclear	0.00%	0.00%	0.00%	0.00%
Geothermal	0.00%	0.00%	0.00%	0.00%
Total Non-Renewable	99.15%	99.83%	98.04%	99.32%
Total Renewable	0.85%	0.17%	1.96%	0.68%

Table IV-6B displays the estimated share of each fuel type used in generating non-baseload power in the utility territories, in the weighted utility total (weighted by projected production for approved projects), and in the weighted eGRID total. The table shows that there are some

differences between the utilities and that the weighted utility total has a lower percentage of coal and a higher percentage of gas than the weighted eGRID total.

Table IV-6B
Share of Fuel Types Used in Generating Non-Baseload Power
By Utility

Fuel Type	Fuel Share				
	ComEd	Ameren	MidAmerican	Weighted Utility	Weighted eGRID
Coal	46.68%	84.77%	0.00%	57.88%	70.47%
Gas	51.69%	14.93%	100.00%	40.92%	27.41%
Other fossil	0.55%	0.18%	0.00%	0.43%	0.93%
Oil	0.02%	0.11%	0.00%	0.05%	0.51%
Biomass	1.06%	0.01%	0.00%	0.73%	0.67%
Hydro	0.00%	0.00%	0.00%	0.00%	0.00%
Wind	0.00%	0.00%	0.00%	0.00%	0.00%
Solar	0.00%	0.00%	0.00%	0.00%	0.00%
Nuclear	0.00%	0.00%	0.00%	0.00%	0.00%
Geothermal	0.00%	0.00%	0.00%	0.00%	0.00%
Total Non-Renewable	98.94%	99.99%	100.00%	99.27%	99.32%
Total Renewable	1.06%	0.01%	0.00%	0.73%	0.68%

Table IV-7A displays the estimated non-baseload emissions rates for each pollutant in each eGRID subregion in Illinois. The values shown are in pounds per MWh and are for first year savings. For example, this means that for each MWh of solar electricity produced and grid electricity displaced in the RFCW subregion, 1,844 pounds of CO₂-equivalents are avoided.

Table IV-7A
First Year Pollutant Emissions Rates from Non-Baseload Electric Generation
By eGRID Subregion

Pollutant	Non-Baseload Electric Generation Emissions Rates (lb./MWh)		
	RFCW	SRMW	MROW
CO ₂ -eq	1,844	1,976	1,825
SO ₂	1.275	2.828	1.703
NO _x	1.537	1.227	1.398
PM 2.5	0.242	0.138	0.123
VOC	0.062	0.046	0.045

Table IV-7B displays the estimated non-baseload emissions rates for each pollutant in each utility territory, in the weighted utility total (weighted by projected production for approved projects), and in the weighted eGRID total. The weighted utility total has lower emission rates than the weighted eGRID total.

Table IV-7B
First Year Pollutant Emissions Rates from Non-Baseload Electric Generation
By Utility

Pollutant	Non-Baseload Electric Generation Emissions Rates (lb./MWh)				
	ComEd	Ameren	MidAmerican	Weighted Utility	Weighted eGRID
CO ₂ -eq	1,738	1,988	803	1,803	1,880
SO ₂	0.777	2.728	0.004	1.372	1.713
NO _x	0.803	1.031	0.066	0.864	1.449
PM 2.5	0.064	0.091	0.029	0.072	0.212
VOC	0.022	0.034	0.006	0.026	0.058

Table IV-8 displays the avoided emissions of each pollutant resulting from the estimated displaced electric grid generation in each eGRID subregion and project year. Values are shown in tons of avoided CO₂-equivalent emissions and pounds of avoided criteria air pollutant emissions. For example, in PY3, based on the estimated displaced electric grid generation in the RFCW subregion, an estimated 17,751 tons of CO₂-eq emissions would be avoided and 24,557 lbs. of SO₂ emissions would be avoided.

Table IV-8
Avoided Emissions Resulting from Estimated Displaced Electric Grid Generation

Pollutant	Avoided Emissions (tons for CO ₂ -eq, lbs. for criteria air pollutants)											
	PY1				PY2				PY3			
	RFCW	SRMW	MROW	Total	RFCW	SRMW	MROW	Total	RFCW	SRMW	MROW	Total
CO ₂ -eq (tons)	6,312	2,651	126	9,089	10,947	4,598	218	15,764	17,751	7,456	353	25,560
SO ₂ (lbs.)	8,733	7,592	235	16,559	15,145	13,166	407	28,718	24,557	21,349	659	46,565
NO _x (lbs.)	10,527	3,294	192	14,014	18,257	5,713	334	24,304	29,603	9,264	541	39,407
PM 2.5 (lbs.)	1,660	370	17	2,046	2,878	641	29	3,549	4,667	1,040	48	5,754
VOC (lbs.)	427	125	6	558	740	216	11	967	1,200	351	18	1,568

Table IV-9 displays the estimated marginal damage values associated with each pollutant in each eGRID subregion in Illinois. The values shown are in dollars per ton, in 2020 dollars, for first year avoided emissions. For CO₂-eq, separate values are used for each project year since the SCC increases over time. The value corresponding to each program year was converted from 2007 dollars to 2020 dollars. The marginal damage values for criteria air

pollutants are based on the APEEP model, which uses a damage function based on existing emission levels, population, and other local factors that vary geographically.

**Table IV-9
First Year Marginal Damage Values of Pollutants in Dollars per Ton
By eGRID Subregion**

Pollutant	Marginal Damage Value (\$/ton, 2020 dollars)		
	RFCW	SRMW	MROW
CO ₂ -eq (PY1, 2019)	\$51.18	\$51.18	\$51.18
CO ₂ -eq (PY2, 2020)	\$52.43	\$52.43	\$52.43
CO ₂ -eq (PY3, 2021)	\$52.43	\$52.43	\$52.43
SO ₂	\$28,177	\$22,931	\$14,081
NO _x	\$5,975	\$8,356	\$6,964
PM 2.5	\$45,799	\$28,977	\$18,359
VOC	\$4,391	\$2,788	\$1,762

Table IV-10A displays the estimated marginal damage values associated with each pollutant in each eGRID subregion in Illinois, converted from dollars per ton to dollars per MWh using the non-baseload emissions rates identified for each subregion. The values shown are in 2020 dollars per MWh for first year avoided emissions. Here, the marginal values of CO₂-equivalents differ by subregion because the emissions rates of CO₂-equivalents vary by subregion, owing to the different fuel mix used for non-baseload generation in each subregion.

**Table IV-10A
First Year Marginal Damage Values of Pollutants per MWh
By eGRID Subregion**

Pollutant	Marginal Damage Value (\$/MWh, 2020 dollars)		
	RFCW	SRMW	MROW
CO ₂ -eq (PY1, 2019)	\$42.80	\$45.86	\$42.36
CO ₂ -eq (PY2, 2020)	\$43.84	\$46.98	\$43.39
CO ₂ -eq (PY3, 2021)	\$43.84	\$46.98	\$43.39
SO ₂	\$17.97	\$32.43	\$11.99
NO _x	\$4.59	\$5.13	\$4.87
PM 2.5	\$5.55	\$2.00	\$1.13
VOC	\$0.14	\$0.06	\$0.04

Table IV-10B displays the estimated marginal damage values associated with each pollutant in each utility territory, in the weighted utility total (weighted by projected production for approved projects), and in the weighted eGRID total. The table shows that the values vary by utility and are somewhat lower for the weighted utility than for the weighted eGRID value.

**Table IV-10B
First Year Marginal Damage Values of Pollutants per MWh
By Utility**

Pollutant	Marginal Damage Value (\$/MWh, 2020 dollars)				
	ComEd	Ameren	MidAmerican	Weighted Utility	Weighted eGRID
CO ₂ -eq (PY1, 2019)	\$40.33	\$46.16	\$18.64	\$41.86	\$43.64
CO ₂ -eq (PY2, 2020)	\$41.32	\$47.29	\$19.10	\$42.88	\$44.71
CO ₂ -eq (PY3, 2021)	\$41.32	\$47.29	\$19.10	\$42.88	\$44.71
SO ₂	\$13.46	\$33.22	\$0.05	\$19.41	\$21.90
NO _x	\$5.41	\$4.79	\$0.30	\$5.15	\$4.75
PM 2.5	\$2.16	\$1.43	\$0.52	\$1.91	\$4.50
VOC	\$0.07	\$0.05	\$0.01	\$0.06	\$0.12

The value of avoided emissions resulting from the first year solar energy production and the net present value of the lifetime solar energy production resulting from the program were calculated. To calculate the value of avoided emissions resulting from the first year solar energy production and displaced electric grid generation, the following formula was used.

$$\text{First year benefits} = (\text{Displaced electric grid generation}) \times (\text{Pollutant emissions rate}) \times (\text{Marginal damage value of avoided pollutant})$$

To calculate the net present value of avoided emissions resulting from the lifetime savings of the program, the following formulas were used.

Lifetime benefits

$$= \sum_{n=1}^{20} \frac{(\text{Displaced electric grid generation year } n) \times (\text{Pollutant emissions rate year } n) \times (\text{Marginal damage value year } n)}{\text{Discount rate year } n}$$

Where:

$$\text{Pollutant emissions rate year } n = \text{Pollutant emissions rate} \times (1 + \text{emissions reduction rate})^{(n-1)}$$

$$\text{Marginal damage value year } n = \text{Marginal value of avoided emissions} \times (1 + \text{damage increase rate})^{(n-1)}$$

$$\text{Discount rate year } n = (1 + \text{discount rate})^{(n-1)}$$

The net present value of the lifetime avoided emissions was calculated with the following assumptions.

- The solar energy production and displaced electric grid generation from the first year of the solar projects were assumed to remain the same each subsequent year for the 20-year expected lifetime of the projects.
- The emissions rates for certain pollutants (SO₂, NO_x, and PM 2.5) were assumed to decrease over time.
- The damage values for criteria air pollutants (SO₂, NO_x, PM 2.5, and VOCs) were assumed to increase over time.
- The social cost of carbon, as published by the Interagency Working Group, increases over time.
- The values were discounted to present using a three percent discount rate.

Table IV-11 displays the estimated value of avoided emissions resulting from the ILSFA Program. The results are shown as first year benefits from the first three years of selected ILSFA projects and the net present value of lifetime benefits for the stream of projects completed in each program year. Total first year benefits for all selected projects are estimated to be \$4,063,649 and total lifetime benefits are estimated to be \$66,490,188.

Table IV-11
Estimated Value of Avoided Emissions

Pollutant	First Year Benefits (\$)				NPV Lifetime Benefits (2020\$)			
	PY1 (2019)	PY2 (2020)	PY3 (2021)	Total	PY1 (2019)	PY2 (2020)	PY3 (2021)	Total
CO ₂ -eq	\$421,991	\$749,711	\$1,215,615	\$2,387,318	\$7,606,003	\$13,433,655	\$22,173,654	\$43,213,312
SO ₂	\$211,723	\$367,192	\$595,382	\$1,174,297	\$2,936,839	\$5,093,376	\$8,258,626	\$16,288,840
NO _x	\$45,883	\$79,575	\$129,027	\$254,484	\$636,449	\$1,103,797	\$1,789,745	\$3,529,990
PM 2.5	\$43,516	\$75,471	\$122,371	\$241,358	\$603,621	\$1,046,863	\$1,697,429	\$3,347,913
VOC	\$1,116	\$1,936	\$3,139	\$6,191	\$19,857	\$34,438	\$55,840	\$110,135
Total	\$724,229	\$1,273,885	\$2,065,534	\$4,063,649	\$11,802,768	\$20,712,128	\$33,975,292	\$66,490,188

C. Economic Impacts

The ILSFA Program results in economic benefits because it shifts expenditures from those industries that have lower economic multipliers to industries that have higher multipliers. Two key expenditure shifts occur as a result of the program.

1. *ILSFA Program expenditures replace general retail expenditures:* Funding for the ILSFA Program is from the RERF and utility ratepayer funds. These ILSFA expenditures were assumed to replace retail purchases that would have been made in the absence of these ratepayer charges.
2. *Retail expenditures replace electricity expenditures:* The ILSFA Program results in reductions in electric costs for program participants who install DG or participate in community solar, and for nonprofit and public facilities that install solar. When electricity

costs decline as a result of the ILSFA Program, participants were assumed to increase their spending on retail goods.

The economic benefits result because of the following.

1. Expenditures on solar installations create more economic activity than expenditures on retail goods.
2. Expenditures on retail goods create more economic activity than expenditures on electricity.

These differences result from the labor-intensity of each industry and the percentage of expenditures that are made in Illinois. The total economic benefit from the ILSFA Program is the sum of the two key expenditure shifts that occur because of the program.

Methodology

The macroeconomic effects of any economic activity are generally divided into three categories.

- *Direct Effects*: The direct effects are jobs and output created from the initial investment in a program. For the ILSFA Program, examples include the salaries of program administrators, the salaries of workers hired to install the solar systems, and the salaries of staff hired to conduct Grassroots Education.
- *Indirect Effects*: The indirect effects are jobs and output in industries that supply goods and services to the program. For ILSFA, an example would be the jobs created by the AV expenditures on supplies. While the solar panels are not manufactured in Illinois, other goods purchased as part of the installation activities will add income to residents of Illinois.
- *Induced Effects*: The induced effects are jobs and output created when the individuals who are directly and indirectly affected by the program spend their earnings. One of the goals of the ILSFA Program is to have Approved Vendors hire new job trainees in Illinois to add to the green workforce. Expenditures by these hires will impact the economy in Illinois.

These macroeconomic effects can be calculated using economic multipliers. A multiplier shows the change in jobs or output that results from a change in final demand in any given industry. A multiplier is defined as follows.

$$\text{Multiplier} = \frac{\text{direct effect} + \text{indirect effect} + \text{induced effect}}{\text{direct effect}}$$

The evaluation team estimated the impact of the ILSFA Program on output and employment by comparing the multipliers for the industries with ILSFA expenditures to those in the absence of the program. Because there is an opportunity cost to all spending decisions, it is not sufficient to only examine the economic impact of funds spent through the ILSFA

Program. It is critical to subtract the economic activity that would have occurred in the absence of the program.

Each source of economic impact was matched with the appropriate industry multipliers. The multipliers used in the analysis were obtained from the Regional Input-Output Modeling System II (RIMS-II) produced by the Bureau of Economic Analysis (BEA). To calculate the RIMS-II multipliers, the BEA uses a set of national input-output accounts that record the goods and services used by each industry. The input-output accounts used for RIMS-II are based on 2012 national benchmarks and 2018 regional data.⁷⁴

Multipliers are also affected by local supply conditions. The BEA takes this into account by adjusting each regional industry multiplier by the industry's concentration in the region relative to its concentration in the nation. RIMS-II Type II multipliers include not only direct and indirect effects but also induced effects. As described above, induced effects capture the impact of the increased spending by individuals whose income has risen as a direct or indirect result of the program. Accounting for induced effects is necessary to calculate the full economic impact of the ILSFA Program.

Calculations were performed using the following formulas.

$$\begin{aligned} \textcircled{1} \text{ Impact due to ILSFA Expenditure} &= [\$ \textit{Spent in IL} \times (\textit{Output Multiplier with ILSFA} - \textit{Retail Output Multiplier})] \\ &\quad - (\$ \textit{Spent Outside of IL} \times \textit{Retail Output Multiplier}) \\ \textcircled{2} \text{ Impact due to Electric Cost Reduction} &= \textit{ILSFA Bill Savings} \times (\textit{Retail Output Multiplier} - \textit{Utility Output Multiplier}) \\ \text{Economic Output Impact} &= \textcircled{1} + \textcircled{2} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \text{ Impact due to ILSFA Expenditure} &= \frac{1}{\$1,000,000} \times \{[\$ \textit{Spent in IL} \times (\textit{Job Multiplier with ILSFA} - \textit{Retail Job Multiplier})] \\ &\quad - (\$ \textit{Spent Outside of IL} \times \textit{Retail Job Multiplier})\} \\ \textcircled{4} \text{ Impact due to Electric Cost Reduction} &= \frac{1}{\$1,000,000} \times \textit{ILSFA Bills Saved} \times (\textit{Retail Job Multiplier with ILSFA} - \\ &\quad \textit{Utility Job Multiplier}) \\ \text{Employment Impact} &= \textcircled{3} + \textcircled{4} \end{aligned}$$

Economic Output Impact

This section analyzes the economic output impact of the ILSFA Program. Table IV-12 displays ILSFA expenditure data and an estimate of the percent spent in Illinois. The total expenditures for the three program years were approximately \$61.2 million. There are several sources for these data.

- **IPA Expenditures:** IPA administrative expenditures were reported by the IPA and REC expenditures were based on program administration data. The percent of REC dollars spent on labor, materials, and other were reported by the AVs as part of the AV survey.

⁷⁴ The multipliers were purchased at this website: <https://apps.bea.gov/regional/rims/rimsii/>

- Elevate and NERA Expenditures: These expenditures were reported by the IPA.
- Percent Spent in Illinois: The percent of labor, materials, and other costs spent in Illinois were reported by AVs in the AV survey. IPA costs and Elevate costs were assumed to be spent in Illinois and the NERA costs were assumed to be spent out of Illinois. The 20 percent of evaluation costs for the subcontractor located in Illinois were assumed to be spent in Illinois.

Table IV-12
ILSFA Program Expenditures

Expenditures		Expenditures			% Spent in IL
		PY1	PY2	PY3	
IPA Expenditures					
Administrative		\$375,426	\$222,155	\$299,019	100%
RECs	Labor Cost (42%)	\$4,530,000	\$9,280,000	\$7,930,000	96%
	Material Cost (46%)	\$4,960,000	\$10,160,000	\$8,680,000	74%
	Other Cost (11%)	\$1,290,000	\$2,650,000	\$2,270,000	89%
Evaluation		\$76,731	\$339,550	\$496,095	
Elevate Expenditures					
Administrative		\$1,164,751	\$1,049,229	\$1,163,993	100%
Call Center		\$34,487	\$37,451	\$41,937	100%
IT (Website, Portal, etc.)		\$687,487	\$287,371	\$339,297	100%
Grassroots Education		\$257,580	\$461,446	\$448,984	100%
Other Marketing/Outreach		\$240,584	\$152,410	\$145,260	100%
Quality Assurance		\$11,123	\$12,590	\$12,975	100%
Job Training		\$85,244	\$119,069	\$58,182	100%
NERA Expenditures					
Administrative		\$192,400	\$461,160	\$185,684	0%
TOTAL		\$13,909,773	\$25,238,942	\$22,069,166	

Note: PY1 includes plan development work completed prior to PY1.

Table IV-13 displays the RIMS-II output multipliers in the presence and the absence of the ILSFA Program. The output multipliers represent the dollars of output created for each additional dollar of expenditures. The table also displays the output multiplier change as the difference between the multipliers with and without the ILSFA Program.

**Table IV-13
Output Multipliers Used to Estimate ILSFA Economic Output Impact**

Category	Output Multiplier With Program		Output Multiplier Without Program		Output Multiplier Change
	Description	Multiplier	Description	Multiplier	
IPA Expenditures					
Administrative	Administrative and Support Services		Other Retail	0.9878	1.3486
RECs	Labor	Construction	Other Retail	0.9878	1.411
	Material	Electrical equipment, appliance, and component manufacturing	Other Retail	0.9878	-0.2081
	Other	Administrative and Support Services	Other Retail	0.9878	1.3486
Evaluation	Professional, scientific, and technical services		Other Retail	0.9878	1.2834
Elevate Expenditures					
Administrative	Administrative and Support Services		Other Retail	0.9878	1.3486
Call Center	Administrative and Support Services		Other Retail	0.9878	1.3486
IT	Data processing, hosting, and other information services		Other Retail	0.9878	1.1978
Grassroots Education	Social Assistance		Other Retail	0.9878	1.3917
Marketing/Outreach	Administrative and Support Services		Other Retail	0.9878	1.3486
Quality Assurance	Professional, scientific, and technical services		Other Retail	0.9878	1.2834
Job Training	Educational Services		Other Retail	0.9878	1.1941
NERA Expenditures					
Administrative	Administrative and Support Services		Other Retail	0.9878	1.3486

Table IV-14 displays the first year impact of the ILSFA Program on economic output due to the shift from retail spending to ILSFA expenditures. The estimated increase in output for the three program years is around \$34.5 million.

**Table IV-14
ILSFA Expenditures Impact on Economic Output**

Expenditures	Expenditures			% Spent in IL	Output Multipliers		Economic Output Impact			
	PY1	PY2	PY3		ILSFA	Retail	PY1	PY2	PY3	Total
IPA Expenditures										
Administrative	\$375,426	\$222,155	\$299,019	100%	2.3364	0.9878	\$506,299	\$299,598	\$403,258	\$1,209,155
RECs Labor	\$4,529,263	\$9,280,534	\$7,928,651	96%	2.3988	0.9878	\$5,956,199	\$12,204,348	\$10,426,556	\$28,587,103

Expenditures	Expenditures			% Spent in IL	Output Multipliers		Economic Output Impact			
	PY1	PY2	PY3		ILSFA	Retail	PY1	PY2	PY3	Total
Material	\$4,960,622	\$10,164,395	\$8,683,760	74%	0.7797	0.9878	-\$2,037,932	-\$4,175,757	-\$3,567,480	-\$9,781,169
Other	\$1,294,075	\$2,651,581	\$2,265,329	89%	2.3364	0.9878	\$1,412,607	\$2,894,455	\$2,472,824	\$6,779,887
Evaluation	\$76,731	\$339,550	\$496,095	20%	2.2712	0.9878	-\$40,941	-\$181,170	-\$264,696	-\$486,807
Elevate Expenditures										
Administrative	\$1,164,751	\$1,049,229	\$1,163,993	100%	2.3364	0.9878	\$1,570,783	\$1,414,990	\$1,569,762	\$4,555,535
Call Center	\$34,487	\$37,451	\$41,937	100%	2.3364	0.9878	\$46,510	\$50,506	\$56,557	\$153,573
IT	\$687,487	\$287,371	\$339,297	100%	2.1856	0.9878	\$823,471	\$344,213	\$406,410	\$1,574,095
Grassroots Education	\$257,580	\$461,446	\$448,984	100%	2.3795	0.9878	\$358,474	\$642,195	\$624,851	\$1,625,521
Marketing/Outreach	\$240,584	\$152,410	\$145,260	100%	2.3364	0.9878	\$324,452	\$205,541	\$195,897	\$725,890
Quality Assurance	\$11,123	\$12,590	\$12,975	100%	2.2712	0.9878	\$14,275	\$16,157	\$16,651	\$47,084
Job Training	\$85,244	\$119,069	\$58,182	100%	2.1819	0.9878	\$101,790	\$142,181	\$69,475	\$313,445
NERA Expenditures										
Administrative	\$192,400	\$461,160	\$185,684	0%	2.3364	0.9878	-\$190,053	-\$455,534	-\$183,418	-\$829,005
TOTAL	\$13,909,773	\$25,238,942	\$22,069,166				\$8,845,935	\$13,401,724	\$12,226,646	\$34,474,305

Table IV-15 displays the first year impact of the ILSFA Program on output due to the electric cost reduction. The first year economic output impact for the three program years is \$333,396.

Table IV-15
ILSFA Electric Cost Reduction
Economic Output Impact

ILSFA Subprogram	Electric Cost Reduction*			Output Multipliers		First Year Economic Output Impact			
	PY1	PY2	PY3	Retail	Electric	PY1	PY2	PY3	Total
Distributed Generation (DG)	\$0	\$255,715	\$83,191	0.9878	0.7526	\$0	\$60,144	\$19,567	\$79,711
Community Solar (CS)	\$178,422	\$152,348	\$293,832	0.9878	0.7526	\$41,965	\$35,832	\$69,109	\$146,906
Non-Profits and Public Facilities (NP/PF)	\$101,282	\$172,971	\$179,740	0.9878	0.7526	\$23,822	\$40,683	\$42,275	\$106,779
Total	\$279,704	\$581,034	\$556,763			\$65,786	\$136,659	\$130,951	\$333,396

*For the DG and NP/PF sub-programs, savings are taken from the program data. For the CS subprogram, savings were calculated based on estimated production and the net metering rates, which were obtained from the CS disclosure form on the ILSFA website on 12/23/20.

Table IV-16 displays the total first year output impact of the ILSFA Program in the state of Illinois. The total first year economic output impact is nearly \$35 million. The majority of the impact results from the shift in expenditures on retail goods to the ILSFA Program.

Table IV-16
ILSFA Total First Year Economic Output Impact

Economic Output Impact	PY1	PY2	PY3	Total
ILSFA Expenditure	\$8,845,935	\$13,401,724	\$12,226,646	\$34,474,305
Electric Cost Reduction	\$65,786	\$136,659	\$130,951	\$333,396
Total	\$8,911,722	\$13,538,383	\$12,357,597	\$34,807,702

Table IV-17 displays the total first year and lifetime economic impact of the ILSFA Program. The ILSFA expenditures are a one-time impact because they are a one-time infusion into the economy. The electric savings are calculated as the net present value of savings over the estimated 20 years that the systems produce electricity, with a three percent discount rate. The lifetime economic impact is estimated to be nearly \$41 million.

Table IV-17
ILSFA Total First Year and Lifetime Economic Impact

	PY1	PY2	PY3	Total
First Year Impact	\$8,911,722	\$13,538,383	\$12,357,597	\$34,807,702
Lifetime Impact	\$10,046,780	\$16,039,148	\$14,687,892	\$40,773,820

Employment Impact

This section analyzes the employment impact of the ILSFA Program. Each final-demand multiplier for employment indicates the change in employment in each industry that results from a \$1 million change in final demand in the industry.

Table IV-18 displays the RIMS-II job multipliers. The table also displays the jobs multiplier change as the difference between the multipliers with and without the ILSFA Program.

Table IV-18
Multipliers for ILSFA Employment Impact

Category	Jobs Multiplier With Program		Jobs Multiplier Without Program		Job Multiplier Change	
	Description	Multiplier	Description	Multiplier		
IPA Expenditures						
Administrative	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313	
RECs	Labor	Construction	14.2615	Other Retail	8.7737	5.4878
	Materials	Electrical equipment, appliance, and component manufacturing	3.0064	Other Retail	8.7737	-5.7673
	Cost	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313

Category	Jobs Multiplier With Program		Jobs Multiplier Without Program		Job Multiplier Change
	Description	Multiplier	Description	Multiplier	
Evaluation	Professional, scientific, and technical services	13.8495	Other Retail	8.7737	5.0758
Elevate Expenditures					
Administrative	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313
Call Center	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313
IT	Data processing, hosting, and other information services	9.0058	Other Retail	8.7737	0.2321
Grassroots Education	Social Assistance	25.275	Other Retail	8.7737	16.5013
Marketing/Outreach	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313
Quality Assurance	Professional, scientific, and technical services	13.8495	Other Retail	8.7737	5.0758
Job Training	Educational Services	19.2265	Other Retail	8.7737	10.4528
NERA Expenditures					
Administrative	Administrative and Support Services	21.805	Other Retail	8.7737	13.0313

Table IV-19 displays the annual employment impact of the ILSFA Program due to the shift from retail expenditures to ILSFA expenditures. It was estimated that 91 job years were created as a result of the program. Most of these gains result from the labor needed to install the solar systems.

**Table IV-19
ILSFA Expenditures Replaced Retail Expenditures
Employment Impact**

Expenditures	Expenditures			% Spent in IL	Job Multipliers		Employment Impact				
	PY1	PY2	PY3		ILSFA	Retail	PY1	PY2	PY3	Total	
IPA Expenditures											
Administrative	\$375,426	\$222,155	\$299,019	100%	21.805	8.7737	4.9	2.9	3.9	11.7	
RECs	Labor	\$4,529,263	\$9,280,534	\$7,928,651	96%	14.2615	8.7737	22.3	45.6	39.0	106.9
	Material	\$4,960,622	\$10,164,395	\$8,683,760	74%	3.0064	8.7737	-32.5	-66.6	-56.9	-155.9
	Other	\$1,294,075	\$2,651,581	\$2,265,329	89%	21.805	8.7737	13.8	28.2	24.1	66.0
Evaluation	\$76,731	\$339,550	\$496,095	20%	13.8495	8.7737	-0.5	-2.0	-3.0	-5.5	
Elevate Expenditures											
Administrative	\$1,164,751	\$1,049,229	\$1,163,993	100%	21.805	8.7737	15.2	13.7	15.2	44.0	
Call Center	\$34,487	\$37,451	\$41,937	100%	21.805	8.7737	0.4	0.5	0.5	1.5	
IT	\$687,487	\$287,371	\$339,297	100%	9.0058	8.7737	0.2	0.1	0.1	0.3	

Expenditures	Expenditures			% Spent in IL	Job Multipliers		Employment Impact			
	PY1	PY2	PY3		ILSFA	Retail	PY1	PY2	PY3	Total
Grassroots Education	\$257,580	\$461,446	\$448,984	100%	25.275	8.7737	4.3	7.6	7.4	19.3
Marketing/Outreach	\$240,584	\$152,410	\$145,260	100%	21.805	8.7737	3.1	2.0	1.9	7.0
Quality Assurance	\$11,123	\$12,590	\$12,975	100%	13.8495	8.7737	0.1	0.1	0.1	0.2
Job Training	\$85,244	\$119,069	\$58,182	100%	19.2265	8.7737	0.9	1.2	0.6	2.7
NERA Expenditures										
Administrative	\$192,400	\$461,160	\$185,684	0%	21.805	8.7737	-1.7	-4.0	-1.6	-7.4
TOTAL	\$13,909,773	\$25,238,942	\$22,069,166				30.4	29.2	31.3	90.9

Table IV-20 displays first year employment impact of the ILSFA Program due to electric cost reduction. The total first year employment impact due to electric cost reduction is 9.2 job years.

Table IV-20
ILSFA Electric Cost Reduction
Employment Impact

ILSFA Subprogram	Electric Cost Reduction*			Output Multipliers		First Year Economic Output Impact			
	PY1	PY2	PY3	Retail	Electric	PY1	PY2	PY3	Total
Distributed Generation (DG)	\$0	\$255,715	\$83,191	8.7737	2.2621	0.0	1.7	0.5	2.2
Community Solar (CS)	\$178,422	\$152,348	\$293,832	8.7737	2.2621	1.2	1.0	1.9	4.1
Non-Profits and Public Facilities (NP/PF)	\$101,282	\$172,971	\$179,740	8.7737	2.2621	0.7	1.1	1.2	3.0
Total	\$279,704	\$581,034	\$556,763			1.8	3.8	3.6	9.2

*For the DG and NP/PF sub-programs, savings are taken from the program data. For the CS subprogram, savings were calculated based on estimated production and the net metering rates, which were obtained from the CS disclosure form on the ILSFA website on 12/23/20.

Table IV-21 displays the total annual employment impact of the ILSFA Program in the state of Illinois. The annual employment impacts from the previous two tables were summed to calculate the total annual employment impact. The estimate was that 100 job years were created as a result of the program.

**Table IV-21
ILSFA First Year Employment Impact**

Employment Impact	PY1	PY2	PY3	Total
ILSFA Expenditures	30.4	29.2	31.3	90.9
Electric Cost Reductions	1.8	3.8	3.6	9.2
Total	32.2	33.0	34.9	100.1

Table IV-22 displays the first year and lifetime employment impacts. The ILSFA expenditures are a one-time impact because they are a one-time infusion into the economy. The electric savings are calculated as the net present value of savings over the estimated 20 years that the systems produce electricity, with a three percent discount rate. The total lifetime employment impact is 265.3 job years.

**Table IV-22
ILSFA First Year and Lifetime Employment Impact**

	PY1	PY2	PY3	Total
First Year Impact	32.2	33.0	34.9	100.1
Lifetime Impact	63.7	102.2	99.4	265.3

D. Grid Impacts

While ILSFA projects are a small part of the solar installations coming online in Illinois, and only a small part of the ILSFA projects have been energized to date, interviews were conducted with Illinois utilities to assess the grid impacts of the ILSFA Program.

The beneficial impacts of additional solar for Illinois include the following.

- **Voltage:** Increasing the amount of distributed generation throughout the state can lead to better sustained voltage, as the generation is closer to the end users.
- **Generation:** Illinois has been retiring coal plants for years and this has left a production void, causing Illinois to import energy from other regions to satisfy the load requirement. The increased solar production can help to fill that generation void.

V. Approved Vendor Feedback

APPRISE conducted in-depth telephone interviews with 25 of ILSFA's 60 Approved Vendors (AVs). These interviews assessed AVs' experiences with the ILSFA Program.

This section provides information on the AVs' views and opinions. Statements that were made by the AVs and that are reported in this section may include suggestions that are inconsistent with the statutory requirements of the ILSFA and/or the ICC approved program design. Additionally, recommendations in this section are those made by the AVs and may not represent the opinions of APPRISE or the IPA.

A. Methodology

This section describes the sample selection and the interview implementation.

The AVs were stratified for selection by the following categories.

- Previously interviewed between November and December 2019 for the First Interim Report of the Phase II Evaluation (yes/no)
- Previously interviewed between February and March 2020 for the Second Interim Report of the Phase II Evaluation (yes/no)
- Submitted and/or selected projects in Program Years One, Two, and/or Three
- Submitted project type (Non-Profit/Public Facility, Community Solar, Distributed Generation)

Table V-1 furnishes information on the sample stratification and selection. Twenty-five of the 29 selected AVs completed the interview.

**Table V-1
Sample Stratification and Selection**

Characteristic	Sample Frame	Selected Sample	Completed Interviews
No Submitted Projects	28	5	5
Not Previously Interviewed	23	4	4
Completed 1 st Interim Report Interview Only	1	1	1
Completed 2 nd Interim Report Interview Only	3	0	0
Completed Both Interviews	1	0	0
Submitted Projects but No Selected Projects	12	5	5
Not Previously Interviewed	3	3	3
Completed 1 st Interim Report Interview Only	5	2	2

Characteristic	Sample Frame	Selected Sample	Completed Interviews
Completed 2 nd Interim Report Interview Only	2	0	0
Completed Both Interviews	2	0	0
Selected Projects	20	19	15
Not Previously Interviewed	4	3	2
<i>Submitted Only DG Projects</i>	0	0	0
<i>Submitted Only CS Projects</i>	3	2	1
<i>Submitted Only NP/PF Projects</i>	1	1	1
Completed 1 st Interim Report Interview Only	4	4	3
<i>Submitted Only DG Projects</i>	0	0	0
<i>Submitted Only CS Projects</i>	2	2	1
<i>Submitted Only NP/PF Projects</i>	2	2	2
Completed 2 nd Interim Report Interview Only	3	3	2
<i>Submitted Only DG Projects</i>	0	0	0
<i>Submitted Only CS Projects</i>	1	1	1
<i>Submitted Only NP/PF Projects</i>	2	2	1
Completed Both Interviews	9	9	8
<i>Submitted Only DG Projects</i>	2	2	1
<i>Submitted Only CS Projects</i>	1	1	1
<i>Submitted Only NP/PF Projects</i>	4	4	4
<i>Submitted CS & NP/PF Projects</i>	2	2	2
Total Number of Approved Vendors	60	29	25

The following procedures were used to implement the interviews.

- AVs were contacted via phone and email to set up an interview.
- Up to four additional contact attempts were made via phone and via email to AVs that did not respond to the first attempt.
- Interviews were completed between March 15, 2021 and April 9, 2021.
- The interview length ranged from 13 to 63 minutes. The average interview length was about 39 minutes.
- Interview summaries were sent to each organization for review and editing. Additional follow-up questions were sometimes included in these emails.

APPRISE selected a sample of 29 AVs and was able to complete 25 interviews. Of the four selected AVs that were not interviewed, one was no longer participating in the program, one stated that none of the items they brought up in the AV survey in October 2020 had been fixed or changed and they had no additional comments, and one did not respond to contact attempts. Two entities listed as Approved Vendors were project companies of the same parent company so only one interview was conducted for both AVs.⁷⁵

B. Approved Vendor Background

Interviews were usually completed by one respondent from each company. However, four interviews were conducted with two respondents and one interview was conducted with four respondents. Additionally, one interview was conducted in two sessions to address follow-up questions.

Interviewees held various titles at their companies. Sixteen of the 32 respondents were Principals (Owners, Presidents, Founders, or Partners) and 8 were in other upper-level management positions (Department Directors or Project Managers). Titles held by the other interviewees included Project Developer, Policy Associate, and Solar Consultant.

C. Project Submission

AVs were asked questions to assess their project submission experience, including whether they had tried to develop Distributed Generation (DG) projects⁷⁶, what barriers they experienced, and whether they had recommendations for the sub-program. This section summarizes those findings.

Five AVs that had not submitted any projects were asked why they had chosen not to do so. They provided the following responses.

- Three AVs reported that they are smaller companies and have limited capacity and resources to submit projects.
 - One AV is a Designee and is working on other selected projects but is interested in submitting their own projects in the future.
 - One AV noted that they have not invested the time and effort to understand how to participate in the ILSFA as they are busy with Adjustable Block Program (ABP) projects. They also found it difficult to find suitable sites in south central Illinois that were both low-income and EJ communities. (Note that none of the sub-programs require projects to be sited in both EJ and LI communities.)
 - One AV mentioned that there is too much competition with larger corporations.
- One AV has not submitted projects themselves but instead acquired projects from other AVs. They are interested in submitting their own projects but feel it is an arduous process and were confused about the requirements of the sub-program.
- One AV is a financial manager and finances other ILSFA selected projects. They are not planning on submitting projects themselves since they are not a developer.

⁷⁵The completed interview is listed under Selected Projects - Completed Both Interviews - Only Submitted CS Projects. The vendor not interviewed is listed under Selected Projects - Not Previously Interviewed - Only Submitted CS Projects. One vendor was counted as completed and one was counted as not completed.

⁷⁶AVs who had not submitted projects to the DG sub-program were asked if they had tried to develop DG projects.

AVs were asked if they have tried to develop DG projects for the ILSFA Program. Table V-2 shows that 14 of the 25 AVs reported that they tried to develop DG projects.

Table V-2
Approved Vendor Attempted to Develop DG Projects

Attempted Developing DG Project(s)	Number of Approved Vendors
Have Attempted to Develop DG Projects	14
Not Attempted to Develop DG Projects	11
Total	25

Eight of the 11 AVs who have not attempted to develop DG projects reported that they are focused on the other sub-programs or their company models do not focus on small, residential projects. Three AVs have not tried to develop DG projects due to the barriers associated with this sub-program.

Barriers to the DG sub-program are described in more detail below. The 14 AVs who tried to develop DG projects and the three AVs who had not yet tried to develop DG projects due to barriers associated with the sub-program were asked questions about barriers to single-family and multi-family DG projects.

Barriers to Single-Family DG Projects

Fourteen of the 17 AVs reported that they encountered barriers when developing single-family DG projects. The other three AVs have only tried to develop larger, multi-family projects. The most common barriers faced were financing issues and the administrative burden of the sub-program. Barriers are summarized in Table V-3 below.

- **Financing Issues:** Six AVs reported financing issues.
 - Five AVs stated that these projects are not cost-effective because the REC values are low, and costs are high.
 - The other AV was reluctant to cover the upfront costs for a project because of the uncertainty that a project will be selected.
- **Administrative Burden:** Five AVs stated that the extensive requirements of the sub-program and administrative burden to verify participants' incomes is a barrier. Two noted that the administrative work for single-family projects is similar to that for larger projects.
 - One AV stated that income verification is a difficulty of the sub-program and they would need to invest time to properly go through the process.
 - One AV was concerned about retaining sensitive customer information required for the income verification process.
- **Batch Requirement:** Three AVs struggled to fulfill the batch requirement. One of these AVs said they have to be very selective regarding which projects are included since the whole batch could be deemed ineligible if only a few projects were not suitable. (The batch requirement has been relaxed since the time of this interview.)

- Long Timeline: Three AVs indicated that the timeline to complete single-family DG projects is very long and can cause clients to become disinterested in the sub-program.
- Redundant Documentation: Two AVs reported that the required documentation is redundant.
 - An interconnection agreement with the utility is required, but much of the same technical documentation must be uploaded as part of the ILSFA application.⁷⁷
 - There are some permits required as part of the certificate of completion the AV submits to interconnect with the utility. These permits and the certificate are also required to be submitted to the ILSFA. Additionally, projects must be inspected at the jurisdictional level and by the ILSFA Program. Duplicated fields and entries in the documentation take additional time to fill out, can lead to data entry mistakes, and result in much back and forth with the program administrators.
- Finding Solar Ready Homes: Two AVs struggled to find suitable homes that were solar-ready and had minimal shading.
- Economies of Scale: Two AVs stated that the economies of scale make it more difficult to develop smaller projects.
- Skepticism: One AV reported that customers will not willingly provide the required documentation because they are skeptical of the program.
- Pandemic Restrictions: Acquiring customers proved difficult for one AV since they could not canvass due to pandemic restrictions.
- Working in Low-Income Markets: One AV stated it is difficult to work in the low-income market because low-income customers have a harder time securing bank loans due to discriminatory lending practices.
- Reluctance Toward Solar: One AV reported that there is some reluctance towards solar in low-income communities, and education programs are required to explain the relevance and benefits to the community.
- Deposit Requirement: The deposit requirement for the IPA is a large barrier for one AV. Collateral can be lost if the project is cancelled or unable to proceed.

Table V-3
Barriers to Single-Family DG Projects

Barrier	Number of AVs Who Experienced Barrier
Total Number of AVs Who Experienced Barriers	14
Financing Issues	6
Administrative Burden	5
Fulfilling Batch Requirement	3
Long Timeline	3
Finding Solar Ready Homes	2
Economies of Scale	2

⁷⁷The signed interconnection agreement is a sign of project maturity.

Barrier	Number of AVs Who Experienced Barrier
Other	5

Note: Some AVs provided more than one response.

Barriers to Multi-Family DG Projects

Eleven of the 17 AVs reported that they encountered barriers specific to multi-family DG projects. Four AVs noted that the multi-family projects are more financially feasible because they are larger. Two AVs have only tried developing single-family projects. The most common barriers to multi-family projects included lack of common meters and financing issues. Barriers to multi-family projects are summarized in Table V-4.

- **Lack of Common Meters:** Six AVs stated that the lack of common meters in Illinois can increase costs since it is more difficult to implement separate connections.
- **Financing Issues:** Four AVs reported that financing multi-family projects is a barrier since the REC values are not high and the margins are tight.
- **Finding Property Owners:** Three AVs struggled to work with and find property owners who were willing to partner on the project. One of these AVs stated that landlords do not receive any incentives from the program, so they are reluctant to participate.
- **Passing Benefits to Residents:** Three AVs faced challenges understanding how to pass on benefits to participants if residents' energy bills are already subsidized.
- **Savings Allocation:** One AV had issues with ComEd not attributing savings to the low-income tenants.

Table V-4
Barriers to Multi-Family DG Projects

Barrier	Number of Approved Vendors Who Experienced Barrier
Total Number of AVs Who Experienced Barriers	11
Lack of Common Meters	6
Financing Issues	4
Finding Cooperative Property Owners	3
Passing Benefits to Residents	3
Savings Allocation	1

Note: Some AVs provided more than one response.

Single-Family Distributed Generation Recommendations

Thirteen of the 17 AVs provided recommendations for single-family DG projects. The most common were reducing the administrative burden of the sub-program, making DG projects more financially feasible, and lowering or removing the batch requirement. Table V-5 summarizes the recommendations provided by the AVs.

- Four AVs proposed streamlining, simplifying, and clarifying documentation to reduce the administrative burden. One AV suggested that the paperwork could be automated.

Specific documentation that was mentioned included project submission requirements and manuals.

- Three AVs recommended making the sub-program more financially feasible.
 - Two AVs reported this could be done with adders for working in Cook County or Chicago or for projects with low energy costs.
 - One AV stated that REC prices should be increased.
- Three AVs suggested lowering or removing the batch requirement.
- Two AVs recommended reducing redundancies in required submissions.
- Two AVs would like to use repurposed panels for ILSFA projects.⁷⁸
- Other recommendations each made by one AV were as follows.
 - Establish a green bank funded by the state to provide participants with assistance.
 - Increase community outreach and marketing to reduce skepticism.
 - Allow participants in assistance programs, such as LIHEAP, to automatically enroll in the ILSFA.
 - Reduce requirements for installers who have participated in the sub-program for a long time and have a successful track record.
 - Only allow companies based in Illinois to receive incentives.
 - Allow for various methods to evaluate shading.

**Table V-5
Recommendations for the Single-Family DG Sub-Program**

Recommendation	Number of Vendors Who Provided Recommendation
Total Number of AVs Who Provided Recommendations	13
Simplify/Clarify Documentation	4
Make Projects More Financially Feasible	3
Lower/Remove Batch Requirement	3
Reduce Redundancies	2
Allow Vendors to Use Repurposed Panels	2
Other	6

Note: Some AVs provided more than one recommendation.

Multi-Family Distributed Generation Recommendations

Four of the 17 AVs provided recommendations specifically for multi-family DG. Table V-6 outlines these recommendations.

- Two AVs recommended making the sub-program more financially feasible.
 - Both vendors stated that there should be additional RECs with a higher value.
 - One AV also stated that the program should provide an adder for more expensive projects, such as two-story buildings, carports, and projects using panel upgrades.
- One AV stated that there should be incentives for landlords to participate in the program.

⁷⁸This was allowed as long as the AV disclosed to the customer that repurposed panels were used and as long as they had the required warranty coverage.

- One AV reported that utilities should be encouraged to consolidate meters.

Table V-6
Recommendations for the Multi-Family DG Sub-Program

Recommendation	Number of Vendors Who Provided Recommendation
Total Number of AVs Who Provided Recommendations	4
Make Projects More Financially Feasible	2
Provide Incentives to Landlords	1
Encourage Utilities to Consolidate Meters	1

AVs who provided recommendations for either the single-family or multi-family sub-programs were asked if these changes would encourage them to participate in the DG sub-program.

- Fourteen of the 15 AVs who provided recommendations said the changes would encourage them to participate.
- One AV noted that it may still be difficult to find a suitable site even if the changes were implemented.
- One AV reported that the changes would not necessarily encourage them to participate as their company model is not set up to complete smaller, residential projects.

The AVs provided the following responses for why the changes would encourage them to participate in the DG sub-program.

- Seven AVs stated their changes would make DG projects more financially feasible.
- Six AVs reported that their recommendations would simplify the project submission process and reduce the administrative burden.
- Three AVs noted that it would be easier to acquire customers if their changes were implemented.

All 15 AVs who provided recommendations stated that the changes would encourage additional AV participation in the sub-program.

Twelve AVs described other benefits they believe the recommended changes would have.

- Six AVs stated that the changes would expand solar access and lead to more energy savings for low-income communities.
- Two AVs reported that the DG sub-program would be able to meet its goals.
- Two AVs reported that more jobs would be created.
- One AV noted the environmental benefits of increased solar development.
- One AV indicated that the customer experience would be improved and lead to more participants recommending the program to their neighbors.
- One AV believed there would be improved trust in the program since more projects would be completed.

- One AV reported their changes would involve more local solar companies and would allow incentive money to remain in Illinois.
- One AV stated that changes could raise wages for solar workers.

D. Project Implementation

The 19 interviewed AVs working on a total of 103 selected projects were asked questions to assess the progress they made in implementing those projects. This section summarizes findings from their responses.

Latest Stage of Implementation

AVs were asked about the stage(s) they had reached in the development of their project(s) at the time of the interview. Table V-7 shows that while 54 projects had been installed and were going through the Part II approval process, 16 projects were still in the pre-construction stage, 14 were under construction, 18 were completed, and one was cancelled.

**Table V-7
Stage of Implementation Reached for ILSFA Projects**

Implementation Stage	Number of Projects
Pre-Construction	16
Under Construction	14
Constructed and Going through Part II Approval Process	54
Constructed and Submitted Part II	18
Cancelled	1
Total	103

Time to Develop Projects

AVs were asked how long it has taken them to develop their project(s) up to the stage they were currently in or how long it took to complete their project(s). Most AVs started their timeline with initial client contact before submission to ILSFA. Vendor timelines for 17 AVs varied widely from about six months to three years, as seen in Table V-8. The mid-point was one and a half years. Some AVs with multiple projects provided a general timeline for how long it takes for them to complete projects. Two AVs provided other responses below.

- One AV began speaking with their client sometime in 2018.
- One AV reported it takes about 60 hours of staff time to complete the Part I application, which is ten hours more than non-ILSFA projects, and that it takes about two weeks to construct a project.

**Table V-8
Time to Develop Projects Up to Current Stage**

Years to Develop Projects	Number of AVs
> 0.5 Years	1
1 Year	2
1 Year – 1.5 Years	1
1.5 Years	7
2 Years	2
2.5 Years	3
3 Years	1
Total	17

If projects were not yet completed, AVs were asked how much longer it will take to get the project energized. AVs estimated that 17 projects will be energized between June and December 2021, as seen in Table V-9. Two AVs with multiple projects provided a general timeline for how long it takes for their projects to move through the energization stage.

- One AV reported that projects are inspected and energized around ten days after construction is completed.
- One AV stated that it takes about one month to submit Part II and energize their projects after they are constructed.

**Table V-9
Time to Energize Uncompleted Projects**

When Projects Will be Energized	Number of Projects
By June 2021	4
By August 2021	2
By September 2021	3
Between September 2021 and December 2021	4
By December 2021	4
Total	17

Barriers to Development and Construction

AVs were asked to report the barriers they faced in project development and construction. Eighteen AVs reported barriers and the most common included delays due to the pandemic and weather, and difficulties obtaining permits. One AV stated that they did not experience any barriers during project implementation. Barriers are summarized in Table V-10 below.

- COVID: Nine AVs experienced delays and barriers due to the COVID pandemic. Specific responses are provided below.

- Five AVs faced challenges accessing job sites because of pandemic restrictions or sites being used for COVID-related activities.
- Communication has been more difficult for three AVs since in-person meetings were prevented due to COVID. One AV reported that some clients are not very experienced using technology.
- Two AVs experienced delays receiving permits and inspections.
- Two AVs noted the pandemic impacted supply chains. There was a shortage of materials and equipment across the nation.
- One AV experienced operational delays due to the pandemic since they were ensuring their crews and customers stayed safe.
- Construction work was delayed for one project when work crews became sick.
- Permits: Eight AVs faced difficulties obtaining permits. Specific responses are furnished below.
 - Three AVs noted that it is more difficult and takes longer to receive permits from the city of Chicago than other areas.
 - One AV had to obtain special use permits due to site-related challenges that were not clear during project submission. There are no specific questions about local ordinances or zoning regulations on the portal, so they did not know to check for these until later.
 - One AV stated that receiving permits from the city of Rockford is a longer process since they have special requests.
 - One AV needed multiple permits for a project on the border of two different jurisdictions.
 - One AV indicated that authorities in low-income areas have less capacity and it therefore takes longer to receive permits.
 - One AV was unsure if they needed to show proof of non-ministerial permits or actually obtain those permits before submission.
 - One AV had site-specific challenges because the site required additional permits and approval for remediation.
- Weather: Seven AVs delayed construction because of the weather.
- Job Training Requirement: Four AVs encountered issues with the job training requirement.
 - Two stated that there is limited availability of trainees in their area.
 - One AV indicated that fulfilling the job training requirement involves a lot of work and effort but has not prevented them from completing projects.
 - One AV faced challenges from the unions because they chose to hire minority workers instead of union workers.
- Interconnection Agreement: Three AVs reported that the interconnection agreement is costly and takes a long time to complete. Two believed that ComEd overcharges for an interconnection as Ameren's price is 25 to 30 percent lower.
- Financial Challenges: Two AVs experienced barriers with project financing.
 - One AV experienced delays because their client was required to obtain a loan, even though they could pay for the project in full.⁷⁹ Materials were not available after this delay and the project had to be redesigned. This AV reported that is difficult to

⁷⁹This requirement has been removed.

- communicate changes to a client since they become used to a certain price and look of the project.
- The bank for one AV pulled out of their loan after construction was started. This was a major financial challenge and the AV had to personally invest in the project.
 - **Project Timeline:** The long timeline and amount of paperwork for ILSFA leads to client mistrust. It is difficult to sell projects to clients when there is no concrete timeline and no way to know when the client will be paid.
 - **Delayed Payments:** One AV reported that they will not be paid until six months after project completion because invoices are paid quarterly.⁸⁰
 - **Other Projects:** One AV faced delays because they had many projects in the ABP that were higher in the construction pipeline than their ILSFA project.
 - **City Requirements:** Some cities have requirements beyond those in the electric code, which makes certain local authorities more difficult to work with.
 - **Misunderstanding of Program Design:** A non-profit client wanted to back out of the ILSFA Program because they did not understand the funding mechanism and believed the AV was going to receive a large profit. The client wanted the RECs and tax breaks for themselves.
 - **AV Location:** One AV is not based in Illinois and said it has been challenging to conduct project development remotely since the program is very community-based.
 - **Project-Specific Issues:** One AV had to work around a school's timeline. They experienced project-specific delays because an HVAC system was installed where the array was planned, and the client needed to reallocate funds to redo their roof.

Table V-10
Barriers to Project Development and Construction

Barrier	Number of AVs Who Experienced Barrier
Total Number of AVs Who Experienced Barriers	18
COVID Delays	9
Permits	8
Weather Delays	7
Job Training	4
Interconnection Agreement	3
Financial Challenges	2
Other	7

Note: Some AVs provided more than one response.

Barriers to Part II Approval

Table V-11 shows that the Part II approval application was submitted or completed for 18 of the 103 projects taken on by the interviewed AVs.

⁸⁰This has changed in the contract used beginning in the 2021-2022 program year.

Table V-11
Part II Approval Process Stage

Part II Approval	Number of Projects
Completed	18
In Progress	54
Not Started	31
Total	103

Seven of the nine AVs who worked on the Part II approval process faced challenges. Two of these AVs noted that since they are now aware of certain barriers and requirements, the Part II process will be easier to complete for future projects. Two AVs who completed Part II did not face any challenges. Barriers are summarized in Table V-12.

- **Portal:** Three AVs experienced issues with the portal.
 - One AV uploaded documentation to the portal, but the AV manager was not able to access the submitted documents. This led to much back and forth between the AV and Elevate.
 - One AV reported that the portal is slow and unreliable when uploading a large number of pictures since it does not say the maximum supported file size. There is no button in the portal to upload datasheets.⁸¹
 - The other AV noted that the portal is not user-friendly for Part I or Part II submissions.
- **Job Training Documents and Requirements:** Three AVs experienced issues with the job training aspect of the program.
 - Two AVs had difficulties collecting the job training documents. The necessary affidavits were not collected at the job site and the AVs had to track down the trainees. Moving forward, one AV noted that this will be easier as they will be more aware of what information needs to be collected while the trainees are still working.
 - One AV was confused about the job training requirements because of miscommunication and lack of clarity on the requirements.
- **Required Photos:** Two AVs had difficulties taking the necessary pictures for the inspection. Certain photographs need to be taken during construction and these AVs had to return to the job site to take the pictures. One AV produced a list of pictures for their own use, so they know to take the necessary photographs while work is being completed for future projects. They stated that Elevate has been understanding and cooperative for the cases where it was not possible to produce the required photographs.
- **Redundant Documentation:** Two AVs cited redundancies between documentation submitted to the utility, the city, and to Elevate. Additionally, projects must be inspected by ILSFA and at the jurisdictional level.
- **ILSFA Requirements:** One AV experienced challenges because ILSFA has unique requirements that are not included in the building code.

⁸¹There was previously a place to upload datasheets. Elevate has made recent changes asking AVs to combine a number of documents, including the datasheet into one upload. Elevate has used the term “cut sheet” instead of “datasheet”.

- Paperwork: One AV reported that the long timeline to collect the required paperwork is a challenge.

Table V-12
Barriers to Part II Approval

Barrier	Number of AVs Who Experienced Barrier
Total Number of AVs Who Experienced Barriers	7
Portal	3
Job Training Documents/Requirements	3
Required Photos	2
Redundant Documentation	2
ILSFA Requirements	1
Paperwork	1

Note: Some AVs provided more than one response.

Community Solar Subscriptions

Six AVs developing CS projects were asked about challenges faced when recruiting subscribers. The most common challenges include collecting documentation from interested subscribers and COVID restrictions to in-person outreach. Two AVs have not started to acquire subscribers yet since the projects have not been constructed and they cannot hold in-person events. Challenges are summarized in Table V-13 below.

- Collecting Documentation: Three AVs reported that it is difficult to collect the necessary documentation from interested participants. Many customers do not have paperwork readily available that proves they are low-income.
- COVID: Three AVs reported that COVID restrictions made it more difficult to recruit subscribers since they cannot host in-person events or go door-to-door. They have employed virtual outreach methods such as emails and flyers, however these are less effective.
- Paperwork: Two AVs stated that the amount of paperwork required to subscribe to a CS project is burdensome for the customer. It is especially challenging to complete documentation with low-income residents who often have other priorities.
 - One AV reported that 80 percent of their interested subscribers drop out of the process.
 - Another AV said less than ten percent of their interested participants have filled out the paperwork, but none have dropped out yet.
- Lack of Grassroots Educators: One AV noted that Grassroots Educators may be helpful, but there are none in their area.
- Disclosure Form Issues: The release of the disclosure form was delayed and using the portal to generate disclosure forms for each individual customer was too tedious to be completed. One AV spent additional time working with Elevate to create a new process to generate and share disclosure forms.

- Skepticism: One AV reported that customers are skeptical of CS because of past experiences with third-party retail suppliers who have a history of taking advantage of low-income communities.
- No Spanish-Language Forms: The lack of Spanish-language disclosure forms was a barrier for one AV.

Table V-13
Challenges to Recruiting CS Subscribers

Challenge	Number of Approved Vendors Who Experienced Challenge
Total Number of AVs Who Experienced Challenges	5
Collecting Documentation from Participants	3
COVID Restrictions	3
Amount of Paperwork Required for Participants	2
Lack of Grassroots Educators	1
Disclosure Form Issues	1
Skepticism	1
No Spanish Language Forms	1

Vendors with CS projects were asked how long it will take to fully subscribe their projects. One AV who had not yet started outreach did not know the timeline to subscribe their project.

- One AV took four months to enroll their subscribers.
- One AV estimated it would take six months to subscribe their project.
- Two AVs estimated it would take nine months to subscribe their projects.
- One AV has been enrolling subscribers for about a year and estimated that it will take an additional three months after COVID restrictions are lifted to fully subscribe.

Elevate Assistance

Eighteen of the 19 AVs with selected projects reported that they requested help with project submission or implementation from Elevate. AVs sought help from Elevate for the following reasons, as summarized in Table V-14.

Ten AVs asked Elevate to clarify program requirements. This included clarification on Part I and Part II submission requirements, job training requirements, interconnection agreements, changes to the program, how to meet the 50 percent savings requirement, and photos that need to be uploaded for Part II.

Table V-14
Reasons for Seeking Help from Elevate

Reason	Number of AVs Who Sought Help
Total Number of AVs Who Sought Help from Elevate	18
Clarifying Program Requirements	10
Project-Specific Questions	6
Part I or Part II Documentation	4
Extension Requests	3
Navigating Portal	2
Spanish-Language Disclosure Form	1
Connecting with GEs	1
Qualifying for NP/PF Sub-Program	1

Note: Some AVs provided more than one response.

When asked how helpful Elevate had been in providing the requested support, 16 of the 18 AVs reported that Elevate had been very helpful or helpful to their requests for help. They also said Elevate was responsive.

- One AV reported that Elevate was somewhat helpful.
- One AV said Elevate tried to help but was not able to resolve their problems effectively.

Additionally, two AVs who did not have selected projects reported that Elevate was very unhelpful and their AV manager was not responsive and did not provide adequate support.

- One AV believed that Elevate may have experienced staffing issues due to the pandemic. Elevate would refer them to the AV manual, which they felt was not clear or consistent. They attended a helpful meeting with Elevate, but it occurred after they had submitted their project.
- One AV noted that they were told to use job trainees from Chicago, even though their project was not located there.

AVs were asked if there was any other assistance that would be helpful. Ten AVs reported that the following additional assistance would be useful.

- Simplify the website and program materials and make requirements more succinct.
- Provide a more comprehensive FAQ section on the website.
- Offer more clarification on zoning issues and when special use permitting will be required.
- Provide more clarification on the CS scoring system.
- Reach out to AVs when project submission windows are open.
- Send more tailored emails based on AV type, sub-program interest, or region. Include only the most relevant program changes.
- Distribute checklists on the uploads required for Part II submissions and provide example photographs.
- Offer more job training organizations outside of Chicago.

- Advertise the program as solar implementation with no out of pocket costs and savings from reduced energy rates instead of advertising the program as having a lot of money available from the SREC program and tax breaks. Clients want cash from the incentives but with a PPA they only receive a discount on energy.
- Provide more assistance in finding flexible solutions when projects change after submission.
- Offer assistance for acquiring non-ministerial permits from the city of Chicago.

E. Performance Metrics

This section summarizes responses to questions about factors that have impacted AV success in the ILSFA Program.

Barriers that Caused Project Cancellation

All AVs were asked if they faced any barriers that have caused or will cause them to cancel any ILSFA projects. Table V-15 shows that nine of the 25 AVs reported barriers that caused them or could cause them to cancel projects. Five of the AVs who did not face barriers noted that they will not move forward with a project if it is not selected but would not cancel a project after it has been selected.

**Table V-15
Experienced Barriers Resulting in Project Cancellation**

Faced Barriers	Number of AVs
Barriers Caused or Could Cause Cancellations	9
Barriers Did Not Cause Cancellations	16
Total	25

The barriers that caused or could cause the nine AVs to cancel projects are described in more detail below.

Non-Profit/Public Facility Projects

- One project was dropped because the site was too small since there was an overhead line that was not originally accounted for.
- One AV cancelled a project because their non-profit client did not understand the funding mechanism of the program and dropped out of the process.
- One AV almost cancelled a project because the school district redistributed funding to replace the roof due to the pandemic. Funding became available after a few months, but the project would have been pushed back or cancelled if the roof could not be replaced.
- One AV dropped a project before submission because it was not located in a low-income tract or EJ community.

Community Solar Projects

- One AV may not move forward with a project if they need to fully obtain a non-ministerial permit before submission instead of just demonstrating that they can get the permit.
- One project was deemed ineligible by Elevate so the AV did not move forward.

Distributed Generation Projects

- Two AVs will not move forward with projects if a customer has housing stock issues that cannot be remediated.
- One AV reported that customers lose interest in the sub-program since the Part I application process is so long and will drop those projects.

DG Housing Stock Barriers

The 14 AVs who tried to develop DG projects were asked about the housing stock issues they encountered when developing these projects. Table V-16 shows that seven AVs encountered housing stock issues and seven have not reached a point in development to encounter these issues yet.

**Table V-16
Faced DG Housing Stock Issues**

Faced DG Housing Stock Issues	Number of Approved Vendors
Encountered Issues	7
Have Not Developed DG Projects Enough to Encounter Issues	7
Total	14

A summary of the housing stock issues faced by six of these AVs is provided in Table V-17. The other AV stated that they specially work on restoration and renovation of public housing, so most of their clients have general housing stock issues.

**Table V-17
Housing Stock Issues Faced**

Housing Stock Issues	Number of Approved Vendors Who Reported Issue	Estimated Percent of Households That Have Issue
Unsuitable Roofs	2	60 – 75%
Unsuitable Roofs and Electrical Issues	1	85%
Unsuitable Roofs, Electrical Issues, and Overall Poor Home Condition	1	25%
Too Much Shading	2	-
Total	6	-

Two of the AVs who have not developed DG projects enough to encounter housing stock issues reported that they anticipated or were aware of these issues but have not encountered them yet.

AVs who encountered housing stock issues were asked if households were able to remediate problems so solar installation could move forward. Table V-18 shows that two of the six vendors who encountered housing stock issues were able to remediate these issues.

Table V-18
Households Able to Remediate Housing Stock Issues

Remediate Housing Stock Issues	Number of Approved Vendors
Able to Remediate	2
Not Able to Remediate	4
Total	6

Four AVs reported that no remediation occurred, and these projects did not move forward. One AV also stated that for multi-family projects, landlords do not want to replace roofs early. It is not possible to install panels that last 25 to 30 years on roofs that will need to be replaced within ten years. These four AVs were not aware of any funding or assistance available to remediate housing stock issues.

The two AVs who were able to remediate housing stock issues provided the following responses.

- One AV stated that some participants have shown interest in fixing their roof so they can participate in the ILSFA. One customer was able to complete roofing work and this project will be submitted in the AV's next batch. This AV shares the resources provided by Elevate but is unsure which resources participants use.
- One AV reported that remediation of housing issues is part of the overall work they carry out for each project. This model is beneficial when working on affordable housing since solar can be incorporated as part of a larger redevelopment process. Financing for the redevelopment work is more readily available and can be used to cover the upfront costs of the solar installation. There are affordable housing lenders who finance redevelopment projects.

Other Factors Impacting Program Success

All 25 AVs were asked about factors other than Elevate that impacted their success in the program. Fourteen AVs reported that the following factors positively impacted their experience in the ILSFA Program. Responses are summarized in Table V-19.

- Nine AVs stated that previous working relationships with city authorities, low-income communities, local organizations, clients, non-profit networks, low-income customers, and other vendors were valuable to their involvement in the program.
- Two AVs reported that Grassroots Educators have aided their experience with the ILSFA.

- One AV stated that Grassroots Educators have done a great job bringing in clients and building relationships with the community. The AV side of the program does not work without the GEs.
- One AV reported the Grassroots Educators will be helpful for recruitment of CS subscribers.
- Two AVs have experience working with similar programs in other states which has been advantageous.
- Two AVs noted the REC values and payments are beneficial.
 - One AV reported the RECs for NP/PF projects are incredibly generous and make the financing work out well.
 - Upfront REC payment makes the project economics attractive.
- Two AVs stated that the location of their projects is favorable.
 - Working in Central Illinois is somewhat less expensive than in Chicago.
 - There are large census tracts that meet the low-income and EJ community criteria where one AV works. Furthermore, the presence of a university means that the local area is environmentally conscious and favorable towards solar projects.
- Other factors each reported by one AV were as follows.
 - One AV is a non-profit developer, so they have an easier time establishing trust with their customers than for-profit companies. Additionally, they have revenue from many different sources and are not entirely dependent on revenue from their solar projects.
 - The standard offer document that lists the DG offers available has made a significant difference and accelerated the pace at which clients were brought to one AV.
 - One AV was used to working on projects with long timelines.
 - Projects were developed specifically with ILSFA in mind.

Table V-19
Factors That Positively Impacted AVs' Experience with ILSFA

Factor	Number of AVs Who Reported Factor
Total Number of AVs Who Reported Factors	14
Previous Working Relationships	9
Grassroots Educators	2
Experience in Other States	2
REC Values and Payments	2
Project Location	2
Other	4

Note: Some AVs provided more than one response.

Fourteen AVs reported that the following factors negatively impacted their success in the ILSFA Program. Responses are summarized in Table V-20.

- Six AVs cited COVID as a challenge that negatively impacted their experience with ILSFA. Specific responses are included below.

- One AV was unable to talk to client's neighbors or community members to see if others are interested in receiving solar.
- Sales dropped off dramatically because of COVID for one AV.
- The pandemic caused some delays for the certification of a vendor's MWBE partner.
- COVID-related restrictions on travel have caused challenges. Since one AV is not based in Illinois, they are unable to fly out as needed for meetings with the community, contractors, partners, and local city leadership.
- The best way to engage low-income residents in a program is in-person, so this has been a challenge during the pandemic. Additionally, low-income households have other priorities during the pandemic.
- Door-to-door sales are not allowed, which makes customer acquisition more of a challenge.
- Three AVs reported the long timeline of ILSFA is a disadvantage.
 - The length of time it takes to go through the program and pay clients has led to clients believing the program is a hoax.
 - The long timeline requires additional staff time.
 - The six-month delay to receive payment decreased one AV's desire to work on other projects.
- Three AVs described financing as a barrier that impacted their experience in ILSFA.
 - Financing is a major challenge for solar projects in low-income communities. Financers do not see value in these projects and see investments in low-income areas as being riskier.
 - There are intrinsic aspects of the program which make projects financially unfeasible. For example, building carports and working in Chicago are more expensive but there are no additional incentives for these types of projects.
 - The lack of banks with a clean energy portfolio has been a disadvantage, as financing the upfront costs of a project is a challenge for smaller companies.
- Three AVs stated that it can be difficult to work with non-profits.
 - The slow decision-making process of the non-profits has made projects more challenging. Educating and explaining the program to these organizations can be a significant effort.
 - Working with non-profits in low-income and minority communities can be challenging. They are often slow to make decisions and meet infrequently.
 - Some non-profits are locked into agreements with third party energy suppliers which they cannot get out of.
- Two AVs reported obtaining permits has been a negative experience.
 - Non-ministerial permits and an interconnection agreement are required to submit a project. Local authorities and utilities are reluctant to grant these agreements when there is a high chance a project will not move forward.
 - It is a disadvantage to work on projects in Chicago due to the difficulty of obtaining permits.
- Other factors each reported by one AV were as follows.
 - Illinois is a difficult state to work with in general because there is no consistency in the SREC program and incentives stop and start. From a sales perspective, it is difficult to sell to a client if they are unsure what the incentives will be.

- One AV did not realize towns could apply to become an EJ community and believed the state had to award that designation. If they were aware that towns could apply to become an EJ community, they would have tried to use that process to get more points.⁸²
- The addressable market for the ILSFA in Ameren territory is smaller than expected because rural electric co-ops take up most of the surface area. It is difficult to market in these areas because the AV could discover that most of the residents are not Ameren customers.
- There is too much responsibility on participants to prove they are low-income. Although this is meant to protect customers, it leads to undue burden.
- It seems that there is no place in the program for financiers who do not develop projects themselves and this scenario was not considered when the program was developed.
- The program is only able to select a very few projects each year which makes it difficult to plan projects.
- Some cities that are responsible for utilities have restrictions on the amount of power that can be generated by solar due to existing contracts with power plants.
- The program is very complex and as a smaller company, one AV did not want to spread their resources too thin in order to understand how to participate in the program.
- The 30 percent sales tax on imported solar panels increased project costs.

Table V-20
Factors That Negatively Impacted AVs' Experience with ILSFA

Factor	Number of AVs Who Reported Factor
Total Number of AVs Who Reported Factors	14
COVID	6
Long Timeline	3
Financing	3
Working with Non-Profits	3
Obtaining Permits	2
Other	9

Note: Some AVs provided more than one response.

F. AV Recommendations

AVs were asked what recommendations they had for Elevate to more effectively manage the ILSFA Program. Twelve AVs provided recommendations, which are summarized in Table V-21. When asked this question, eight AVs reported that Elevate was doing a good or great job managing the program. One of these AVs also noted that this was the only program they have worked with that has a centralized program administrator and it has been useful to have one portal for submitting projects and a designated representative at Elevate. The most

⁸²The application process requires communities to demonstrate why they should be considered an EJ community.

common recommendations included simplifying program information and improving the portal.

- Five AVs proposed presenting program information in a more synthesized and simplified manner where possible.
 - Provide more clear and concise manuals.
 - Develop a guidebook that describes step-by-step how to submit projects.
 - Where the program cannot be simplified, provide more support and education to AVs to help them understand the submission process.
- Four AVs recommended improving the portal.
 - Create a manual for using the portal.
 - The portal should be overhauled with input from users.
 - The continuity issues with the portal should be fixed. The portal does not show the same information between different accounts and Elevate was not able to access documents one AV had uploaded.
 - Continue making improvements to the portal, such as an easier and faster way to upload a large number of photos.
- Two AVs provided suggestions to improve the website.
 - Add a portal to the website where interested participants can check their eligibility for the program. Provide links for the AVs' websites on the ILSFA website.
 - Make the website more organized and professional looking.
- Two AVs stated that Elevate should be timelier with their responses.
 - One AV noted that it was very difficult to obtain a timely response. The process could move along faster if Elevate was more efficient. When Elevate did respond, they were very helpful.
- Two AVs recommended making program materials more consistent.
 - Use consistent terminology between the manual and other materials. Documents required by the portal do not specifically match documents required by the AV manual.
- Other recommendations each made by one AV were as follows.
 - Inform AVs who previously submitted projects when new submission windows open.⁸³
 - Host an information session to provide more information about how program financing works and how PPAs are structured.
 - Be more proactive about implementing feedback from AVs.
 - Provide clearer communication about the timeline and expectations of the program. The website does not give a realistic expectation of the process AVs go through when getting into the program. The ILSFA process is technical and takes a long time and AVs should be aware of that ahead of time.

⁸³Elevate released several announcements in the months leading up to the project submission windows.

Table V-21
Recommendations for Elevate

Recommendation	Number of AVs Who Provided Recommendation
Total Number of AVs Who Provided Recommendations	12
Simplify Program Information	5
Improve the Portal	4
Improve the Website	2
Respond in a Timelier Manner	2
Make Program Materials Consistent	2
Other	4

Note: Some AVs provided more than one recommendation.

AVs were also asked what recommendations they had for the ILSFA Program more generally. Sixteen AVs provided recommendations regarding program funding, job training, project submissions, CS projects, project selection, and program management. Specific detail AVs provided about these recommendations are provided below and summarized in Table V-22.

Community Solar Recommendations

- Implement a step-down incentive program that rewards CS subscribers for signing on early. This could further solar development since subscribers sign on earlier to receive higher benefits which will drive up interest in CS projects early on.⁸⁴
- Allow automatic enrollment if participants already qualify for LIHEAP or other assistance programs. Alternatively, customers should be able to qualify using a SNAP or Medicaid card, which is easier to provide than a letter from a third-party program.
- Reduce the amount of paperwork participants need to complete to sign up for CS. The basic information form should be the only form required and there should be no additional verification. The IPA could require the developer to do an audit of itself to ensure AVs are following the eligibility requirements and the right households are receiving benefits.
- CS projects should not be required to be located in LI or EJ communities, as long as they are providing benefits to those communities.⁸⁵

Project Financing Recommendations

- Incorporate financiers into the program and implement a system to connect developers with financiers. The AV list could provide more information on the type of work AVs do, such as financing, development, or construction, and the list could be filtered by type. Since there is no distinction between AVs, there could also be sub-sections of AVs based on the type of work they do.

⁸⁴The AV determines the level of savings that is provided to subscribers.

⁸⁵Projects are permitted in areas other than low-income or EJ communities. However, projects in low-income or EJ communities are prioritized in the point selection, and many projects are sited in EJ or LI areas to be competitive in project selection.

- Have a group of financing experts available, so smaller companies with more experience selling and installing solar could lean on other businesses with more financing expertise.
- Remove the cash deposit requirement for submitting projects to the IPA.⁸⁶

Program Funding Recommendations

- Six AVs recommended increasing the amount of funding available for ILSFA.⁸⁷
 - Two noted the funding for the CS and NP/PF projects should be increased given the interest in these sub-programs.
 - One reported that when incentives are fully used up, AVs must wait until the next year to reapply and install a project. This does not drive solar development and could inadvertently reduce the urgency of putting more solar on the grid.
- Make incentives slightly less per project. If incentives are extremely high for each project, this limits the number that can be awarded.
- Offer funds or grants for interested participants to help them fix their roofs and get their homes solar ready.⁸⁸

Job Training Recommendations⁸⁹

- Two AVs recommended updating the job training requirements to allow union labor. This would help increase the number of trainees as it is difficult to find programs in southern Illinois.
- Allow flexibility on the job trainee requirements for projects outside the Chicago area, or provide more training programs in other parts of the state.
- Provide additional assistance with connecting job trainees to AVs.

Project Submission Recommendations

- Streamline the front end of the submission process. There should not be requirements for non-ministerial permits and interconnection applications before the project is submitted.
- Instead of requiring a full interconnection agreement, use a hosting map.
- Change the non-ministerial permit requirement. Projects should be required to demonstrate their ability to receive a permit, rather than having to obtain a permit.

Project Selection Recommendations

- Allocate more points or higher REC values to projects on brownfield sites. It is more expensive to work on these sites, but it is more valuable to the community to convert these sites into productive use.
- Reconsider the new 65 percent savings requirement. This limits the number of feasible opportunities and will most likely prevent ILSFA from reaching some of the most vulnerable communities.⁹⁰

⁸⁶Collateral can be posted either as cash or a letter of credit.

⁸⁷The IPA is not able to increase program funding.

⁸⁸The Future Energy Jobs Act (FEJA) does not allow this.

⁸⁹Under FEJA, Job Training Programs were administered by ComEd.

⁹⁰This is a specific requirement for NP/PF projects that take the Federal tax credit.

Other Recommendations

- Consider change to the program administrator. The ILSFA Program should improve program management.
- Adopt best practices from programs in other states.
- Change the invoicing submission process to be monthly instead of quarterly, so AVs do not need to wait very long to get paid.⁹¹
- Help AVs coordinate with utilities regarding the attribution of savings to customers.
- Understand the challenges that exist in low-income and minority communities and be willing to allow some flexibility in the program to be sensitive to these challenges.

Table V-22
Recommendation Areas for the ILSFA

Recommendation Area	Number of Recommendations in Area
Number of AVs Who Provided Recommendations	16
Community Solar	4
Project Financing	3
Program Funding	3
Job Training	3
Project Submission	3
Project Selection	2
Other	5

Note: Some AVs provided more than one recommendation.

⁹¹This change has been made for contracts beginning in the 2021-2022 program year.

VI. Job Trainee Feedback

This section summarizes feedback from in-depth interviews with job trainees who participated in ILSFA-qualified job training programs. The ILSFA job training requirement is designed to develop and prepare the Illinois workforce for employment in the solar industry, focusing on helping low-income and unemployed Illinoisans gain skills to support Approved Vendors in the ILSFA Program. Under FEJA, Job Training Programs were administered by ComEd.

This section provides information on the job trainees' views and opinions. Statements that were made by the job trainees and that are reported in this section may include suggestions that are inconsistent with the statutory requirements of the ILSFA and/or the ICC approved program design. Additionally, recommendations are those made by the job trainees and may not represent the opinions of APPRISE or the IPA.

A. Methodology

The APPRISE team conducted in-depth telephone interviews with 16 job trainees who participated in a solar job training between 2017 and 2020. These interviews addressed job trainees' experiences with job training programs and the ILSFA Program more generally.

Sample Selection

Elevate provided information on job trainees who were included in the job trainee affidavits for projects undergoing Part II review. Because this sample did not provide information on enough job trainees to complete the expected number of interviews, APPRISE contacted ILSFA-qualified job training programs to request information on job trainees. After numerous follow-ups, one of the 11 organizations provided lists of their job training participants. Trainees on the lists were said to have participated in solar job training between 2018 and 2020. There was a total of 204 trainees identified in the sample frame. A random selection of 63 job trainees were invited to participate in interviews.

In general, quality of the sample lists varied considerably, and one full list appeared to be a list for a different training initiative and was excluded. Some contact information was outdated or had not been recorded correctly.

Interview Implementation

The following procedures were used to implement the interviews.

- Invitations were extended by email and phone calls.
- If trainees completed an interview, they were mailed a \$50 check.
- Interviews were conducted between February 17 and April 30, 2021.
- Interviews ranged in length from 25 to 50 minutes and the average length was 40 minutes.

Trainees were better reached through cell phone numbers rather than email addresses, which often bounced if the email was associated with their training program or their initial employer.

Of the selected sample of 63 job trainees, the APPRISE team was able to complete 16 interviews. Five more interviews were scheduled however, they were unable to be completed for the following reasons.

- Two trainees accepted the invitation but did not show up for the interview at the scheduled time.
- Three other trainees started interviews but hung up soon after they were asked to identify their job training program.

B. Job Trainee Background

This section provides background information on job trainees and the job trainings they attended.

Trainee Background

Among the 16 trainees interviewed, 13 were male and three were female. They ranged in age from 19 years old to mid-30s and generally resided in Chicago or downstate near Peoria. Three had completed their Associate or Bachelor's degrees.

Participants were selected from different trainee cohort groups, as shown in Table VI-1.

**Table VI-1
When Trainees Received Solar Job Training**

Time Frame	Number of Job Trainee Respondents
2017-2018	4
Spring/Summer 2019	7
Fall 2019	1
Winter 2019/Early 2020	3
Summer 2020	1
Total	16

Job trainees received solar training from a variety of programs, presented in Table VI-2. Some training programs were conducted by multiple organizations. The most common job training providers among the respondents were Millennium Solar and the Safer Foundation.

**Table VI-2
Job Training Organization**

Training Organization	Number of Job Trainee Respondents
Millennium Solar and the Safer Foundation	5
Austin People's Action Center (APAC)	3
Illinois Central College (ICC)	3

Training Organization	Number of Job Trainee Respondents
Job Program of Chicago	1
Millennium Solar	1
Millennium Solar, the Safer Foundation, and Little Village Environmental Justice Org. (LVEJO)	1
Millennium Solar and OAI, Inc.	1
National Latin Education Institute (NLEI)	1
Total	16

The most common way that trainees heard about the job training opportunity was by word-of-mouth, followed by outreach from job training organizations, as shown in Table VI-3.

Table VI-3
Method of Communication

Communication Method	Number of Job Trainee Respondents
Word-of-Mouth	8
Outreach from Job Training Organization	3
Email from Grassroots Educator	1
Local Community Event	1
Flyer at Church	1
Online	1
Table at Community College	1
Total	16

Trainees were asked if they had experience in solar, electrical and/or construction work prior to the job training program. Five trainees had no prior experience in these fields. Most trainees with prior experience had worked in construction. Previous experience in solar included personal research into the topic, solar panel installation for a school project, and helping out at solar job sites. Table VI-4 furnishes information on trainees' prior experience.

Table VI-4
Prior Experience Working in Construction, Electrical, or Solar

Prior Experience	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents with Experience	11
Experience in Construction	7
Experience in Electricity	5
Experience in Solar	4

Prior Experience	Number of Job Trainee Respondents
No Prior Experience	5

Note: Some trainees had experience in multiple fields.

Motivation for Participation

Trainees had different reasons for participating in solar job training. The most common reasons were to learn more about the solar industry and to find a job. Trainees provided the following responses, which are summarized in Table VI-5.

- Seven trainees were interested in solar or saw solar as growing industry, which motivated them to participate.
- Seven trainees were unemployed at the time and/or needed a stable job.
 - One noted they only had time to participate in the program because they were unemployed.
 - One chose to attend because they were unemployed and felt there was no hope. They saw the training as an opportunity for employment and decided to go after it.
- Two trainees wanted to learn new information and skills.
- Two trainees wanted to extend their previous experience and background to solar.
- Two trainees were looking to receive solar certifications.
- Other motivations, each reported by one trainee, included the following.
 - The opportunity seemed too good to be true, since the training provided adults with free education.
 - Connect with reputable solar companies.
 - Get into a union for higher wages.
 - Take on more responsibility.

Table VI-5
Reason for Participating in Job Training

Reason	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Interested in Solar	7
Unemployed/Needed Job	7
Learn New Skills	2
Extend Previous Experience	2
Receive Solar Certifications	2
Other	4

Note: Some trainees provided multiple reasons

Trainees were asked if they attended the job training so they could perform work under the ILSFA Program. They provided the following responses.

- Five trainees were interested in work under the ILSFA.

- Two wanted to get employment under FEJA.
- One wanted a sales job with an ILSFA AV.
- One wanted to be a part of ILSFA since they believed it was innovative policy.
- One did not attend the job training to work in the ILSFA Program but looked at ILSFA opportunities afterwards.
- Ten trainees wanted a job in the solar industry in general and did not specifically apply to work in the ILSFA Program.

Wage Expectations

Table VI-6 summarizes job trainees' hourly and annual salary expectations. Eleven trainees had hourly rate expectations, and most were between \$15 and \$20 per hour. Two trainees anticipated their rates would increase quickly as they became more experienced. One believed the rate would be higher in the Chicago area.

Six trainees had annual salary expectations. One other trainee heard the average salary in the solar industry ranged from \$35,000 to hundreds of thousands of dollars but did not have any expectations.

**Table VI-6
Expected Wages**

Hourly Rate Expectation	Number of Job Trainee Respondents	Annual Salary Expectation	Number of Job Trainee Respondents
\$15 - \$20/hr	7	\$40,000 - \$45,000	2
\$21 - \$25/hr	3	\$45,001 - \$50,000	2
>\$25/hr	1	\$50,001 - \$65,000	2
Don't Know	5	Don't Know	10
Total	16	Total	16

C. Job Training Experience

Job training programs ranged in length from two weeks to three months with most programs lasting ten to 12 weeks. The number of training hours each trainee reported that they received is summarized in Table VI-7. Most trainees provided an approximate number of hours and three were unable to provide an estimate.

**Table VI-7
Number of Training Hours Received**

Average Number of Hours	Number of Job Trainee Respondents
80 – 90 hours	2
200 – 250 hours	3
300 – 360 hours	4

Average Number of Hours	Number of Job Trainee Respondents
400 hours	4
Don't Know	3
Total	16

Note: The average number of hours is reported in the table if the trainee provided a range.

None of the trainees reported that they were charged to participate in their job training program. Eleven of the 16 trainees received a stipend for participating in the program, as shown in Table VI-8. Two stated the stipend was not substantial enough to cover living costs. Ten trainees also reported that the program reimbursed their transportation expenses by covering gas costs or providing a bus or train pass.

Table VI-8
Stipend Amount Received

Stipend Amount	Number of Job Trainee Respondents
\$10 per hour	5
\$500	3
\$1,000	3
Don't Know	3
Did Not Receive Stipend	2
Total	16

Transportation Methods

Trainees were asked what method of transportation they used and how long it took to get to the training. Most trainees drove to the training or used public transportation. Some used multiple forms of transportation.

Table VI-9
Mode of Transportation

Stipend Amount	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Drove Using Own Car	10
Public Transportation (Bus/Train)	6
Car-Pooled	2
Walked	1
Biked	1

Note: Some trainees used multiple forms of transportation.

It took trainees between five minutes and two hours to get to the training. Nine trainees commuted for 20 minutes or less, as shown in Table VI-10.

Table VI-10
Time Taken to Get to Training

Commute Time	Number of Job Trainee Respondents
< 10 Minutes	3
10 – 20 Minutes	6
30 – 45 Minutes	3
1 Hour	2
1.5 – 2 Hours	2
Total	16

Barriers to Participation

Six of the 16 interviewed trainees experienced barriers to attending the job training program. The most common barrier was balancing work with attending the training. Barriers are described below and summarized in Table VI-11.

- Five trainees experienced challenges working while attending the training.
 - Two had to quit their jobs since the training was held during the day. One found part-time work while taking the class.
 - Two stated it was difficult to pay living expenses, such as rent and food, because they could not work during the program.
 - One had to coordinate part-time work hours around class time.
- One trainee had to relocate from the suburbs to the city and live with family for two or three months to be near the training.
- One had transportation challenges since the training was not in a convenient location.

Table VI-11
Barriers to Participation in the Training

Barrier	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Working While Attending Training	5
Relocation	1
Transportation Challenges	1
No Barriers	10

Note: Some trainees experienced multiple barriers.

Topics Covered

Trainees were asked to describe the content of their training.

- Nine trainees reported the training covered soft skills and professional development in addition to solar industry training. Organizations such as the Safer Foundation, Austin People's Action Center (APAC), Illinois Central College (ICC), OAI, Inc., and Little Village Environmental Justice Organization (LVEJO) provided the soft skills training.
- The National Latin Education Institute (NLEI) program also covered instruction in reading, writing, and speaking in English.
- The soft skills training was generally designed to equip participants with the skills necessary to identify, obtain, and maintain solar industry employment.

The topics covered during the soft skills training are shown in Table VI-12.

Table VI-12
Soft Skills Training Provided

Soft Skills	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Resume Writing/Interviewing	9
How to Apply to Jobs	3
Employer Expectations	3
Personal Development	3
Job Readiness/Re-Entry into Workforce	2
Timeliness	2
Using Computers	1
English Literacy	1
Did Not Report That the Training Covered Soft Skills	7

Note: Some trainees stated their training program covered multiple soft skills.

Trainees were prompted to report whether the solar training they received covered the topics listed in Table VI-13. Almost all trainees reported that they were trained in solar installation, design, and visual or mechanical inspections.

Table VI-13
Solar Training Provided

Topic	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Solar Installation	15

Topic	Number of Job Trainee Respondents
Solar System Design	14
Visual/Mechanical Inspection	14
Solar Operations & Maintenance	13
Electrical Testing	12
Solar Sales/Marketing	11
Component Testing	11
Interconnection	11
System Monitoring	11
Solar System Commissioning	8
Utility Commissioning	8
User Training	6

Note: Some trainees stated their training program covered multiple topics.

Trainees also described other components of their solar training, displayed in Table VI-14. The most common included introductions to solar energy, electricity, construction work, and power tools. Only five trainees reported that they received hands-on training.

Table VI-14
Other Solar Training Provided

Topic	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Introduction to Solar Energy/Electricity	11
Introduction to Construction Work/Power Tools	7
OSHA 10 Certification	4
Selecting Suitable Solar Sites	3
Basic Math	3
Working on Roofs	2
Solar Contracts and Pricing	2
Getting to Job Sites	1
Don't Know	1

Note: Some trainees stated their training program covered multiple topics.

Satisfaction

Trainees were asked to describe their overall satisfaction with their job training program on a scale from one, meaning not at all satisfied, to five, very satisfied. Table VI-15 shows that 13 of the 16 respondents were satisfied or very satisfied with their program.

The five trainees who rated their programs a five provided the following additional information.

- Two stated they learned a lot from the program. One reported that the instructors were well educated, competent, and had a good command of the field.
- Two reported the program was helpful and informative.
- Two stated the classes were interesting and enjoyable. One particularly enjoyed learning the math and science skills.

Trainees who rated their programs a four provided the following explanations.

- Two were satisfied but believed the course was too long.
- Two stated the training went through some topics too quickly.
- One reported that they enjoy the solar position they have now, but some information and materials were outdated.
- One was satisfied with the basic introduction to the solar industry but reported the organization could only do so much in a classroom setting.
- One stated it was difficult to register for the training, but their overall experience was good.

The three trainees who rated their programs a three were asked why they were not satisfied with the training.

- One was in an early cohort and the training organization was still learning how to conduct the training and how to work with partners. The trainee reported that the program seemed disorganized, and that some information was inaccurate. This trainee believed that the organization has improved now that they have more experience.
- One trainee was unsatisfied because their classroom experience was not paired with hands-on demonstrations.
- One had several negative comments.
 - The training organization was unprofessional, and an instructor did not show up to one of their scheduled classes.
 - The program did not screen participants to see if they could read or do math.
 - No one was drug tested.
 - The training organization did not fully appreciate the safety risks associated with working in solar.

Table VI-15
Satisfaction with Training Program

Satisfaction Rating	Number of Job Trainee Respondents
5 – Very Satisfied	5
4	8
3	3
2	0
1 – Not At All Satisfied	0
Total	16

Six trainees provided the following praise regarding their training program in general.

- My life and work experiences to that point had not been the greatest, and I did not think that there was any work for me or that there were people who could help me. But through the program, I met people who did care. Nobody had ever tried to help me like they did before.
- They treated us like family. They kept it really authentic and wanted to help us. They didn't treat us like kids. They treated us like adults and with respect.
- I believe that the training gave us an opportunity, and if people wanted to make a career for themselves in solar, it gave them a chance to do that.
- The owner of the training program came in, and we all got to know him on a personal level. He indicated that if we ever needed anything in the solar industry, we just needed to call him, and you could tell he really meant it. That meant a lot to me and to the guys who were just starting out.
- I was in a bad place in my life before I started the program. The program allowed me to get the employment I was looking for.
- The program opened multiple doors for me.

Recommendations for Job Training Programs

Fifteen of the 16 interviewed trainees provided recommendations for the job training programs. The most common recommendations included providing more hands-on experience and offering trainings in more convenient locations. Recommendations are provided below and summarized in Table VI-16.

- Eight trainees recommended providing more hands-on work experience.
 - Two stated trainees need more exposure to outdoor work and experience being on roofs, especially in extreme weather.
 - Trainings need a prop house to demonstrate topics learned in the classroom.
 - Trainees should actually lay out panels and attach them.
- Four trainees suggested providing trainings in more convenient locations or online so individuals who live farther away can participate.
 - One said to host trainings in central Chicago as opposed to the southern part of the city.

- One believes trainings should be completely or partially online so more individuals can access them.
- Three trainees recommended covering a wider variety of solar jobs, including system design, project management, administration, sales, and marketing, and not just solar installation training. Teachers should have more flexibility on which topics are covered based on participant interests.
- Three trainees suggested instructors set realistic expectations early on and do not overstate the demand for solar workers or number of opportunities available.
 - Two recommended telling trainees that there are jobs available, but they must apply themselves to obtain one. The program will not give them a job after completion.
 - One stated that instructors should be more upfront with trainees by saying solar is not an established industry in Illinois so there is no steady demand for workers. Jobs can be short-term or require relocation.
- Three trainees reported that training programs should increase job placement support.
 - Involve a company that is responsible for student job placement and will work with trainees until they find a position.
 - Follow up with trainees who completed the program to monitor their progress and provide continuing mentorship if they did not secure a solar job or only worked on a short-term project.
 - Help trainees build a better network for securing jobs. ComEd has a site to connect trainees with employers but it is not very good.
- Two trainees recommended shortening and condensing the training.
- Two believed the materials used in class, such as textbooks, example panels, and prop houses should be updated. They noted that some information was out of date.
- Two suggested that the programs should provide tools that align with what installers actually use. These tools included high-quality tape measures, cougar paws (specialized boots used when working on roofs), and dykes (wrench with scissors used to cut wires).
- Other recommendations, each provided by one trainee, were as follows.
 - Match the training to the background of the trainees. Do not cover soft skills such as resume writing or workforce re-entry if they do not require that experience.
 - Bring in past trainees to describe solar jobs.
 - Include North American Board of Certified Energy Practitioners (NABCEP) certification in the course as candidates with this accreditation are more attractive to employers.
 - Re-evaluate the partnership with the Safer Foundation. Employers are biased against the organization and it is harder for trainees with no criminal record to obtain a job if they are associated with the program.
 - Screen trainees more rigorously to ensure they are serious about the training, are sober, and will follow safety protocols.
 - Invest in trainees that are serious about working in solar by providing the stipend at the end of the course only to those that finish the entire training.
 - Emphasize the importance of safety and obtaining health insurance since workers can be injured.
 - Teach more life skills, such as what questions to ask employers before starting a job.
 - Increase the stipend and provide meals for trainees while they are in class.

- Obtain a larger space to handle the amount of people in the classroom.

Table VI-16
Job Training Program Recommendations

Recommendation	Number of Job Trainee Respondents
Total Number of Trainee Respondents Who Provided Recommendations	15
Provide More Hands-On Experience	8
Offer Trainings in More Convenient Locations/Online	4
Cover a Wider Variety of Solar Jobs	3
Set Realistic Expectations	3
Increase Job Placement Support	3
Shorten the Training	2
Update Materials/Technology	2
Provide More Useful Tools	2
Other	10

Note: Some trainees provided multiple recommendations.

D. ILSFA Employment

This section summarizes how trainees obtained employment, their work on ILSFA projects, and how the jobs compared to their expectations.

Obtaining Solar Jobs

Trainees were asked if their job training programs provided a list of vendors hiring trainees. Fifteen trainees reported that their programs provided vendor names in some capacity.

- Eight reported their programs hosted a job fair. One fair was virtual due to the pandemic.
- Six received a list of vendors who may be hiring trainees.
- Two stated vendors came to their class as speakers.
- One received weekly emails from their training program about employment opportunities.
- One stated the ICC has a Facebook group specifically designed to support solar job trainees who are looking for employment in the solar industry.
- One reported the head of the training organization referred some trainees to a vendor.

Table VI-17 displays how many vendors were included in the lists provided by the training organizations or at the job fairs. The number of vendors ranged from two to 50.

Table VI-17
Number of Vendors on Job Lists or at Job Fairs

Number of Vendors	Number of Job Trainee Respondents
<10	2
10 – 20	5
20 – 30	2
50	1
Don't Know	6
Total	16

Trainees reported that most vendors were not located within a 30-minute drive of their home. Table VI-18 furnishes information on the percent of vendors included on the lists or at job fairs that were within a 30-minute drive of trainees' homes. More specific responses are included below.

- Two trainees stated only a handful of companies were nearby.
- Most vendors were in southern IL, not Chicago.
- Most were in the suburbs not the city, about 40 minutes away.
- The vendors were all over. Some were ten minutes away and others were out of state, but they offered relocation assistance.

Table VI-18
Percent of Vendors Within a 30-Minute Drive

Percent of Vendors Nearby	Number of Job Trainee Respondents
0%	2
10%	1
20%	1
50%	3
80%	1
Don't Know	8
Total	16

Trainees were asked how they obtained employment in the ILSFA Program. Twelve trainees reported that they received employment in the ILSFA and four did not.

- Ten trainees received employment through their job training program.
 - Four received employment at job fairs.
 - Two met with an AV through the program.
 - One received a job with an AV after the ICC provided a recommendation.
 - One found the position through a Facebook group the instructor maintained.

- One was referred to a job site through the training instructor.
- One pursued leads from the list of AVs provided by the training program.
- One received a job opportunity through Elevate.
- One received a job through a personal network.
- Four trainees did not find a solar job.
 - One spoke with multiple AVs, but they did not have any positions open.
 - One took a job with APAC to help young adults in other job training programs.
 - One was offered a job outside of the solar industry that was more aligned with their background.
 - One went back to college early and did not finish the job training.

Three trainees also provided information on the number of classmates who received general solar employment.

- One stated that over 50 percent of the training class found solar jobs. However, some of these opportunities were outside Illinois.
- One reported only 25 percent of the cohort received employment.
- Only two of the 17 people in one trainee's class obtained jobs in solar.

Job Preparation

The 12 trainees who obtained employment in the ILSFA were asked if their training program sufficiently prepared them for solar work. Table VI-19 shows that ten respondents believed their program sufficiently prepared them and two stated the program somewhat prepared them.

Trainees who reported the training sufficiently prepared them provided the following additional information.

- Two stated there is more physical work than is learned in class so there is still a lot of learning on the job.
- One stated the program prepared them as much as possible given that the class was completed online.

Trainees who reported the training somewhat prepared them for solar work provided the following specific responses.

- One stated they work more on electrical components rather than installing solar, which was more related to their college degree than the training.
- One had to go through additional safety training to obtain an OSHA 30 certification to work in project management.

Table VI-19
Training Sufficiently Prepared Trainees for Solar Work

Training Was Sufficient	Number of Job Trainee Respondents
Yes	10
Somewhat	2
Did Not Obtain ILSFA Employment	4
Total	16

Ten trainees received additional training from their employers. Six of these trainees stated that this training consisted of “learning by doing” and/or shadowing other workers. Other training included instruction on safety expectations, reading job documents, working on different types of roofs, and the sales and design process. Two trainees did not receive additional training from their employer, aside from an explanation of the work. Four trainees did not obtain jobs in solar.

Solar Work

Table VI-20 displays information on the type of work trainees have conducted for the ILSFA Program. Twelve trainees reported that they worked on ILSFA projects and ten of these worked as solar installers. Eleven trainees have worked on solar projects not related to the ILSFA Program and one did not know. Two stated that most of their jobs were not for the ILSFA and only four projects their AV has worked on in the last three years were for the program.

Table VI-20
Type of Work Completed for ILSFA Projects

Type of Work	Number of Job Trainee Respondents
Total Number of Job Trainee Respondents	16
Solar Installation	10
Electrical Work	2
Sales	2
Project Management/Administration	2
Solar Design	1
Did Not Obtain ILSFA Employment	4

Note: Some trainees completed multiple types of work.

The 12 trainees who worked on ILSFA projects were asked if they were hired for a specific project.

- Seven were hired for a specific project.
- Five trainees were hired in general to work on different projects.

Ten trainees reported that they will continue to work for the AV they were currently with. One of these trainees also works as a private installer. Five trainees provided additional praise for the AVs they work with and their solar jobs.

- I do really enjoy the work, and the company keeps growing and growing.
- I am grateful to have found the job with the AV right out of the program.
- Some things in the field were especially interesting, and once I got into a solar job, I really enjoyed it.
- I'm happier with my solar position than my previous work. I think that how you work and feel about it is just as important. The work has been more constant and there have not been any layoffs.
- I love the solar position I am in now.

Two will not continue to work with the AV they are with.

- One was only hired for a short-term project.
- One did not continue work with an AV because of a bad experience. The job site was being picketed and the trainees served as low-cost replacements for the striking workers. They were promised more money than they received and were not provided with health insurance.

The ten trainees who planned to continue to work for the AV they currently worked with were asked how long the work will last.

- Five will continue working with the AV indefinitely.
- One will work for another six or more years, depending on the solar market.
- One will work for another three or more years.
- One will eventually go back to carpentry since that is a union job which pays more.
- Two did not know. One trainee stated that solar jobs are not very stable.

Employment Expectations

Table VI-21 shows that nine of the 12 trainees who obtained ILSFA jobs received the amount of employment expected and five received the wages they expected.

Additional information they reported about employment level was as follows.

- Nine trainees received the amount of employment they were expecting.
- One received enough employment the first year after the training but then work lapsed and is now only on a project-by-project basis.
- Two did not receive the amount of employment they hoped for.
 - One wanted full-time employment but was hired on a short-term basis.
 - One wanted to work in sales but was pushed to do solar installation. After a bad experience at the job site, the trainee left the solar industry.

Additional information reported about wages was as follows.

- Five trainees received the wages they expected.
- Three stated they somewhat received their expected salary.

- One could have received a higher salary with a larger national company.
- One initially received a lower rate than anticipated but then got a raise.
- One received expected wages for an entry level position, despite a higher experience level.
- Four were offered less than expected. One trainee said the hourly rate was less than advertised because it did not include insurance.

Table VI-21
Received Expected Amount of Employment and Wages

Received Expected Amount of Employment	Number of Job Trainee Respondents	Received Expected Wages	Number of Job Trainee Respondents
Yes	9	Yes	5
Somewhat	1	Somewhat	3
No	2	No	4
Did Not Obtain ILSFA Employment	4	Did Not Obtain ILSFA Employment	4
Total	16	Total	16

Table VI-22 shows that seven of the 12 trainees who obtained jobs in solar said that their income increased compared to before they attended job training.

- Seven reported their income increased.
 - Five reported that they doubled their income.
 - One reported a 33 percent increase.
 - One reported that solar pays more than 95 percent of other jobs for high school graduates.
- One stated that income remained the same.
- Four received lower wages than before the training. However, one stated that the work was better, and the employment was more stable.

Table VI-22
Income Increased After Training

Income Change	Number of Job Trainee Respondents
Increased	7
Remained the Same	1
Decreased	4
Did Not Obtain ILSFA Employment	4
Total	16

Current Employment

Eight job trainees were working full-time in the solar industry at the time of the interview. These trainees found permanent positions with AVs. Three employed trainees earned job promotions, raises, or increased responsibilities in their companies.

Two trainees were taking intermittent solar jobs and seeking permanent solar employment. One trainee hoped to set up a new solar manufacturing company in Illinois. Another offered private solar industry consulting on the side.

Four trainees ultimately pursued other employment, such as service, sales, warehouse, or training jobs. Two of these trainees initially found solar jobs. However, they stopped working in the industry because their roles were not permanent, and they did not have a good experience at the job site.

Two trainees were unemployed at the time of the interview. Responses are summarized in Table VI-23.

Table VI-23
Employment at Time of Interview

Employment	Number of Job Trainee Respondents
Employed Full-Time in Solar	8
Taking Intermittent Solar Jobs	2
Employed in Other Capacity	4
Not Currently Employed	2
Total	16

E. COVID-19 Impacts

Job trainees were asked to describe the impact that the COVID pandemic had on working conditions for ILSFA jobs and for other employment opportunities.

Two trainees reported that the COVID pandemic impacted their job training experience.

- Two trainees had to complete their job training courses online.
- One stated that it had been difficult to receive responses from potential employers.

Trainees described how the pandemic affected ILSFA and solar work in general.

- Five trainees working on solar installations reported that crews must follow safety guidelines.
- Four reported that solar work had slowed down or stopped altogether.
- Three stated that the pandemic did not affect solar or their jobs.
- One stated solar work has not stopped but hours had been reduced.

Job trainees reported how COVID impacted other employment opportunities.

- Three were not working in the solar industry and lost their jobs.
- Two reported there was no impact.
- One took a short-term job at a factory until solar work starts up again.
- One was not able to get to other employment opportunities because of a desire to avoid public transportation.
- One was not working in solar and had lost employment in the restaurant industry.

F. Job Trainee Recommendations

Seven of the 16 job trainees provided the following recommendations for the ILSFA Program more generally. The most common recommendations were increasing the availability of training programs across the state and increasing the number of women in the solar industry. Recommendations are summarized in Table VI-24.

- Two recommended increasing the availability of classes and programs across the state.
- Two provided recommendations to help increase the number of women working in the solar industry.
 - Prepare female workers to address, manage, and counter sexism in the industry. It is beneficial to have women instructors.
 - Show more pictures of women in the construction industry during trainings to encourage their participation in the field.
- Other recommendations, each provided by one trainee, were as follows.
 - Work on stabilizing the solar market in Illinois so trainees are in demand and have steady work.
 - Increase ILSFA exposure so more people are aware of the program and can access solar.
 - Continue the program because it is a great opportunity for young, minority workers in Chicago.
 - Offer incentives for companies to produce solar panels in Illinois.
 - Offer assistance to entrepreneurs who want to launch solar companies by providing funding and/or an incubator space.

**Table VI-24
ILSFA Recommendations**

Recommendation	Number of Job Trainee Respondents
Total Number of Trainees Who Provided Recommendations	7
Increase Geographic Distribution of Training Programs	2
Increase Number of Women in Solar	2
Stabilize Solar Market	1
Increase ILSFA Awareness	1
Continue Program	1
Provide Incentives for Panels Produced in IL	1

Recommendation	Number of Job Trainee Respondents
Total Number of Trainees Who Provided Recommendations	7
Offer Assistance for Solar Entrepreneurs	1

Note: Some trainees provided multiple recommendations.

VII. Stakeholder Feedback

The APPRISE team conducted in-depth telephone interviews with 27 ILSFA stakeholders, including Participant Stakeholders, Nonparticipant Stakeholders, and Community Action Agencies (CAAs). The interviews addressed stakeholders' experiences with the stakeholder outreach process and the ILSFA Program more generally.

This section provides information on the stakeholders' views and opinions. Statements that were made by the stakeholders and that are reported in this report may include suggestions that are inconsistent with the statutory requirements of the ILSFA and/or the ICC approved program design. Additionally, recommendations in this section are those made by the stakeholders and may not represent the opinions of APPRISE or the IPA.

A. Methodology

This section provides information on the sample selection, interview implementation, and research objectives and approach.

Sample Selection

The Participant Stakeholder subgroup consisted of individuals who have had regular or past involvement guiding ILSFA's design, development, or implementation. Some participated in the ILSFA Working Group, and others had been involved with other facets of the program. The Participant Stakeholders were drawn from Illinois non-profits, engaged solar vendors, Grassroots Educators, solar industry consultants, and others.

The Nonparticipant Stakeholder subgroup consisted of individuals who, based upon their work, might be expected to be aware of or have knowledge about the ILSFA Program, but to date have had no or only limited involvement in the program. Individuals in this subgroup were drawn from non-profits with a focus on environmental issues, low-income services, and affordable housing. Other Nonparticipant Stakeholders worked in public or non-profit facilities interested in solar, industry associations, and solar training/education providers.

The Community Action Agency (CAA) subgroup consisted of Executive Directors of Illinois CAAs that are engaged in supporting low-income individuals, families, and children. They generally administer federal, state, and utility assistance programs on a regional basis, which provide low-income families with food, housing, and energy assistance; weatherization; job placement; and other related services. The CAAs were spread across the State of Illinois and serve a variety of counties.

Interview Implementation

The evaluation team recruited and scheduled research participants using contact lists, websites, LinkedIn, referrals, and a CAA directory. In total, 27 in-depth interviews were conducted with the following groups.

- Eleven interviews with Participant Stakeholders
- Eight interviews with Nonparticipant Stakeholders

- Eight interviews with Community Action Agency Stakeholders

The interviews ranged in length from about 20 minutes to 70 minutes. On average, Participant Stakeholder interviews generally ran longer than those with Nonparticipant Stakeholders and Executive Directors of CAAs.

All respondents work in Illinois and shared an interest in the success of the ILSFA Program. They had varying levels of awareness and involvement in the program and shared different perspectives about how the program is performing and how it can be enhanced.

Research Objectives and Approach

Interview questions were designed to explore potential programmatic successes in the past year, as well as opportunities for strengthening the program or addressing current challenges.

More specifically, the interview questions addressed the following.

- Stakeholder participation, including awareness of opportunities to provide feedback, submit suggestions, attend presentations, and use online recordings posted to the ILSFA website.
- Perceptions of ILSFA stakeholder outreach and participation.
- ILSFA openness to feedback and ideas and use of stakeholder comments to refine the program where feasible and beneficial.
- ILSFA design and implementation feedback, with a specific focus on the sub-programs and particular challenges which lie ahead for the program, such as increasing the number of Distributed Generation (DG) solar installations and expanding the number of smaller Community Solar (CS) projects funded under the program.
- Potential for CAA involvement in the future, such as their knowledge of the ILSFA Program, willingness to engage, interaction with the program administrator, and perceived barriers to future participation.
- Perspectives on other issues of program concern.

B. Stakeholder and CAA Background

Table VII-1 shows that the majority of Participant Stakeholders engaged in the ILSFA feedback process in the past year; however, participation was less common among CAA Stakeholders who did not follow the program closely enough to know when their input was requested. Additional details on participation are provided below.

- Six respondents stated that they may have had some prior involvement in the program but have not been involved in the past year.

- Four said they are not currently aware of the program and/or have little knowledge of its design. These latter individuals were generally only able to answer a subset of questions based on their limited understanding.
- Four respondents across all three sub-groups have been involved in Grassroots Education.
- Two respondents have been involved in ILSFA job training.

**Table VII-1
Participation in Stakeholder Feedback Process**

Have you participated in the ILSFA stakeholder feedback process in the past year?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Participated	8	0	2	10
Did Not Participate	3	8	6	17
Total	11	8	8	27

Table VII-2 shows that nine of the 11 interviewed Participant Stakeholders and/or their colleagues and two of the eight CAA Stakeholders attended presentations about the ILSFA Program. Some provided additional details, but some could not remember which presentations they attended.

- Eight attended the DG Sub-Program Feedback Session.
- Six attended the Approved Vendor Manual Updates presentation.
- Five attended the Project Selection Protocol presentation.

The four Grassroots Educators also met with Elevate to engage in discussions about outreach.

**Table VII-2
Presentation Attendance**

Did you or another member of your organization attend presentations?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Attended Presentations	9	0	2	11
Did Not Attend Presentations	2	7	6	15
Don't Know	0	1	0	1
Total	11	8	8	27

Nine of the 11 Participant Stakeholders and two of the eight CAA Stakeholders indicated that they listened to online recordings. Most were not able to identify what content they listened to online, however, four said they listened to all of the presentations posted online.

**Table VII-3
Listened to Online Recordings**

Did you listen to online posted recordings of the presentations and/or feedback sessions?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Listened	9	0	2	11
Did Not Listen	2	7	6	15
Don't Know	0	1	0	1
Total	11	8	8	27

Table VII-4 displays information on whether the interviewees provided comments on the ILSFA Program. Nine indicated they had provided comments and 16 did not.

- Three stakeholders stated that they took part in formulating the working group's response.
- Two stated that the pandemic was a barrier to providing comments.

**Table VII-4
Provided Comments to Program**

Did you provide comments?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Provided Comments	7	0	2	9
Did Not Provide Comments	4	6	6	16
Don't Know	0	2	0	2
Total	11	8	8	27

Six stakeholders reported information on the factors that their comments addressed. These included equitable access to the ILSFA Program, AV manual updates, how to make the DG sub-program work better, Grassroots Education, and the DG referral program.

Nearly all respondents indicated an intent to provide future feedback as the program develops further. While Participant Stakeholders indicated that they will continue to respond to online requests for feedback, Nonparticipant Stakeholders and CAA Stakeholders reported that they are open to providing feedback if someone reaches out to them or personally asks them to do so. Nonparticipant Stakeholders and CAA Stakeholders generally did not follow the ILSFA website closely enough to know when the program required their input.

Stakeholders said that in the future they would comment on how to build trust in the ILSFA Program, elimination of a credit rating as a requirement for DG participants⁹², and increased access to financing for households and Power Purchase Agreements (PPA).

⁹²This is not currently an ILSFA requirement.

**Table VII-5
Will Provide Feedback as the Program Develops**

Do you plan to (continue to) provide feedback as the program develops further?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Will Provide Feedback	11	7	8	26
Will Not Provide Feedback	0	0	0	0
Don't Know	0	1	0	1
Total	11	8	8	27

C. Stakeholder Outreach

Table VII-6 shows that eight respondents said the program provided sufficient outreach, nine said it did not, and ten did not know.

**Table VII-6
Program Provided Sufficient Outreach**

Do you feel the program provided a sufficient amount of outreach in the past year to encourage stakeholders to participate in the ILSFA?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Provided Sufficient Outreach	5	1	2	8
Did Not Provide Sufficient Outreach	3	3	3	9
Don't Know	3	4	3	10
Total	11	8	8	27

Respondents provided the following positive information about the sufficiency of outreach.

- Two reported the program administrator has done a good job with outreach and gathering feedback.
- Two said the program has sufficient stakeholder outreach but there is always room for improvement.
- One stated the process has been well run and managed in terms of the way the ILSFA hosts meetings and the way they present important questions and allow sufficient time for responses.
- One reported that Elevate has gotten better at dispersing information in a timely manner.

Respondents provided the following reasons for why they believe the program did not provide sufficient stakeholder outreach or why outreach was more difficult this year.

- Four noted that stakeholder outreach was more difficult because of the COVID pandemic.
 - One Participant Stakeholder believed bringing in new stakeholders was more challenging.
 - One Participant Stakeholder reported it has been difficult to transition to virtual communication methods.
 - One CAA Stakeholder stated that outreach was disjointed due to the pandemic.
 - One CAA Stakeholder stated that they would not have been able to support the ILSFA Program this year since they had no face-to-face contact with customers.
- One respondent suggested that outreach has not effectively reached relevant Chicago organizations that serve minority and low-income communities.
- One stated that the ILSFA asked for input on program aspects that did not need to be changed.
- One Nonparticipant Stakeholder has not received any emails or outreach about the ILSFA.

Respondents provided the following suggestions to solicit additional stakeholder feedback.

- Three respondents suggested that the program could be more proactive in reaching out to key stakeholders to discuss how the program could be improved, especially in areas where it may be falling short or is inaccessible for some audiences.
 - One stakeholder specifically mentioned reaching out to AVs.
- Three stakeholders indicated that greater outreach is necessary to build trust in the program and enhance project believability.
- Two suggested that the program may not ask for feedback on the most relevant questions, such as why AVs may not be engaging, what can be done to streamline participation for both AVs and homeowners in DG and CS projects, and how to successfully launch projects in the Chicago area.

Table VII-7 shows that over 15 of the 27 respondents identified barriers to participating in the ILSFA feedback process. The most common barrier was that the ILSFA Program is complex and difficult for consumers, AVs, and support agencies to understand and navigate.

**Table VII-7
Barriers to Stakeholder Participation**

Were there any barriers to your participation in a stakeholder participation opportunity?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Experienced Barriers	5	6	4	15
Did Not Experience Barriers	6	1	4	11
Don't Know	0	1	0	1
Total	11	8	8	27

Barriers to participation cited by research participants are listed below and summarized in Table VII-8.

- Four reported that program complexities make the process burdensome.
 - Two stated that the parameters set up to protect low-income customers from predatory practices, while important, have made it more difficult for their organizations to become involved in the ILSFA Program.
 - One stated there is a need for one-on-one counsel and program navigation/support in project development.
 - One stated that even once understood, the required protocols for participation may seem so cumbersome that some people may avoid participation or limit their engagement.
- Three indicated that low awareness of the ILSFA Program and lack of marketing was a barrier. Two reported that the ILSFA Program did not provide them with any information on the program.
- Three stated that they did not have enough time to participate this past year.
- Two cited the shortage of AVs or AVs being unwilling to engage in the program. One mentioned there are not many AVs in the downstate area.
- Two reported skepticism and lack of trust in the program.
- Two struggled with the lack of in-person contact over the past year due to COVID.
- Two stated that there is not enough funding in the program, specifically for projects in Chicago and for small projects.
- Other barriers each reported by one respondent included the following.
 - The requests for comments are intermittent and it would be easier if they followed a regular schedule.
 - The project selection protocols are always changing, and it would be useful if these changes were made earlier.
 - Navigating the process as a housing authority instead of a traditional non-profit is challenging.
 - There is limited participation of minority AVs, which makes it more difficult to engage minority communities.
 - The program lacks understanding of low-income consumers.

Table VII-8
Barriers to Stakeholder Participation

Barrier	Number of Stakeholders Who Experienced Barrier
Total Number of Stakeholders Who Experienced Barriers	15
Program Complexities	4
Low Awareness of ILSFA	3
Not Enough Time	3
Lack of AVs	2

Barrier	Number of Stakeholders Who Experienced Barrier
Skepticism	2
COVID	2
Lack of Funding	2
Other	5

Note: Some stakeholders provided more than one response.

Eleven participants provided other comments on the stakeholder outreach process, most commonly that the ILSFA Program should expand outreach to diverse communities.

- Four suggested reaching out to a more diverse set of stakeholders.
 - Two recommended the program speak with more AVs. This included hosting a feedback meeting with AVs in each sub-program.
 - Two said that there should be more effort to reach out to generic community groups who are not involved in the process in addition to the same groups that usually provide comments.
 - One said that it would be helpful to have more townhalls and community meetings to inform the public and other organizations about the ILSFA and what solar AVs are nearby.
- One stated that the stakeholder feedback process sounds like a Statement of Work and it feels as though stakeholders will not be an active part of the process.
- One suggested that the program should provide more testimonials and success stories to spread awareness about the program.
- One stated that the process seems to be working well and is convenient.
- One asked for feedback on what issues to prioritize.
- One stakeholder was interested in providing education about the program but said that the ILSFA Program has not yet reached out to them.

D. Stakeholder Participation

The more closely respondents were involved in the program, the more likely they were to indicate that there is sufficient stakeholder participation. Table VII-9 shows that eight respondents felt the program achieved sufficient stakeholder participation, two said it had not, and 17 did not know.

**Table VII-9
Sufficient Stakeholder Participation**

Do you feel that there was sufficient stakeholder participation in the ILSFA development process in the past year?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Sufficient Participation	6	0	2	8
Insufficient Participation	1	0	1	2

Do you feel that there was sufficient stakeholder participation in the ILSFA development process in the past year?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Don't Know	4	8	5	17
Total	11	8	8	27

Five respondents suggested how to achieve additional stakeholder participation, which included the following.

- More listening sessions, orchestrated by an independent facilitator, but including ILSFA and various stakeholder groups, virtually if required.
- More one-on-one meetings with Grassroots Educators.
- Additional discussions on what to do to help the DG sub-program take off.
- Education campaign to drive awareness of ILSFA Program.
- Increase efforts to educate Illinoisans about the benefits of solar.

Table VII-10 shows that six of the 11 Participant Stakeholders indicated that the ILSFA Program has been open to feedback and ideas from stakeholders. Three specifically described the program administrators as transparent and working to strengthen the ILSFA Program. Nonparticipant Stakeholders and CAA Stakeholders generally had less direct contact with the program, and as such, were not as able to indicate whether the program is open to feedback and ideas.

**Table VII-10
Program Open to Feedback**

Did you feel that the program has been open to feedback and ideas from the stakeholders in the past year?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Program Open to Feedback	6	0	1	7
Program Not Open to Feedback	2	0	1	3
Don't Know	3	8	6	17
Total	11	8	8	27

The stakeholders who did not feel the program was open to feedback provided the following responses.

- One respondent reported to Elevate that they had difficulty getting projects approved. The respondent felt that the new updates to the AV Manual placed additional limits on projects.
- One stated that they are not having trouble getting customers interested in free solar.
- One respondent told Elevate that customers do not trust the program because it is free.
- One has not seen any changes made yet.

Additionally, one Participant Stakeholder pointed out that they do not feel that ComEd and Ameren are open to feedback. Another stakeholder reported that while the program is open to feedback, there is a lot of red tape and legislative action that needs to be passed to implement changes.

When asked whether the program incorporated stakeholder comments in the program, five respondents stated that it did, two said it did not, and 20 did not know.

**Table VII-11
Program Incorporated Stakeholder Comments**

In the past year, do you feel that the program incorporated stakeholder comments into the program refinement where feasible and beneficial?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Incorporated Comments	4	0	1	5
Did Not Incorporate Comments	2	0	0	2
Don't Know	5	8	7	20
Total	11	8	8	27

The two stakeholders provided the following responses for why they believe the program has not incorporated stakeholder comments.

- One indicated that while some changes have been made, their technical input was ignored. The program has not taken steps to ensure Illinois small businesses can participate, has not figured out why Grassroots Education is not working, and has not identified sources of frustration with the program and adequately addressed them.
- The other stakeholder felt that there is one-sided communication with the program administrator because there is not much follow-up on comments, and it is unclear which, if any, of their changes have been adopted.

Other comments on stakeholder participation included the following.

- The program should not engage stakeholders if it cannot serve them.
- More facilitated listening sessions are needed, such as the one for the DG referral process. The commenting process should be more accessible.
- It is difficult to involve communities and organizations unfamiliar with the process since the program is so complex.
- The program should be adjusted to identify pathways for unique participants such as housing co-ops or non-traditional nonprofits.
- More effort and money should be put into publicizing the program.

E. ILSFA Design and Implementation

All Participant Stakeholders offered comments on the four ILSFA sub-programs. However, Nonparticipant Stakeholders and CAA Stakeholders often said that they did not know enough about the programs to make suggestions. Most comments focused on opportunities to streamline and simplify the DG sub-program.

Ten stakeholders commented on the DG sub-program. Specific comments are provided below and summarized in Table VII-12.

- Four stakeholders reported that the DG process is arduous because of overly complex paperwork and consumer protections.
 - The paperwork is too detailed and duplicative. This lengthens the time it takes to complete applications.
 - Current AV requirements, such as the paperwork and photos that are not included in other inspections, are unnecessary.
 - The paperwork may be too complex to successfully allow one stakeholder to participate. Elevate should consider why certain requirements were created and if they are necessary.
 - DG projects are cumbersome due to the required protocols for AVs and homeowners.
- Three stakeholders found it difficult to find solar ready homes.
 - Fewer participants than expected are eligible for ILSFA because of the condition of their homes. Only one in 20 interested participants are eligible. Most customers are in the suburbs and not the city.
 - Houses need basic rehabilitation, particularly for roofs and electrical systems.
 - Most customers do not own their home or do not have a suitable roof.
- Two stakeholders noted the timeline for ILSFA projects is too long for AVs and consumers.
 - ILSFA submissions take much longer than those for the Adjustable Block Program (ABP) because of the stringent requirements.
 - Customers must wait seven days to sign a contract which makes it difficult to enroll participants.
- Other comments, each provided by one stakeholder, were as follows.
 - There should be financial resources available that will allow contractors and subcontractors from disadvantaged communities to participate. Workshops and counseling are good steps, but it is not enough.
 - There are not enough DG projects.
 - Credit checks prevent many low-income households from participating.⁹³
 - Low-income homeowners should get free panels or money more directly.
 - Contract cancellation clauses should be eliminated because they are confusing to consumers.
 - Need a contract mechanism to ensure homeowners will experience cost savings. Some residents have contracts with alternative retail electric suppliers which means they will

⁹³This is not required by the ILSFA Program, but some AVs may require credit checks.

not receive appropriate net metering credits. Only some AVs have required customers to cancel their agreement with third party suppliers.

- Need more trust in AVs' reputation and track record.
- It is difficult to make projects happen because labor investment makes them financially unfeasible.

Table VII-12
Comments on DG Sub-Program

Comment	Number of Stakeholders Who Provided Comment
Total Number of Stakeholders Who Provided Comments	10
Process is Arduous	4
Difficult to Find Solar Ready Homes	3
Timeline is Too Long	2
Other	8

Note: Some stakeholders provided more than one response.

Five stakeholders commented on the CS sub-program. Their comments are provided below.

- Two commented on the lack of funding in the program.
 - Weak chances of getting a CS project approved due to limited funding.
 - More funding for CS is needed to speed the adoption and access to solar.
- Seems to be working well as CS projects have been implemented.
- Many participants are better suited to subscribe to CS projects than DG projects because they do not own their home, or their home is not solar ready.
- Splitting the website into separate pages for CS and DG offers has been helpful in directing interested participants to specific offers and made it easier to access resources.
- It is difficult to get CS to work in urban areas because the land is more expensive.
- Need to incentivize smaller CS projects.

One stakeholder commented on the NP/PF sub-program.

- Seems to be working well as non-profit and public facilities projects have been funded.

Three respondents provided comments on the LICS Pilot projects.

- This program sort of flies under the radar compared to the other programs. It is a black box that no one fully understands.
- It is unclear if residents in the Chicago area can participate in these projects.
- ILSFA is paying someone to host this work, but it was pre-determined in advance. ILSFA does not want to explain where that money is going.

Other comments regarding the four sub-programs in general are listed below.

- With all sub-programs, it is hard to make projects financially feasible because of the 50 percent savings requirement and REC rates.

- Smaller clients and contractors do not have the bandwidth or staffing to navigate the process.
- Need legislative changes and increased funding for the program.
- Ensure vendor and income guideline information on the website is up to date and correct.
- Program is not equitable for communities of color since they are paying in but not getting benefits out.
- The jobs program needs to have mandated hours because workers are not getting full-time or sufficient employment.
- The percentage of job trainee hours could be higher.

Table VII-13 shows that nine of the 27 respondents were concerned that CS projects have primarily been larger rather than smaller projects, five were not concerned, and 13 did not know.

**Table VII-13
Community Solar Concerns**

Community Solar projects that have been submitted to the ILSFA have been primarily very large, rather than smaller, community-based projects. Is this an issue that concerns you?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAA Stakeholders	Total
Yes	5	1	3	9
No	3	2	0	5
Don't Know	3	5	5	13
Total	11	8	8	27

One stakeholder stated that it is harder for AVs to make a smaller, community-based solar project economical because ComEd charges the same amount for interconnection on small projects as on large projects. AVs may be hesitant to take on smaller projects due to the high upfront cost.

Ten stakeholders recommended changes to encourage smaller community-based CS projects. These changes included the following and are summarized in Table VII-14.

- Two stakeholders suggested improving the financing for smaller projects.
 - Interconnection charges should be waived for all projects and not included in the cost of the project.
 - Financing needs to be made available for smaller projects submitted to ILSFA by Illinois small businesses.
- Two respondents recommended making community organizations the AV for their own projects.
 - CAAs should essentially be the AVs. One stakeholder has staff trained in solar installation already.
 - The rural co-op model should be followed so the community-based group owns the project. The organization would be the AV and could select their own contractors.

- Two stakeholders suggested changing the project selection process to encourage smaller projects.
 - The project selection criteria may need to award more points to smaller projects submitted by such companies.⁹⁴
 - There could be different tiers so smaller projects compete separately from larger projects.
- Two respondents recommended increasing awareness of CS among communities across the state.
- Other changes, each suggested by one stakeholder, are listed below.
 - The city of Chicago should consider using neighboring vacant lots for solar or knocking down old buildings to create space for installations.
 - The program should provide “navigators” or “solar consultants” to work with community entities interested in implementing solar. Such assistance is requisite because a church or community center, for example, could not be expected to understand complex solar issues, have developer relationships in place, or have the staff bandwidth necessary to submit a proposal without requisite assistance.
 - Elevate should do less technical review and engineering work for each project and focus more time on other aspects such as overcoming barriers and streamlining income verification.
 - The amount of paperwork for smaller projects is the same as for larger projects. Measures should be taken to streamline the application and subscriber enrollment processes.

Table VII-14
Recommended Changes to Encourage Smaller CS Projects

Recommended Change	Number of Stakeholders Who Suggested Change
Total Number of Stakeholders Who Suggested Changes	10
Improve Financing	2
Make Community Organizations AVs	2
Change Project Selection Criteria	2
Increase CS Awareness	2
Other	4

Note: Some stakeholders provided more than one response.

⁹⁴These changes have already been made.

Table VII-15 shows that 12 of the 27 respondents were concerned that DG project submissions have been slow to increase.

Table VII-15
Distributed Generation Concerns

Distributed Generation project submission has been slow to increase. Is this an issue that concerns you?				
	Participant Stakeholders	Nonparticipant Stakeholders	CAAs	Total
Yes	6	2	4	12
No	2	2	4	8
Don't Know	3	4	0	7
Total	11	8	8	27

Many stakeholders felt changes should be made to encourage submission of more DG projects and 15 of the 27 respondents recommended specific changes. The most common changes included reducing skepticism and streamlining the process. Recommendations are summarized in Table VII-16.

- Four stakeholders recommended changes to reduce skepticism and increase trust in the program.
 - Increase media visibility through radio and TV commercials.
 - Prove that the program is beneficial and not costly by offering case studies.
 - Install more projects so people can see solar for themselves. Word-of-mouth advertising from people in the community and agencies is critical.
 - Work with CAAs and other organizations that are already reaching out to low-income populations.
- Four stakeholders suggested simplifying and streamlining the process for AVs and customers.
 - Simplify the back-end application process for AVs.
 - Reduce the amount of paperwork, make the portal easier to use, and reduce duplications in submitted information.
 - Simplify the program and make it easy to explain to those who have limited prior experience with solar.
 - Keep protecting consumers but make it easier to participate in the program.
- Three respondents would like to see more AV availability throughout the state.
 - Recruit more minority contractors that will install solar where they live.
 - Have more AVs in inner city Chicago.
 - Increase the number of AVs and ensure they are accountable and have the time to engage in the program.
- Two respondents reported the process should be faster since customers lose interest over time. The program should identify what the bottlenecks are that extend the process and eliminate those steps.

- Two stakeholders want to remove credit score barriers.⁹⁵ Participants should qualify for the program if they always pay their electric bill, even if they have bad credit.
- Other changes, each suggested by one stakeholder, are listed below.
 - Offer more free solar panels with no long-term out-of-pocket costs. The program should understand what it means to be low-income and what offerings are beneficial to that population.
 - Refer participants from low-income energy efficiency programs.
 - Increase the REC prices to make the effort and risk of submitting projects worth it.
 - Model the program after the ABP.
 - Use the website to match customers with AVs.
 - Examine how to cover the costs of roof repairs to support solar installation.

Table VII-16
Recommended Changes to Encourage More DG Project Submissions

Recommended Change	Number of Stakeholders Who Suggested Change
Total Number of Stakeholders Who Suggested Changes	15
Reduce Skepticism	4
Simplify/Streamline Process	4
Increase AV Availability	3
Make Process Faster	2
Remove Credit Score Check	2
Other	6

Note: Some stakeholders provided more than one response.

Fifteen participants suggested potential ways that AVs can more effectively recruit participants for DG. The most common was to coordinate with other income-verified programs. Changes are summarized in Table III-17 below.

- Four stakeholders recommended promoting the program through other low-income programs or pre-qualifying participants in those programs for ILSFA.
 - ILSFA should accept anyone who can demonstrate participation in Illinois LINK, SNAP, Medicaid, LIHEAP, weatherization, or rental assistance programs. A current program card or proof of acceptance by these programs could replace the need for ILSFA income verification.⁹⁶
 - Promote the program through the LIHEAP and Community and Economic Development Association (CEDA) offices.
 - Conduct ILSFA assessments during other low-income energy efficiency service delivery.

⁹⁵This is not required by the ILSFA, but some AVs may require credit checks.

⁹⁶Other than LINK, these are all accepted as proof of eligibility for the ILSFA Program.

- Link the program with other low-income services, especially LIHEAP, WAP, and the Chicago Bungalow Association. This will make it easier and less expensive for AVs to find customers.
- Three stakeholders said to use trusted messengers to spread the word about ILSFA.
 - CAAs, and the Housing Counseling Agencies already provide services for low-income residents and should be used for ILSFA education.
 - Utilize churches and community groups to get information out.
 - The program should leverage existing sources of trust by engaging with community groups.
- Two respondents suggested reducing the amount of paperwork to make the process easier for customers and AVs.
- Two stakeholders recommended increasing marketing efforts.
 - Advertise the program centrally and increase social media marketing or other marketing strategies, such as bus stop ads. This is necessary because some AVs are unknown to participants and do not have the reputations necessary to provide the “stamp of approval” homeowners may be seeking.
 - AVs should try different forms of marketing, such as mailings, to see which is the most effective.
- Two stakeholders recommended increasing the number of AVs.
 - More AVs are needed in different geographic areas.
 - Increase the number of minority contractors so residents in minority communities can access the program through AVs that live in their communities.
- Other changes, each suggested by one stakeholder, are listed below.
 - Make the website more user-friendly by having a page to determine if a participant is eligible for the program.
 - Education should be done in-person with materials offered in different languages.
 - Grassroots Educators should be able to work individually with AVs. This would allow them to have better relationships with AVs.
 - Elevate or a third-party should explain the options, benefits, and consequences of different offers to participants instead of the AV. This would allow for checks and balances and participants would not have to commit after seeing only one offer.
 - Ensure AVs have time to fully engage in the program and make low-income projects a priority.

Table VII-17
Recommended Changes to More Effectively Recruit DG Participants

Recommended Change	Number of Stakeholders Who Suggested Change
Total Number of Stakeholders Who Suggested Changes	15
Coordinate with Other Low-Income Programs	4
Use Trusted Messengers	3

Recommended Change	Number of Stakeholders Who Suggested Change
Reduce the Amount of Paperwork	2
Increase Marketing Efforts	2
Increase Number of AVs	2
Other	5

Note: Some stakeholders provided more than one response.

When asked how ILSFA can encourage more multi-family DG projects, eight stakeholders provided suggestions, summarized in Table VII-18. The most common suggestion was collaborating with organizations that provide rental assistance, as well as landlords with multi-family buildings and real estate developers.

- Three stakeholders suggested working with landlords and organizations that provide rental assistance.
 - Increase outreach to building owners and real estate developers more than individual residents.
 - Reach out to local connections to find landlords and determine where eligible multi-family housing projects are located.
 - Reach out to small landlords as well as larger for-profit landlords. The Community Investment Corporation (CIC) represents and works with many smaller landlords in the Cook county region.
- Two stakeholders recommended educating the prospective audience about solar.
 - Consumers need help understanding the ownership models, such as building-owned systems, rebates or tax incentives, potential financing available, or Power Purchase Agreements.
 - Explain the benefits to residents in low-income housing complexes.
- Two respondents suggested collaborating with weatherization and other low-income programs.
 - ILSFA should be integrated with the Income-Eligible Multi-Family Energy Savings Program (IEMF) that Elevate administers. These customers should receive an energy assessment report that lists the energy cost savings opportunities and provides a recommendation for solar.
- Other changes, each reported by one stakeholder, are specified below.
 - One respondent believed the incentives for property owners should be increased beyond the tax incentives.
 - One stakeholder suggested making it easier for families to qualify for the program by allowing anyone with a SNAP or Medicaid card to qualify for ILSFA.⁹⁷
 - One recommended simpler messaging, such as by marketing “If you want to put solar panels on your building, this is how it would work, this is what you would get for doing it, and this is the potential savings you would experience immediately and longer-term.”

⁹⁷These are accepted as proof of income eligibility for the ILSFA Program.

Table VII-18
Recommended Changes to Encourage More Multi-Family DG Projects

Recommended Change	Number of Stakeholders Who Suggested Change
Total Number of Stakeholders Who Suggested Changes	8
Work with Landlords/ Rental Assistance Orgs.	3
Educate Customers About Solar	2
Coordinate with Weatherization/ Other Low-Income Programs	2
Other	3

Note: Some stakeholders provided more than one response.

Most respondents did not have the level of involvement necessary to address the issue of whether the ILSFA needs to move away from the market-based approach to the DG sub-program. However, ten of the Participant Stakeholders reported that the market-based approach is not currently working and should be replaced. One suggested an alternative model.

- One suggested The Solar Group Buy Model. With this model, one community selects an installer to perform rooftop installations and the community organizations engage in an outreach campaign to promote the specific offering. The seller lowers the price of the rooftop solar because they do not have to expend a marketing budget. This way, a vendor commits to one location and implements many solar projects there, as opposed to individual projects separate from one another. Therefore, Grassroots Educators will not advertise the program when there are no AVs in their area.

While many research participants were unfamiliar with alternative programmatic models, some suggested the following approaches.

- Elevate should take control of ILSFA's minority portfolio, to ensure that minority vendors are participating, and minority households are receiving solar installations.
- CAAs should orchestrate solar installation for the low-income households they serve.
- Educate participants about solar using targeted forms of marketing common in the private sector, such as targeted mobile ads.
- Reduce the red tape and rules of the program which make it challenging for pure market-based opportunities. This will make it easier for smaller contractors to participate in the program.
- Invest more in CS projects and automatically enroll low-income residents in CS when they sign up for energy assistance.
- Build relationships with communities through trusted organizations instead of through AVs that residents have never heard of.
- The market-based approach means that ILSFA can pick where they do business. The program should be refined to achieve a more equitable distribution of funding.

- One stakeholder believed the program should not move away from the market-based approach because otherwise there would be no large-scale adoption, the program would become more expensive, and fewer people would be able to participate.

F. Additional CAA Feedback

Executive Directors of Illinois CAAs generally had heard of ILSFA, but they did not often have detailed knowledge of how the program works or of the four sub-programs.

- Two of the eight CAA respondents said they were very knowledgeable about ILSFA because they are former or current GEs.
- Three respondents said they were knowledgeable or not too knowledgeable about ILSFA.

Three CAAs have referred energy efficiency participants to the ILSFA through Grassroots Education efforts. Only one respondent reported that energy efficiency program participants asked about the ILSFA. One respondent stated that some participants asked about solar energy in general. Two suggested that COVID has reset priorities, placing food distribution, homelessness, and access to health services above other concerns, such as solar.

CAAs were asked if they have been involved in the ILSFA and/or had discussions with Elevate.

- Three CAAs have been involved in the ILSFA outside of stakeholder meetings.
- Two respondents have had contact with Elevate about Grassroots Education efforts and engaging AVs.
- Three other CAAs have worked with Elevate on energy efficiency programs but have not engaged with them on ILSFA.

All eight CAAs provided ideas on how the ILSFA can coordinate with low-income energy efficiency programs. Recommendations are summarized in Table VII-19.

- Three respondents recommended collaborating with LIHEAP or other utility energy efficiency programs.
 - Allow residents to sign up for CS projects through the LIHEAP application.
 - Integrate ILSFA with LIHEAP or Ameren's energy savings kit program by providing information on ILSFA at the same time residents are asking for help reducing their energy costs.
 - ILSFA and utility energy efficiency program administrators are not communicating and should meet quarterly, at minimum.
- Two respondents suggested providing more education about solar energy, the ILSFA, and solar benefits.
- Two said Elevate should provide them with outreach materials, such as flyers, to pass out to customers coming in for energy assistance. Both CAAs have not received any ILSFA literature or education about the program.
- Two respondents recommended coordinating with government associations and officials.
 - One suggested having government officials, such as city council members back the program and write about the program in newspapers.

- One respondent recommended promoting the program through a state government association.

Table VII-19
Recommendations to Coordinate with Low-Income Energy Efficiency Programs

Recommendation	Number of CAAs Who Provided Recommendation
Total Number of CAAs Who Provided Recommendations	8
Collaborate with LIHEAP/Other LI Programs	3
Provide More Education	2
Provide CAAs with Outreach Materials	2
Coordinate with Government Associations/Officials	2

Note: Some CAAs provided more than one recommendation.

Seven CAAs noted barriers to coordination with energy efficiency programs. One respondent did not foresee any barriers. The most common barriers included the pandemic, lack of AVs, and financing issues. Reported barriers are shown in Table VII-20.

Table VII-20
Barriers to Coordination with Low-Income Energy Efficiency Programs

Barrier	Number of CAAs Who Provided Barrier
Total Number of CAAs Who Provided Barriers	7
Priority of COVID-Related Issues	2
Lack of AVs	2
Project Financing	2
Lack of Understanding of Solar	1
Amount of Paperwork	1
Confusion Over Energy Bills	1
Sharing Sensitive Information	1

Note: Some CAAs provided more than one recommendation.

All eight CAAs stated that they would be able to screen for ILSFA eligibility during energy efficiency work. Three respondents noted that they would require additional training and guidelines to do so. One CAA also noted that they would need to be compensated to provide these additional services.

Four CAAs stated they would be able to provide lists of energy efficiency program participants who would be good candidates for solar to the ILSFA administrators.

- One respondent conducts a census once a year to assess customer needs and they could include ILSFA questions to gauge interest. However, they noted that their constituents would probably not be interested in solar because it is a complex topic and they do not have the means to invest.
- One CAA would be able to provide lists of interested participants but noted most of their constituents are renters, not homeowners.
- One previous GE stated that they would not be involved in ILSFA until they know they would be assigned at least one AV to work with directly.
- One respondent already refers clients to different programs and could add ILSFA to their list. They collect signed releases from the program participant and the information user.

The other four interviewed CAAs reported that they cannot provide energy efficiency participant lists or they did not know if they would be able to, due to client confidentiality and non-disclosure issues.

- They reported that they would need to obtain a release form from customers to allow them to share that information. One stated that previous contracts with utilities may prevent them from distributing information.
- One respondent stated that they do not want to put too much burden on their constituents by providing them with a long list of AVs and making them pick one after they are referred to ILSFA.

Table VII-21 summarizes the responses to the questions in this section by CAAs.

Table VII-21
Response to Community Action Agency Questions

Question	Yes	No	Don't Know
Knowledgeable about ILSFA	5	3	0
Referred LI Energy Efficiency program participants to ILSFA	3	5	0
LI program participants have asked about ILSFA	1	7	0
Been involved in ILSFA meetings	3	5	0
Had discussions with Elevate	2	5	1
Have ideas about how ILSFA can coordinate with LI energy efficiency programs	8	0	0
Experienced barriers to coordination with the ILSFA	7	1	0
Can screen for ILSFA eligibility (roof and structural criteria)	8	0	0
Can provide participant lists to ILSFA	4	3	1

G. Stakeholder Recommendations

Fourteen stakeholders offered recommendations to improve the program more generally. The most common recommendation was to increase outreach about the program. Recommendations are presented in Table VII-22.

- Four respondents provided suggestions for increasing outreach.
 - Work with the Department of Commerce and Economic Opportunity (DCEO) to encourage referral of energy efficiency participants to ILSFA.
 - Reach out to more participants through CAAs.
 - Coordinate more with job trainees by explaining the program and what solar developers are involved with ILSFA during job trainings.
 - Present at the Green Living Expo.
- Two stakeholders recommended improving communication materials.
 - Provide more communication and outreach materials to GEs and have clear cut messaging for how to participate in the program.
 - Streamline communication to customers and brand the program through the state or a utility, not solar vendors.
- Two stakeholders recommended aligning the ILSFA with the ABP.
 - Coordinate with the ABP more by using the same portal or a similar process to upload projects.
 - Restructure DG requirements so they are in line with, or no more demanding, than the ABP requirements.
- Two respondents suggested increasing program funding.
- Two stakeholders recommended changes to improve the job training aspect of the program.
 - Have a job training portal where trainees can put in their contact information so AVs can easily find trainees. This stakeholder believed ComEd has a job training portal, but it has not been continually updated or advanced.
 - Solar job training should include more soft skills.
- Other recommendations, each provided by one stakeholder, are listed below.
 - Increase REC prices. However, due to budgetary constraints this could mean that fewer projects are selected, which is not the goal.
 - Clarify EJ Community zone definitions.
 - Streamline the application process for customers but still ensure there are processes in place to prevent fraud and abuse.
 - Provide funds for homeowners to repair their homes and make them solar ready.

Table VII-22
ILSFA Recommendations

Recommendation	Number of Stakeholders Who Provided Recommendation
Total Number of Stakeholders Who Provided Recommendations	14
Increase Outreach	4
Improve Communication Materials	2
Align with ABP	2
Increase Program Funding	2
Improve Job Training	2
Other	5

Note: Some stakeholders provided more than one recommendation.

VIII. Distributed Generation Program Manager Interviews

APPRISE conducted in-depth telephone interviews with Program Managers (or other knowledgeable staff) of 13 state-level residential distributed generation solar programs that provide incentives for solar installations for low- and moderate-income (LMI) households. These interviews assessed program design, implementation, and challenges and success in these programs.

A. Methodology

The evaluation team identified 14 programs that provide incentives for installation of distributed generation solar arrays for LMI households in the United States. Interviews were scheduled for 13 of the programs with Program Managers, or other senior members of the program team with equivalently broad knowledge of the program operations. One program was unavailable for interview prior to the research cutoff.

Table VIII-1 provides a list of the programs targeted for study. One interview was conducted that covered both of California's single-family programs, SASH and DAC-SASH. One interview with Massachusetts' Department of Energy Resources covered both the Solar Loan Program and the SMART Program. Two interviews were for programs that are administrated by green bank organizations (Hawaii GEM\$ and Connecticut RSIP), and these were conducted alongside interviews about the green bank operations.

**Table VIII-1
Residential Solar Programs**

Program Name	State	Interviewed
Single-Family Affordable Solar Homes (SASH)	California	Yes
Disadvantaged Community Single-Family Affordable Solar Homes (DAC-SASH)	California	Yes
Solar on Multi-Family Affordable Homes (SOMAH)	California	Yes
Rooftop Solar (part of WAP)	Colorado	Yes
Residential Solar Investment Program (RSIP)	Connecticut	Yes
DC Solar for All	District of Columbia	No
Green Energy Money Saver (GEM\$)	Hawaii	Yes
Solar Massachusetts Renewable Target (SMART)	Massachusetts	Yes
Solar Loan	Massachusetts	Yes
Solar*Rewards	Minnesota	Yes
Net Metering	Mississippi	Yes
NY-Sun	New York	Yes
Solar Rebate	Oregon	Yes
Solar within Reach	Oregon	Yes

The following procedures were used to implement the interviews.

- Program representatives were contacted via phone and email to set up an interview.
- Preliminary internet research was conducted to collect background information in advance of the interview. This information was verified during the interview.
- Up to two additional contact attempts were made via phone and email to representatives who did not respond to the first attempt.
- Interviews were completed between April 13, 2021 and May 5, 2021.
- The interview length ranged from 25 to 57 minutes. The average interview length was 42 minutes⁹⁸.
- Additional follow-up questions were submitted to interviewees by e-mail where applicable.
- Some interviewees provided additional resources such as annual reports or project data that were used to answer questions that respondents could not answer during the interview.

B. Program Background and Scope

This section provides background information on the programs, amount of installed capacity, and households served.

Program Launch

The launch date was defined as the year in which the program first began accepting applications for income-qualified incentives. Some programs also provide incentives that are not income-qualified, in which case the launch year was considered to be the time when income-qualified incentives were added to the program or an income-qualified sub-program or component was launched. Programs often had start-up periods that included planning, rule-making, or other program development activities. Therefore, the launch date was often in a later year than the program creation.

The longest running program covered by the interviews was the CA SASH Program which was launched in 2009 and is still operating. Six of the 13 programs launched between 2015 and 2018 and six since the beginning of 2019, as there has been large progress in increasing opportunities for LMI solar participation in recent years.

**Table VIII-2
Program Launch Date**

Year of Launch	Number of Programs
Before 2010	1
2011 - 2014	0
2015 - 2018	6
2019 or later	6
Total	13

⁹⁸Two interviews were combined with green bank interviews. In these cases, the share of time spent discussing the solar program was estimated.

The ILSFA Program began accepting applications for projects in May 2019. Like many of the programs studied, ILSFA launched quite recently, and is part of an expansion of solar programs targeted to LMI communities. Even among more established programs, such as the NY-Sun Program, which launched in 2015, there has been a growing focus on reaching more LMI households.

One reason for the recent expansion in LMI solar programs is that earlier solar incentives were not developed specifically for LMI households and these households did not have the means to participate. The initial solar incentive programs focused on developing solar industries by making solar energy more affordable, but they were not brought to a level where LMI households could feasibly participate. These initial programs did not have income guidelines. As solar energy has expanded considerably in many states, solar markets are approaching the point where they can operate with much lower incentives. These successes have shifted the focus from deploying solar, to ensuring that LMI communities are able to share in the benefits of solar technology. This means that while many of the income-qualified programs have only launched recently, they often built upon earlier solar programs that were not income-qualified.

Program Funding

Most programs were funded by ratepayers, however there were some exceptions.

- The CA DAC-SASH and CA SOMAH programs were funded from the proceeds of California's Cap-and-Trade Program.
- The CO Rooftop Program receives funding from both utilities and the Weatherization Assistance Program (WAP).
- The OR Solar Rebate Program was funded by an allocation from Oregon's General Fund.
- The HI GEM\$ Program is a loan program from the Hawaii Green Infrastructure Authority (HGIA). HGIA was capitalized by a \$150 million bond issued by the state, backed by a utility surcharge. The loans are repaid by borrowers through on-bill charges.

Table VIII-3
Program's Major Funding Sources

Funding Source	Number of Programs
Ratepayers	9
Emissions Trading	2
State General Fund	2
Utility Settlement Agreement	1
Total	13

Note: Colorado had more than one major funding source.

In most cases, program representatives did not report that the funding source was important for determining how the program was designed or implemented. One exception was the HI GEM\$ Program, which is structured as a repayable loan because the HGIA budget relies on recycling funds from their initial bond capitalization. Another was the OR Solar Rebate

Program, which received its funding from the state of Oregon’s General Fund. Unlike most programs which have a consistent source of funding, the OR Solar Rebate program must work to secure operational funding moving forward. Due to the funding situation, the program had been operating with mostly limited duration employees.

Some programs such as CA SASH have budgets that last a fixed period, designed with a “sunset” point after a certain number of years, or after a certain amount of capacity has been installed. The expectation is that the program will transform solar markets, making solar projects financially affordable without incentives, or with reduced incentives. Programs designed around these expectations sometimes have declining incentives; for example, CT RSIP and CA SOMAH.

Some programs, including the OR Solar Rebate Program, and the OR Solar within Reach Program, reported that they were more constrained by budget than by an ability to recruit LMI participants.

Program Size

Program representatives were asked how many megawatts had been installed for the benefit of LMI households. For many programs, the installed capacity was not large, and often below one megawatt. However, in some cases this was because the program had been implemented fairly recently. For example, the CA SOMAH Program, which is a successor to the CA MASH Program, had less than one megawatt of installed capacity, but had over 70 megawatts of capacity among all active projects (under construction, or in the process of completing program approval for rebates).

The largest program was the CT RSIP Program. By the end of 2020, the CT RSIP Program had installed over 150 megawatts for households below 100 percent of the Area Median Income (AMI), and over 25 megawatts for the lowest income band, below 60 percent AMI.

**Table VIII-4
Installed Capacity (Low- and Moderate-Income Projects)**

Megawatts Installed	Number of Programs
< 1MW	5
1MW - 5MW	4
5MW - 20MW	0
> 20MW	4
Total	13

Program representatives were asked how many single-family LMI households had participated in the program, or how many LMI tenants were served by multi-family solar projects. Table VIII-5 displays the number of households that were participants in the programs and may include households where solar installations were not yet completed. The largest program was the CT RSIP Program, with over 21,000 LMI households served. The

next largest was the long running CA SASH Program, which had installed over 9,500 systems for single-family homes.

**Table VIII-5
Low- and Moderate-Income Households Served**

Households Served	Number of Programs
< 100	3
100 - 1,000	5
1,000 - 5,000	3
> 5,000	2
Total	13

The ILSFA Program has 47 projects that have been approved for single-family homes, and ten for multi-family buildings. This is fewer single-family projects than most of the other programs interviewed, but it was introduced more recently than some of the other programs.

In terms of number of single-family households served, the MN Solar*Rewards Program is the most similar, with 13 LMI households served in fiscal year 2019 (the first year of operation) and 19 LMI households served in fiscal year 2020.

Both the OR Solar Rebate Program and the OR Solar within Reach Program have served fewer than 100 households. The OR Solar Rebate Program approved rebates for over 50 LMI households, while the OR Solar within Reach Program completed 86 residential installations in 2020 and is looking to increase the number of installations in 2021 by three or four times. Both programs are very new, with only one year of program operations.

The largest multi-family building project to date for ILSFA will serve approximately 400 households. For other programs there is a wide range in the number of multi-family units served. For example, the CO Rooftop Program has served only one multi-family building, with 28 units. However, the program has a greater focus on single-family homes. In comparison, the CO Rooftop Program has served approximately 350 single-family homes. Similarly, the MA SMART Program, which has served around 800 single-family homes, has done only three LMI multi-family projects (including one mixed use building).

Again, the most similar multi-family program to the ILSFA was MN Solar*Rewards, which allocated incentives for ten multi-family buildings in 2020 and 11 multi-family buildings in 2019.

The largest programs are much larger than the ILSFA Program, with thousands of single-family households served (e.g., CT RSIP, CA SASH, and MA Solar Loan) and in the case of CA SOMAH, over 400 active multi-family projects serving over 3,000 households. However, these are more established programs, or in the case of CA SOMAH, a successor to an established solar program (MASH).

Overall, the review of residential distributed generation solar programs showed that many programs were still quite new and have yet to deploy solar systems on a large scale. Most of these programs had only been active for one or two program years and some had substantial pipelines of projects in development or pre-development compared to their completed project portfolios. The ILSFA Program is somewhat similar to several of these other programs in terms of overall projects, although on the lower end of single-family households served, but on the higher end of multi-family households.

C. Eligibility and Participation

All programs were income-qualified, requiring that single-family participants have an income below a certain threshold. This threshold was typically determined by some percentage of the Area Median Income (AMI), State Median Income (SMI) or the Federal Poverty Income Guidelines (FPL).

Programs used a variety of income thresholds to determine program eligibility as shown in Table VIII-6.⁹⁹

**Table VIII-6
Program Eligibility for Single-Family Solar Incentives**

Program	Area Median Income	State Median Income	Federal Poverty Line
CA SASH	80% ²	-	-
CA DAC-SASH	-	-	200% ⁵
CO Rooftop Solar ¹	-	60%	200%
CT RSIP	100%	-	-
DC Solar for All	80%	-	-
HI GEM\$	140%	-	-
MA SMART	-	65% ³	200%
MA Solar Loan	-	80%	-
MN Solar*Rewards	-	60%	200%
MS Net Metering	-	-	200%
NY-Sun	80%	80% ⁴	-
OR Solar Rebate	-	100%	-
OR Solar within Reach	-	120%	-

¹Rooftop solar is offered as a measure through Colorado's WAP. The eligibility criteria are those for WAP.

²The CA SASH Program also requires homeowners to live in affordable housing.

³Participants are eligible if they live in a block group with a median income below 65 percent SMI.

⁴NY-Sun uses the higher of AMI or SMI.

⁵The CA DAC-SASH Program also requires homeowners to live in a community identified as disadvantaged.

⁹⁹Eligibility requirements were confirmed during interviews. For the DC Solar for All Program there was no interview and the eligibility requirement is as reported on the DOE website: <https://doee.dc.gov/solarforall>

Some programs had additional eligibility requirements.

- The CO Rooftop Solar Program incorporated solar installations as a measure within WAP. Therefore, to receive solar benefits through this program, participants had to enroll in WAP.
- The MN Solar*Rewards Program, while not part of another energy program, required that participants enroll in either WAP or LIHEAP.
- Other solar programs did not require enrollment in another assistance program, but many used enrollments in such programs as one way to demonstrate eligibility for the solar program.

To qualify for the ILSFA DG single-family sub-program a household must be at or below 80 percent of AMI. This is about average as an income threshold.

Where programs have both multi-family and single-family components, the income eligibility requirements are typically the same. Multi-family projects usually require that the building has a certain proportion of tenants who are at or below a certain income level. As with single-family qualification, eligibility for other programs may automatically qualify the household for the solar program.

While most programs have comparable income qualifications for their single- and multi-family programs if they offer both, overall, the income requirements for multi-family solar were lower because the programs with higher thresholds for income qualifications (HI GEM\$, CT RSIP, and OR Solar within Reach) were strictly single-family programs.

**Table VIII-7
Program Eligibility for Multi-Family Solar Incentives**

Program	Eligibility
CA SOMAH	80% of units <60% AMI or located in a disadvantaged community (DAC)
CO Rooftop Solar	67% of tenants are at or below 200% FPL or 60% AMI
MA SMART	25% of tenants at or below 80% AMI and 20% of tenants at or below 50% AMI ¹⁰⁰ Or any public housing authority building.
MN Solar*Rewards	66% of tenants are at or below 60% AMI
NY-Sun	Documented affordable housing
OR Solar Rebate	Housing eligible to receive public assistance under programs administered by Oregon Housing and Community Services ¹

¹In practice, no multi-family projects have been eligible because they usually would receive power from a for-profit company through a purchase power agreement. The ownership of the system by a for-profit company makes such projects ineligible.

To qualify for ILSFA, multi-family buildings must have 50 percent or more units occupied by households with income below 80 percent of AMI. While the ILSFA single-family income requirement is roughly in the middle of other programs, this multi-family component is less

¹⁰⁰Massachusetts Department of Energy Resources, Guideline Regarding Low Income Generation Units, October 2020. <https://www.mass.gov/doc/low-income-generation-units-guideline-october-2020/download>

stringent than multi-family programs in other states. However, ILSFA is similar to most other programs in setting multi-family qualifications that are comparable to those of single-family participants.

Eligibility Verification

The two main income verification approaches were enrollment in another income-qualified program (e.g., LIHEAP) or documentation of income with materials such as a tax return or pay stubs. It was common for programs to use both of these methods.

Table VIII-8
Eligibility Verification for Single-Family Solar

Program	Program Enrollment Eligibility	Documentation	Another Method
CA SASH	-	Tax Return	-
CA DAC-SASH	-	Tax Return	Disadvantaged Community (DAC)
CO Rooftop Solar	WAP	-	-
CT RSIP	Multiple Programs	Multiple Options	-
HI GEM\$	-	-	Self-reported
MA SMART	Utility Discount Rate Customer	-	Address in Low Income Eligible Area
MA Solar Loan	-	Tax Return	-
MN Solar*Rewards	LIHEAP or WAP	-	-
MS Net Metering	-	-	At Utility Discretion
NY-Sun	Multiple Programs	Multiple Options	-
OR Solar Rebate	Multiple Programs	Tax Transcript	-
OR Solar within Reach	-	-	Self-reported

For the CA DAC-SASH Program, eligibility was demonstrated by both a tax return (or other documentation for households that do not file taxes) and living in a disadvantaged community (DAC). For all other programs, only one of these was required for eligibility.

Two programs, HI GEM\$ and OR Solar within Reach, allowed participants to self-report that their income meets the program guidelines. This removes verification as a barrier to participation and has a low administrative burden, but can lead to ineligible households participating in the program. However, these two programs have higher income guidelines than some of the other programs, so more households may have income levels that qualify.

The OR Solar within Reach Program deliberately adopted the self-verification approach to minimize barriers to entry. The Energy Trust, which administers the program, based their decision on research and consultations with community partners, which convinced them that self-reported eligibility would present a low barrier and was sufficiently reliable.

Only the MA Solar Loan and the California programs required income documentation without the option to qualify through enrollment in another government program. They did not report that this has been a major barrier to participation in the programs.

Program representatives were specifically asked whether they had encountered challenges with income verification, and whether the verification process had been a barrier for program participation. Most programs did not report that they faced major barriers to participation due to their verification process. Two programs, the NY-Sun Program, and the OR Solar Rebate Program mentioned challenges related to the verification process.

The OR Solar Rebate Program initially required that participants be verified by confirming their enrollment in one of several other low-income programs (e.g., LIHEAP or SNAP). This was a common method used by income-qualified solar programs to verify eligibility; however, it presented a barrier for some interested applicants in the OR Solar Rebate Program. In some cases, the Oregon Department of Energy (ODOE) also had trouble verifying applicants who were enrolled in other programs, especially if they had only recently enrolled. In other cases, a household may not be enrolled in any of these programs, and may not want to enroll, or faced administrative barriers to enrolling in another program.

As a result, the ODOE added an option for applicants to provide a tax transcript to demonstrate income-eligibility. The requirement for a tax transcript as opposed to a tax return was preferred because it includes less sensitive information, reducing privacy concerns. Even with this addition, some households may face barriers if they do not file taxes.

Income Distribution of Participants

Many of the programs had fairly high income guidelines for low-income or LMI programs. Some had data that showed the distribution of participants within the qualified income boundaries.

HI GEM\$ had the highest threshold for program participation at 140 percent of AMI. Although data were not available specifically for the on-bill financing program, the income distribution of households that received loans from HGIA provided some information.

- Self-reported income was available for the 393 residential loan recipients up to October 2020.
- Of the 3,939 with data, 305 reported income below the HI GEM\$ threshold of 140 percent AMI (this includes participants in the HI GEM\$ on-bill program, as well as other households that received other types of loans offered by HGIA for solar installations or energy efficiency upgrades). As expected, uptake was higher among those towards the top of the income-eligible range, but there were some lower income participants.
 - Thirteen percent had income below 50 percent of AMI
 - Twenty-eight percent had income between 50 and 80 percent of AMI
 - Fifty-eight percent had income between 80 and 140 percent of AMI.

The CT RSIP Program had an income qualification threshold of 100 percent of AMI. Through the end of the 2020 fiscal year the program had installed solar for 21,264 LMI households.

Although data on income levels of individual households were not collected, breakdowns of households by the median income of the census tracts in which they live was provided in annual financial reports¹⁰¹.

- Nineteen percent (3,946 households) were in tracts with median incomes below 60 percent of AMI.
- Thirty-five percent (7,382 households) were in tracts with median incomes of 60 to 80 percent of AMI.
- Forty-seven percent (9,936 households) were in tracts with median incomes of 80 to 100 percent of AMI.

These distributions are consistent with the proportion of households in census tracts at each income level, but do not provide information on the actual participants.

The programs in Oregon also included participants with incomes more than 80 percent of AMI, but did not have breakdowns of participating households' incomes.

The data from HI GEM\$ and CT RSIP showed that their solar programs were reaching a moderate number of households below 80 percent AMI. In the HI GEM\$ Program, 42 percent of participants were at this level, and in the CT RSIP Program, 53 percent of participants were at this level. However, the data do suggest that there are barriers for lower-income households.

While no programs reported that they had available data on household assets, several programs required participants to own their homes, and participants may have other assets. For example, households with retirement income may have moderate wealth, but low annual income. Participants may also not be representative of the wider LMI population in other ways, for example in terms of age, race, or educational background. Some programs were making efforts to try and improve equity within the LMI population, for example the CA DAC-SASH Program targets disadvantaged communities and uses a lower income threshold than the CA SASH Program on which it was modeled, and both programs have incorporated multi-lingual outreach. Several programs also had goals to improve access to underserved populations moving forward.

Program Participation

Program representatives were asked about barriers to participation. Specific questions were asked about whether the income verification process presented a barrier, whether the program had faced issues of trust, and how COVID had affected participation. Program representatives were also asked more generally if they were meeting their participation goals, and whether there were changes to the program that could improve accessibility. Overall, most programs were successful in meeting participation goals.

MS Net Metering had a consistently poor uptake record, with only a single household known to have taken advantage of the incentive. However, the Mississippi Public Service Commission has not articulated goals for solar adoption and does not conduct significant outreach to encourage participation in Net Metering. The Commission noted that the current

¹⁰¹These are available at: <https://www.ctgreenbank.com/strategy-impact/reporting-transparency/>

solar incentives in Mississippi were not sufficient to encourage substantial solar adoption at any income level. The MS Net Metering includes an adder for low-income households of \$0.02 per kWh of production. This is added to the utility company's avoided cost, and a standard \$0.025 per kWh adder for solar. Given the low cost of energy in Mississippi compared to other states, and the lack of a well-established solar industry, the incentives were inadequate to make solar projects economic for households and contractors. This might be mitigated by upfront rebates to help cover the initial cost of solar installations, which is one option that The Commission said they were considering.

For low-income households in particular, the upfront costs of solar installation are a prohibitive barrier. These households often lack access to credit, and do not have large enough tax liabilities to take advantage of federal tax incentives for solar.

The NY-Sun and the MA SMART Program both had relatively low uptake of the income-qualified components of their residential programs historically, although both programs had deployed large amounts of solar to households that were not income-qualified.

All other programs reported that they were achieving their LMI participation goals in most years or had satisfactory participation. However, the California single-family programs (SASH and DAC SASH) as well as the CO Rooftop Program, said they had fallen short of program participation targets in 2020 due to COVID.

Barriers to Participation

Program representatives noted the following significant barriers to participation.

- The process of verifying eligibility for the program.
- Issues with the housing stock in the state, including shading.
- Inadequacy of the incentives provided for solar.
- Trust among populations targeted by the program.
- Impacts from COVID on program operations or outreach.
- Challenges in outreach and marketing to non-English speaking populations.

Table VIII-9 displays the number of programs where each barrier was mentioned as a significant challenge.

**Table VIII-9
Barriers to Participation**

Barrier	Number of Programs
Housing stock issues	8
Trust among target populations	5
COVID	4
Eligibility verification	2
Inadequacy of incentives	1

Barrier	Number of Programs
Language	1

Note: Some programs cited multiple barriers.

The most common barrier across programs was housing stock issues. Eight program representatives mentioned housing stock issues as a barrier. Four could not confirm whether housing stock was a significant issue or not.

The multi-family CA SOMAH Program did not face problems with the housing stock because although buildings were often not solar ready, building managers typically would combine solar with other property improvements. These building upgrade projects took advantage of other government programs and tax credits to fund the improvements.

Four program representatives stated that COVID had been a barrier to participation in 2020. However, other program representatives specifically said that COVID had either not been a barrier to participation, or that overall participation in 2020 had been robust despite any effect from COVID. The OR Solar within Reach Program and MN Solar*Rewards Program reported growing participation in 2020 despite COVID. However, both of these programs were relatively new, and still expanding, so participation growth was not unexpected.

Whereas COVID was not consistently a barrier to program participation, most programs did report that the pandemic had resulted in delays and challenges in project implementation. One interviewee also noted that COVID could lead to increased program demand in 2021 due to lost income in 2020 increasing the pool of eligible applicants.

The NY-Sun Program provided an increased incentive for income-qualified households, however, uptake of this incentive has been low. Overall, the program installed over 100,000 rooftop systems, but only around 800 of these were for income-qualified participants (below 80 percent of AMI).

In the NY-Sun Program, contractors recruit participants and submit applications to the program on their behalf. Since these contractors do not generally target LMI households, they often will not ask about income, and the question may be seen as intrusive. The contractor may therefore not be aware that the household is eligible for the income-qualified incentives and may not inform the household of these potential benefits. Additionally, even where a contractor does identify a household as income-qualified, the administrative burden of collecting and submitting the paperwork can present a barrier. However, it is unlikely that low-income households would have the means to participate without substantial incentives.

Although the uptake of NY-Sun's LMI incentives for rooftop solar has been very low, there may be some participants in the program who would qualify for the elevated incentives but did not apply, and so they only received the program's standard incentives. The Program

Manager pointed to research by the Lawrence Berkeley National Laboratory¹⁰² (LBNL), which estimated that around 15 percent of solar adopters in the region may be below 80 percent of AMI. This research compared street addresses of solar installations across the US and modeled household incomes for each address. These modeled incomes suggested that among NY-Sun participants, around 15 percent were below 80 percent of AMI, or 15,000 participants. Although this would still mean that LMI households were less likely than higher-income households to participate in the NY-Sun Program, it would imply a larger number of LMI participants than the approximately 800 who have applied for and received LMI incentives.

Due to low LMI solar uptake, the NY-Sun Program was looking to make significant changes to enrollment for its community solar component, which historically has required the same verification as the rooftop component. The most important change will be auto-enrollment in community solar when households sign up for other energy programs, such as LIHEAP or WAP. They also plan to work with the utilities to enroll all of their low-income customers in community solar.

While verification barriers have prompted changes to NY-Sun's community solar enrollment, there is not a similar focus on changing the rooftop program. NYSERDA sees the income verification as appropriate to maintain a robust system of verifying eligibility because of the substantial value of the rooftop incentive. Rather than making major changes to increase access to rooftop solar for LMI households, the NY-Sun Program is focusing on expanding community solar as the way to reach more LMI households.

Other program representatives said that their current incentive amounts were sufficient for meeting their participation goals. One program representative noted that lower incentives might be considered to increase the number of households that could be served with a limited budget.

The CA SOMAH Program had a lower incentive for energy that is used for common areas in multi-family buildings than that used directly by tenants. The program had received some feedback that the difference was too large, and the common area incentive should be higher. However, this does not appear to have had a significant impact on program participation.

Following housing stock issues, the participation barrier most commonly reported was trust in target communities. Trust was encountered both as a general issue within LMI communities, and in other cases as an issue among specific demographic groups. For example, the HI GEM\$ Program faced trust-related challenges primarily in Native Hawaiian and Pacific Islander communities, which include a disproportionate share of LMI households.

The CA SASH Program and CA DAC-SASH Program encountered trust issues across LMI communities where the administrator (GRID Alternatives) often lacks name recognition, and there are concerns that the program may be a scam (because installation is usually free to the

¹⁰²Lawrence Berkeley National Laboratory. Income Trends among U.S. Residential Rooftop Solar Adopters. February 2020. https://eta-publications.lbl.gov/sites/default/files/solar-adopter_income_trends_report.pdf

household). While the program has generally been successful in its efforts to overcome these challenges, they have found that language barriers can make outreach and education more difficult, and greater effort and multi-lingual outreach are required to reach non-English speaking communities.

The OR Solar within Reach Program encountered trust as an initial barrier to reaching LMI communities, and particularly in predominantly minority communities, which the program representative attributed to a history of relative neglect and poor treatment of these groups by institutions and state agencies. The Energy Trust designed their program with significant input from community groups and made decisions, such as determining eligibility through self-reported income, to specifically reduce trust barriers.

The OR Solar within Reach Program also encountered a trust barrier where some households were reluctant to engage with contractors or allow them access to their homes. The lack of diversity in the contractor pool was mentioned as an area for improvement that could reduce this barrier.

In New York, trust was a significant issue in LMI communities because of predatory practices by alternative energy suppliers that often targeted LMI households. As in Illinois, this has resulted in skepticism and caution around energy products generally and has been a challenge for recruiting LMI households to community solar, as well as for the rooftop program. Other program representatives were asked about past predatory practices in solar or alternative energy markets, but said they were not aware of this being a significant problem in their state, or that it was not the primary reason for trust issues in LMI communities.

Barriers to Multi-Family Projects

Most programs had not encountered barriers specific to multi-family projects.

As a result of the COVID pandemic, the CA SOMAH program did encounter a slowdown in participation as property owners put capital improvements on hold. A survey of property owners confirmed that they were less likely to take on new debt for projects due to the uncertainty around COVID.

Most programs that worked with multi-family properties had encountered both individually-metered and master-metered properties. Those that worked with individually-metered properties did not report that cost or technical complexity were barriers to these types of projects.

Where programs worked with master-metered properties, they had different approaches to ensuring tenants received benefits. The NY-Sun Program did not require evidence from property owners of how solar benefits were distributed. The MN Solar*Rewards Program required that building owners sign a form showing how tenants were receiving benefits but was flexible in allowing this to be through both monetary value (such as a reduction in rent or utility bills) or through additional amenities, including community programming or

education classes. The MA SMART Program also required verification from property owners that tenants were receiving benefits from the program.

The CA SOMAH Program, unlike its predecessor MASH, does not work with master-metered buildings.

Outreach

Contractors often played an important role in marketing the programs and providing information to participants. For some programs, contractors were the most important part of program outreach, with the program administrators playing a minimal role. This may be the case where the program administration has limited budget and resources. For example, the OR Solar Rebate Program, run by ODOE, and the OR Solar within Reach Program, run by the Energy Trust, both had restricted budgets and conducted minimal marketing. They relied on contractors to find households and sell the program. However, both programs had conducted significant outreach to community organizations in the start-up and rule-making stage to solicit feedback on program design.

HGIA also has not done extensive outreach for the HI GEM\$ Program due to their small staff and limited resources. They had organized promotional events, mailers, and presentations to raise awareness. They also worked with other government agencies such as the Hawaii State Energy Office and utilities. However, the most important actors in outreach and marketing were the contractors. HGIA facilitated this outreach by providing contractors with standardized and accurate messaging about the program, as well as marketing materials they can use.

There were also programs that had less constrained resources but still did minimal outreach, instead relying on contractors to drive program participation. This was the case for the MA SMART and MA Solar Loan Program. While some outreach was conducted for these programs, such as informational webinars and marketing at industry events, the minimal outreach was primarily aimed towards the contractors who the program works with, rather than households.

Similarly, the NY-Sun Program did not conduct major outreach for its residential rooftop incentives, although it has done substantial outreach to the public for its income-qualified community solar subprogram.

Even when programs conduct substantial outreach through other channels, contractors may remain important partners for the program. The CA SASH Program and CA DAC-SASH Program conducted outreach in partnership with utilities and municipalities, as well as non-profits and through canvassing and mailers. However, they also had offices across the state of California that worked with contractors to coordinate outreach efforts.

Where programs took on a greater role in outreach, it was common for them to work in partnership with local authorities and municipalities, or well-established non-profits and

community groups. This can help build trust and assure the public of the legitimacy of the program.

The CT RSIP Program's model for outreach was to partner with municipalities and local authorities. These partners ran a four-month promotional campaign to encourage participation and build trust and awareness in the local community.

In California, GRID Alternatives, the program administrator for CA SASH, CA DAC-SASH and CA SOMAH, worked with local partners (e.g., the City of Richmond) on co-branded mailers and marketing events. The co-branding was an especially important part of these partnerships as many customers were not familiar with GRID Alternatives. Cobranding the program with a trusted community partner can help to overcome any trust barriers, or skepticism in the program.

The Energy Trust also worked very closely with community partners, not only in their initial outreach but also in the design of the OR Solar within Reach Program. Community partners were part of a working group that provided advice and feedback in the program development stage. They also worked together with these partners to do a "listening tour" to learn more about the communities they intended to serve. These partners were seen as key to possible outreach in the future targeted at specific communities that had lower participation, such as rural and minority households.

Several programs used canvassing, local events, or other in-person activities as an important part of their outreach efforts. These methods were often preferred as a way of reaching low-income or other disadvantaged communities, who may be less receptive to other common methods such as mailers, advertising, or digital outreach.

These methods of outreach were disrupted by COVID in 2020. For the CA SASH Program and CA DAC-SASH Program, which used in-person activities as a major part of their outreach, this disruption was a significant challenge that negatively affected participation in 2020.

D. Solar Incentives

Program representatives were asked about the incentives or benefits provided by their programs, and whether LMI households contributed to the costs of solar installation.

Program incentives take several forms. The most common were upfront cash rebates based on the capacity of the system, and production-based incentives that pay system owners a credit per kWh of energy produced. The CO Rooftop Program covered the full costs of solar installation as a WAP measure. The HI GEM\$ Program also covered the full cost of a project's installation through a loan that is repaid with on-bill payments.

The MA SMART Program provides a multiplier to the base compensation rate that a project receives. This base compensation rate varies by project size and service territory.

**Table VIII-10
Program Incentives for Single-Family Projects**

Program	Production-based incentive (per kWh)	Cash rebate or grant (per watt capacity)	Notes
CA SASH	-	\$3	
CA DAC-SASH	-	\$3	
CO Rooftop Solar	-	-	Full cost covered
CT RSIP	\$0.073	-	Declining incentives
HI GEMS	-	-	Finances upfront costs (repaid on-bill)
MA SMART	-	-	230% of base compensation
MA Solar Loan	-	-	Loan interest reduced by 1.5 percentage points and 30% of principle up to \$10,500
MN Solar*Rewards	\$0.07	\$2	
MS Net Metering	\$0.045	-	Net metering adder of \$0.02
NY-Sun	-	\$0.80	Up to \$0.80 depending on region
OR Solar Rebate	-	\$1.80	Up to lower of \$5,000 or 60% of project cost
OR Solar within Reach	-	\$1 or \$1.50	Differs by utility territory. Up to \$6,000 or \$9,000

In the ILSFA Program AVs receive a lump sum payment for the REC value of the solar project after the project has been energized and approved. The ILSFA pays \$143.09 per REC (1,000 kWh) for a 15-year period on a 1-4 unit DG system sized up to 10 kW. This is a higher rate than the other documented programs.¹⁰³

However, the ILSFA Program also has additional requirements that households receive the solar installation at no upfront cost and pay no more than 50 percent of the energy value in ongoing fees. These additional requirements help ensure that LMI households receive benefits but make projects less cost-effective for AVs. In comparison, other programs typically require that incentive benefits are passed on to the customer, but do not have additional requirements that put such strict limits on the amount contractors can charge for the installation or lease of the system.

¹⁰³A 7.5 kW system with a 16.42 percent capacity factor would generate 10.7 RECs per year or 161 RECs over 15 years (not factoring in degradation). With an incentive of \$143/REC, this is a subsidy of \$23,023 or \$3,069 per kW.

**Table VIII-11
Program Incentives for Multi-Family Projects**

Program	Production-based incentive (per kWh)	Cash rebate or grant (per watt capacity)	Notes
CA SOMAH	-	Up to \$3.04	Reduced if other credits are received
CO Rooftop Solar	-	-	Full cost covered
MA SMART	Up to \$0.03	-	
MN Solar*Rewards	\$0.06	\$1	
NY-Sun	-	\$1	
OR Solar Rebate	-	\$0.75	

Contribution of LMI Households

For most single-family programs there were either upfront or ongoing costs to LMI households. Only the CO Rooftop Program provided the solar installation without any upfront or ongoing costs to the household. The incentives for the CA SASH Program and CA DAC-SASH Program were high enough that solar installations were usually free to the household. Where the incentives did not cover the full cost of the program, it was often possible for GRID Alternatives to find other sources of funding that filled the gap. However, when full funding could not be provided, the household would cover some of the costs under these programs.

The HI GEM\$ Program provided a loan which is repaid through on-bill payments. The program required projects to show they can achieve ten percent energy savings to make sure that the on-bill repayments do not exceed energy savings. The program can cover the entire upfront cost of the installation, although households may choose to make a down payment to reduce their on-bill payments.

The MA Solar Loan Program provided incentives that reduced the principal and interest rate of loans for solar installation. The loan may cover the entire upfront costs of the solar installation, but the household was responsible for covering the costs of repaying the loan, after the incentives were applied.

The CT RSIP Program had a lease model, where upfront costs were covered entirely by the installer, with ongoing payments made by the household. This was also a possible arrangement in the NY-Sun, MA SMART and MN Solar*Rewards programs, and also the ILSFA Program, where systems may either be owned by the household or leased from a third-party provider.

No multi-family programs involved any costs to LMI households in the building. And except for the NY-Sun Program, property owners were required to demonstrate that tenants received benefits from the installation.

E. Project Development

Program representatives were asked about barriers to development and construction and how homes in need of remediation were handled by the program.

Most programs had encountered barriers due to housing stock issues. The most common issues were inadequate roofing and electrical panels in need of upgrade. Other issues included shading, and health and safety hazards in homes. In some cases, housing issues were not direct barriers to solar installation, but households were reluctant to participate because of concerns that inspections for the solar installation would uncover other code violations in the home.

Most programs did not cover any remediation costs. The CO Rooftop Program covered all costs for electrical panel upgrades and up to \$500 for roof repairs. The HI GEM\$ Program allowed up to 20 percent of project financing to go towards remediation issues such as roof upgrades but in practice the requirement for projects to achieve ten percent energy savings meant that remediation work could be challenging.

Several program representatives reported that installers sometimes absorbed the costs of remediation into the project, or homeowners occasionally paid for the work separately. More typically, where there was a need for significant remediation work, the program did not serve the household.

For the CO Rooftop Program, it was estimated that only 20 percent of households in Colorado participating in WAP were good candidates for solar. While the program did serve renters, they were often not good candidates, for example if the building did not have individual metering. For homeowners, the main issues were shading, small roof size, or remediation issues beyond what the program was able to cover.

Multi-family buildings also have issues that could prevent solar installation. However, property owners were often able to fund remediation by leveraging other government programs for affordable housing to make building improvements. Buildings participating in the CA SOMAH Program often bundled the solar installation into a larger building upgrade project that included roof repairs and electrical upgrades.

COVID and Other Barriers to Project Development

Most programs experienced at least some disruption to development as a result of COVID. Two programs, HI GEM\$ and OR Solar within Reach, reported that COVID did not have a major impact on project development in 2020. Additionally, the NY-Sun Program reported that while construction was completely halted between March and May, there was a strong rebound during the summer of 2020, and overall development was robust in 2020.

Other programs reported that COVID added significant delays to construction timelines throughout 2020. In many states all work was halted for some period. Once work resumed there were additional delays and costs. Barriers to construction and project implementation included the following.

- Difficulty accessing sites

- Labor issues from sickness or quarantining
- Supply chain delays or shortages
- Work slowed by new safety measures on site
- Slower permitting times

The NY-Sun Program provided contractors with \$10 million in zero-percent loans and advance payments for projects to help mitigate the short-term impacts of COVID and allow them to retain staff during the period when work was halted.

In Oregon and California, wildfires in 2020 also had an impact on construction. No program representatives were aware of any other consistent barriers to development and construction that affected the program as a whole.

F. Program Performance

Program representatives were asked what they considered to be the most innovative aspects of their programs and what their goals were moving forward.

Innovative Aspects of Programs

Table VIII-12 provides a list of innovations and the programs where these were specifically mentioned as an innovative feature, or were known to be an important part of the program.

Some programs included components other than LMI residential solar, such as community solar, commercial solar, or residential solar without income guidelines. Table VIII-12 includes only those features that relate to LMI residential solar (although some may apply additionally to other sub-programs).

**Table VIII-12
Innovative Features of LMI Residential Programs**

Innovations	Programs	Part of ILSFA
Job Training Component	CA SASH, CA DAC-SASH, CA SOMAH	Yes
Multi-lingual Outreach	CA SASH, CA DAC-SASH ¹	Yes
Publicly Available Project Data	CA SOMAH, CT RSIP, MA SMART, NY-Sun	Yes
Solar as part of WAP	CO Rooftop	No
Covers Electrical Panel Upgrades	CO Rooftop	No
Market Transformation Focus	CT RSIP, MA SMART, MA Solar Loan, HI GEM\$	Yes
On-Bill Financing	HI GEM\$	No
Renters Eligible for Rooftop Solar	MN Solar*Rewards, CO Rooftop, HI GEM\$	Yes
Self-Reported Income for Verification	OR Solar within Reach, HI GEM\$	No
Stakeholders in Program Design	OR Solar within Reach, OR Solar Rebate, CA SOMAH	Yes

¹Most programs include at least some multi-lingual resources, but only the CA programs specifically reported extensive use of multi-lingual outreach as an important feature of program design.

The ILSFA Program incorporates many of the features that other programs considered innovative.

Like the California programs, the ILSFA Program includes a job training component. This provides an additional benefit from the solar program to employment in the state. However, like the ILSFA Program, the California programs sometimes found the job training component to be an additional challenge to project implementation, especially during COVID.

The CA SOMAH program mentioned their transparency and the accessibility of program data as an innovative feature. Several other programs, including ILSFA, also make program data readily available to the public to varying degrees. This transparency can be useful for stakeholders interacting with the program, and also allows public scrutiny of program performance.

Several programs, including ILSFA, were designed with specific elements to transform solar markets. The goal of these programs is to build a solar industry in the state which is able to operate with lower or no incentives. The HI GEM\$ Program, for example, does not provide upfront or production-based incentives, but helps to fill the financing gap for lower-income households to install solar at market rates.

Another way that programs were designed to facilitate market transformation was through declining incentives. The high initial incentives encouraged contractors to take on solar projects that would otherwise be too risky or complicated. However, over time, as contractors completed more of these projects, they gained experience and developed business practices which made these projects more viable. The declining incentives model allows for an approach that puts in extra resources to build a market, and then preserves more budget in later years when the industry has become more established, costs come down, and less support is required. This may be especially effective for expanding access to LMI households, where contractors are unfamiliar with working in these communities and have high initial costs to recruit participants. Word-of-mouth was often the most important way in which new participants were referred to the program, and in which trust can be established.

The inclusion of renters as eligible program participants was mentioned as an innovative element for the MN Solar*Rewards Program. Other programs that allowed renters to apply directly were CO Rooftop, and HI GEM\$. Other programs may include renters as beneficiaries of multi-family building installations, but it is the building owner that applies to the program in these cases. Allowing renters to apply directly for single-family benefits, which is also a feature of the ILSFA Program, has the benefit of extending the solar program to a larger portion of LMI households. This option may also improve program equity, as LMI households that own their homes are likely to be more financially secure, with greater income and assets than renters.

The OR Solar Rebate Program and OR Solar within Reach Program noted that community partners and stakeholders were an innovation or strength of their programs. Although some level of input from stakeholders and community organizations was a standard part of most

program designs, the Oregon programs emphasized the extent to which they worked closely with these partners and made them an integral part of the program design and rulemaking processes. The ILSFA Program has similarly made efforts to engage stakeholders in all parts of the program design and refinement.

There were also some aspects of program design that other program representatives discussed which were not part of the ILSFA Program. The California programs had a single administrator (GRID Alternatives) that played a direct role in the management and implementation of all projects (although subcontractors may complete actual construction work). Likewise, the CT RSIP Program worked with PosiGen to provide solar leases for LMI households. These programs were able to achieve economies of scale, lowering the administrative burdens of the program.

While the ILSFA Program has a single program administrator (Elevate) many project steps such as recruitment, eligibility verification, permitting, and interconnection, are handled by individual AVs, some of which are small companies or have only a few ILSFA projects. Economies of scale could potentially be achieved by organizations taking advantage of the AV “aggregator” designation in the ILSFA Program.

The incorporation of solar into WAP in Colorado was a unique model. While other solar programs may coordinate with energy efficiency programs, none were directly integrated into these programs. The CO Rooftop Program was also the only program to provide additional funds to cover the upgrade of electrical panels. The HI GEM\$ Program was also unique in its use of on-bill financing.

The OR Solar within Reach Program (with a relatively high income guideline) reported its use of self-reported income as an innovative feature, which was included based on input from community organizations and a goal to minimize barriers to LMI household participation. The HI GEM\$ Program also used self-reported income to determine eligibility. However, HI GEM\$ had a high income threshold of 140 percent of AMI, and was a loan program rather than a grant. Households above the income threshold were likely to have access to traditional lending, and so have less to gain by participating.

Program Goals

Program representatives were asked about the goals of their programs moving forward, and what measures were being taken to achieve those goals.

The most frequently mentioned goal of programs was to increase the quantity of installations. Programs aimed to provide benefits of solar power to as many participants as possible. Some had specific targets to achieve. For example, the CA SOMAH Program had a target of 300 megawatts of installed capacity by 2030.

However, not all programs aimed to increase participation through residential installations. Some programs either had existing community solar components, or were interested in adding these components, because they saw it as a more effective way to expand access to a larger

number of LMI households. For example, the NY-Sun Program included a community solar sub-program called Solar for All. Rather than making major adjustments to the rooftop program (which has not had high uptake of its low-income incentives), the focus moving forward was to expand inclusion of LMI households in community solar.

Likewise, the CO Rooftop Program was working to add community solar as an additional component to expand the reach of the program to more LMI households.

Community solar can be a good alternative to distributed generation because it avoids certain barriers that are not easily overcome by a distributed generation model. For example, community solar is generally less complicated regarding the tenant-landlord relationships for renters, is not constrained by housing stock issues or shading, benefits from greater economies of scale, and does not require households to invest in upfront costs or take on risks or debt to participate in the program.

Several programs had additional goals related to reaching specific subsets of the LMI population in their state, although these were usually a secondary goal to overall program participation. For example, the OR Solar within Reach Program was focused on growth and expansion generally among the income-qualified households that it served, but moving forward more focus would be given to reaching minority groups, households at the lower end of the eligibility range, and rural communities. One challenge to this is that the program aims to minimize the paperwork associated with participation, so it needs to find ways to collect information on the characteristics of participants that will not increase the participant burden, or the intrusiveness of program paperwork.

The CA DAC-SASH Program was introduced specifically to target disadvantaged communities and go beyond what had been achieved by the CA SASH Program. One addition to the program to help achieve the goal of reaching a more diverse set of participants was the approval for the inclusion of tribal lands in the program.

All three CA programs had job training components and goals such as increasing the number of local hires or doing more to improve job trainees' prospects following their participation in the program. Other programs did not have job training requirements and did not mention job training goals.

The age of a program was often an important factor in the goals that were mentioned. For example, the OR Solar Rebate Program only launched in 2020, and its most important goal was simply to secure funding to continue and expand its work. Whereas at the opposite extreme, the CT RSIP Program almost completed its 382-megawatt installation target and the CT Green Bank, which administers the program, was looking towards winding it down and using funds for new programs that target less established energy markets.

IX. Green Bank Administrator Interviews

A green bank is a financial institution, either a public or quasi-public entity, or a non-profit, that uses financial tools in partnership with the private sector to invest in clean energy projects. Some countries have national green banks, but in the United States, green banks have generally been created at the state-level.

The green bank model generally does not include grants or rebates, but instead lends capital directly, or uses it to support private investment in a way that is sustainable and allows funds to be reused. For this reason, green banks often focus on commercially viable technologies, and aim to fill a financing gap. Green banks avoid financing projects that do not provide sufficient energy savings to cover the costs of the project.

Although green banks may utilize non-public sources of capitalization (such as private philanthropy), the support of a government entity is a key component of green banks (in the US, green banks are usually supported by the state government). Typically, green banks are created through legislation and have formal connections to the government, for example being organized as a state agency, or having government employees on the board of directors.

The Climate and Equitable Jobs Act of 2021 established the Clean Energy Jobs and Justice Fund and the Illinois Finance Authority Climate Bank. These entities will provide additional opportunities to engage minority and low-income organizations and expand the impact of the ILSFA Program.

APPRISE conducted interviews with green bank representatives to assess how green banks have been used, how they have benefited low- and moderate-income households, and how they could potentially help in ILSFA implementation.

A. Methodology

APPRISE conducted in-depth telephone interviews with 11 green banks. These interviews assessed the operations of green banks in financing energy projects.

Green Banks Interviewed

APPRISE identified 21 non-profit or quasi-public organizations that provide financing to support investment in energy efficiency and clean energy projects, or that are in development. Interviews were scheduled with representatives at 11 of these organizations. Seven organizations were unavailable for interview prior to the research cutoff. Three organizations that were identified as green banks were not contacted because they had been established only very recently (within the last year) and were not yet fully operational.

Two interviews were with green banks that administrated income-qualified residential distributed generation programs (The Hawaii Green Infrastructure Authority and Connecticut Green Bank), and these were conducted alongside interviews about those solar programs.

**Table IX-1
Green Bank Organizations**

Green Bank	State	Interviewed
The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA)	California	No
The California Pollution Control Financing Authority (CPCFA)	California	No
The Colorado Clean Energy Fund (CCEF)	Colorado	Yes
Connecticut Green Bank (CTGB)	Connecticut	Yes
Inclusive Prosperity Capital (IPC)	Connecticut	Yes
Energize Delaware	Delaware	Yes
DC Green Bank (DCGB)	District of Columbia	No
Solar and Energy Loan Fund (SELF)	Florida	No
Hawaii Green Infrastructure Authority (HGIA)	Hawaii	Yes
Finance New Orleans (FNO)	Louisiana	Yes
Maryland Clean Energy Center (MCEC)	Maryland	Yes
The Climate Access Fund	Maryland	Yes
Montgomery County Green Bank (MCGB)	Maryland	Yes
Michigan Saves	Michigan	Yes
Nevada Clean Energy Fund (NCEF)	Nevada	Not Contacted
New York Green Bank (NYGB)	New York	No
New York City Energy Efficiency Corporation (NYCEEC)	New York	Yes
North Carolina Clean Energy Fund (NCCEF)	North Carolina	Not Contacted
GO Green Energy Fund	Ohio	No
Keystone Green	Pennsylvania	Not Contacted
Rhode Island Infrastructure Bank (RIIB)	Rhode Island	No

Interview Implementation

The following procedures were used to implement the interviews.

- Green banks were contacted via phone and email to set up an interview.
- Preliminary research was conducted to collect background information in advance of the interview. This information was verified during the interview.
- Up to two additional contact attempts were made via phone and email to representatives that did not respond to the first attempt.
- Interviews were completed between April 14, 2021 and April 28, 2021.
- The interview length ranged from 25 to 60 minutes. The average interview length was 44 minutes.¹⁰⁴

¹⁰⁴Two interviews were combined with solar program interviews. In these cases, the share of time spent discussing the green bank operations was estimated.

- Additional follow-up questions were submitted to interviewees by e-mail where applicable.
- Some interviewees provided additional resources such as annual reports or project data that were used to answer questions that the respondents could not answer during the interview.

B. Background and Scope of Operations

This section provides background information on the green banks, how they are funded, the type of projects they finance, and the number of households that have benefited.

Green Bank Creation

It is not uncommon for green banks to have a startup period before operations begin or capital is disbursed, which can last several years. Some green banks were fully funded and capitalized from the outset, while for others the start-up period includes raising funds to capitalize the green bank and cover overhead.

Table IX-2 displays the year of founding and when operations began.

**Table IX-2
Green Bank Creation**

Green Bank	Year Created	Year Operational
CO CCEF	2018	N/A
CTGB	2011	2012
CT IPC	2018	2018
Energize Delaware	2007	2007
HI HGIA	2013	2016
LA FNO	1978 ¹	N/A
MD MCEC	2008	2009
MD Climate Access Fund	2017	2020
MD MCGB	2015	2018
Michigan Saves	2009	2009
NYCEEC	2011	2012

¹Finance New Orleans has been in existence as a housing and development financing agency since 1978 but has only recently begun to develop green bank programs.

Some green banks were able to start operations soon after their creation. For example, CT IPC which was spun-out of the CTGB was able to start a few projects in its first year. However, one of the goals of CT IPC was to provide financing for projects across the nation, and its first projects in other states only began the following year in 2019. Its residential solar loans began in 2020. The CTGB was created from a restructuring of the Connecticut Clean Energy Fund. For the first year and a half the CTGB worked to wind down the former programs and implement new green bank programming. In both cases, while operations were able to begin quickly, the scope of activity was more limited in the first years.

These green banks were able to start operations quickly because they had substantial support and grew out of existing organizations. In contrast green banks starting from scratch, such as CO CCEF, have spent several years developing programs, establishing their structure of governance, and raising funds. When a green bank is not fully capitalized at creation, this becomes an additional limitation in how quickly it can begin operations.

However, even when a green bank is fully capitalized from the outset, this does not guarantee that operations can begin quickly. HI HGIA was capitalized by the end of 2014, but it took another year for programs to be developed and ready to launch, so lending did not begin until 2016.

The Climate and Equitable Jobs Act of 2021 requires that no later than 30 days after the effective date of the Act, the Clean Energy Jobs and Justice Fund nonprofit is incorporated. The experience of other green banks demonstrates that the green bank is unlikely to begin operations until at least 2022, and possibly not for several years. Adequate state support and funding are important to help the green bank become operational, but do not guarantee a quick start-up process. For example, the Climate and Equitable Jobs Act of 2021 requires that “before making any loan” the Fund must develop standards and rules, policies for borrower eligibility, terms and conditions, and other procedures.

Green Bank Funding and Capitalization

The green banks included in this review received their funding and initial capital from a variety of sources. The main sources of funding are displayed in Table IX-3. More than one source of funding may be included per green bank, but only major sources of funding are displayed (many green banks also had modest revenues from other sources such as small donations, one-off grants, consulting activity, or service fees).

**Table IX-3
Green Bank Funding Sources**

Funding Source	Number of Banks
Total Number of Green Banks Interviewed	11
State	5
Private Foundations and Philanthropy	3
Emissions Trading	3

Funding Source	Number of Banks
Bond Issuance	3
Utility	2
Private Investors	2
Municipality	1
Renewable Energy Certificates (RECs)	1

Note: Some green banks had multiple sources of funding.

The most common source of funding was states. For example, Michigan Saves was capitalized by a grant of \$8 million from the state of Michigan, with \$6.5 million allocated for loan loss reserves, and \$1.5 million for startup costs.

Several green banks that received funding from states (or in the case of NYCEEC from the City of New York) benefited from funds that had been distributed to states as part of the American Recovery and Reinvestment Act (2009). This was common among the green banks that were set-up from 2008 to 2012.

On the East Coast, the Regional Greenhouse Gas Initiative (RGGI), an emissions trading program, provides funding for the CTGB, Energize Delaware, and MD MCEC.

Private funding has been a smaller component of green bank resources, but has been important in the startup for CO CCEF, which was unusual in that it was created without a commitment of state support for its capitalization. CT IPC, which was spun-out of the CTGB, also received significant support from the Kresge and McKnight Foundations. Private investors, including impact investors, were also a source of funding.

Although green banks that received significant funding from private sources still relied on government grants or other public funds for some of their budget, newer green banks are increasingly looking beyond state support to launch their operations.

The Climate and Equitable Jobs Act of 2021 provides \$1 million per year for the Clean Energy Jobs and Justice Fund. Details on additional funding sources and allocation of funding remain to be determined.

Organizational Type

Among the green banks interviewed, the most common type of organization was 501(c)(3) non-profits, accounting for seven of the 11 green banks. All four of the interviewed green banks founded since 2015 were non-profits. The other green banks were either quasi-public organizations, or in the case of HI HGIA, a state agency – all of which were created in 2013 or earlier.

Table IX-4
Green Bank Organizational Type

Organization Type	Number of Banks
Non-Profit	7
Quasi-Public Organization	3
State Agency	1
Total	11

A major advantage of setting up a green bank as a non-profit is a more straightforward legal process. Non-profits can still be closely connected to the state through inclusion of state employees on the board of directors. However, those that are state agencies or quasi-public organizations, such as HI HGIA and the CTGB, may benefit from their clearer mandate and association with the state in terms of credibility with partners and program participants.

The Climate and Equitable Jobs Act of 2021 specifies that the Clean Energy Jobs and Justice Fund would be set up as a non-profit organization, and explicitly states that the Fund “shall not be an agency or instrumentality of the State Government”, that full faith and credit of the state shall not extend to the Fund, and that board members cannot be state officers or employees. An initial 11 board members would be appointed by the Governor, after which all board members would be elected by the board.

Financial Tools

In addition to direct lending, or co-lending with private partners, green banks reported using several types of financing tools and methods shown in Table IX-5.

Table IX-5 does not include LA FNO or CO CCEF, both of which had not yet begun their green bank operations. However, LA FNO only uses direct loans for its current housing development financing, and does not plan to use other types of financing. CO CCEF will have the ability to use a range of tools. Initially for the commercial loan program, they plan to make direct loans which will then be bundled and sold to intermediaries (warehousing). For residential loans, they plan to make use of on-bill financing.

Table IX-5
Financing Tools Used

Barrier	Number of Green Banks
Total Number of Green Banks Interviewed	11
Loan Loss Reserves	6
PACE Financing	6 ¹
Co-Lending	5
Other Credit Enhancements	5
Direct Lending	5
On-Bill Financing	2 ¹
Warehousing and Securitization	1

¹Includes financing methods used in programs administered by green banks. Michigan Saves was the administrator for some on-bill programs. Energize Delaware, MD MCGB, and NYCEEC were administrators for PACE programs. The green banks did not use own capital for these programs, which had separate sources of funding.

Note: Some green banks used multiple financing tools.

Loan Loss Reserves (LLRs) are a common type of credit enhancement used by green banks that reduce risks for private lenders. For each loan made by the lender, the green bank commits a percentage of the loan value to a reserve fund that pays out to the lender to cover defaults. Because only a relatively small proportion of the loan amount is required, this tool allows green banks to leverage large amounts of private capital. Michigan Saves has been able to achieve a ratio of \$30 in private capital for each \$1 of their own capital committed with this approach. Green banks may also use other types of credit enhancement, such as loan guarantees to similar effect.

Credit enhancements are most effective where there are existing lenders who are potentially able to finance projects, but are hesitant due to perceived risks, or inexperience. In addition to the high leverage that this approach can achieve, it can also stimulate the expansion or transformation of the private market. As lenders become more familiar with these energy projects, they may offer financing without support from the green bank.

LLRs and other credit enhancements require a private lender to underwrite the loan. And while the enhancements improve their position, the private lender still takes on risks. Therefore, green banks that have taken this approach have tended to be more limited in the projects that they are able to finance. The MD Climate Access Fund initially envisioned using credit enhancements in the form of loan guarantees to support community solar projects for LMI subscribers. However, it was found that this was a necessary, but insufficient product to finance these projects. As a result, the MD Climate Access Fund has made additional use of direct lending.

Warehousing and securitization are approaches to financing where multiple loans are bundled together and sold to other investors. While the existing markets may not be willing to finance

the individual loans, they may be willing to purchase the loans as a bundle due to the economies of scale, and pooled risk. From the perspective of the green bank, this can be an effective way to recycle capital more quickly and bring in private investment, by selling off parts of their portfolio. However, only the CTGB was able to take advantage of this approach, which requires the ability to underwrite a larger number of loans.

While only HI HGIA and Michigan Saves were involved in on-bill financing programs, this approach was mentioned by other green bank representatives as a possible tool that they were interested in, or that they might use in the future. On-bill financing can provide a streamlined and more reliable system of repayment, and means that energy savings and finance costs are combined on the utility bill. However, this system of financing requires the involvement of utility companies, which some green banks had encountered as a barrier.

Property Assessed Clean Energy (PACE) financing works by incorporating repayment for energy upgrades into property taxes. PACE was commonly used by green banks (sometimes as administrators of a separate program) for commercial building improvements. One advantage of PACE is that when the property is sold, the liability for the financing can be transferred to the new owner. It also provides a reliable method of repayment, and allows payments to be spread out over a longer period.

However, most states do not allow residential PACE financing, so green banks were limited to using this type of financing for commercial property owners. It is also not useful for financing projects like community solar, where the system does not belong to a property owner.

The Climate and Equitable Jobs Act of 2021 gives the Clean Energy Jobs and Justice Fund wide scope “to pursue a broad range of financial products and services.” However, it does outline a set of programs to consider as its initial set of investment initiatives. These include a product specifically designed to complement and grow the ILSFA Program, direct capitalization of contractors of color, direct capitalization of community-based projects in Environmental Justice communities through grants, providing loan loss reserve products, and offering financial and administrative services to municipal utilities and rural electric cooperatives.

Projects Financed

Typically, green banks provide financing for a range of energy efficiency and clean energy projects, including home energy improvements, solar photovoltaics, energy storage, electric vehicles and related infrastructure, and other types of clean energy such as wind and geothermal. A few green banks were more limited in the types of projects they finance.

The most restrictive green bank that was interviewed was the MD Climate Access Fund, which had a very narrow focus on financing community solar for low- and moderate-income (LMI) subscribers. Project sizes ranged from around 500 kW to 2 MW (due to a cap in Maryland on the size of solar installations). To be eligible for green bank financing, projects were required to have a minimum of 50 percent LMI subscribers, however, the MD Climate

Access Fund aimed to achieve 100 percent subscribers below 80 percent of the area median income (AMI).

NYCEEC was much less restrictive in the types of projects financed, and permitted energy efficiency, solar and other renewables, and energy storage. However, all of their projects were restricted to the commercial scale, with no financing to individual homeowners.

CO CCEF also planned to begin its operations with a more limited scope and just two financing programs. One will provide loans for small commercial buildings for energy improvements, and one will provide on-bill financing for LMI households for solar installation or energy improvements. However, the long-term objective was to provide financing broadly to organizations and groups that have barriers to accessing traditional financing.

LA FNO also provides more restricted financing. They currently provide housing development loans only to residential borrowers (either homeowners or multi-family building owners). However, it has not been determined whether other types of borrowers, such as commercial businesses, will be eligible for green bank financing once these activities are fully launched.

All operational green banks interviewed provided at least some financing for solar projects. Some green banks limited their solar financing to projects that benefit LMI households. For example, CT IPC provided all of its financing for solar projects to LMI households, and while HI HGIA has provided some financing without income restrictions for households in the past, in recent years all financing was for households below 140 percent of AMI.

Table IX-6
Solar Installations Financed

Green Bank	Single-Family Solar Installations		Units Served by Multi-Family Solar	
	Total	LMI	Total	LMI
CO CCEF ¹	0	0	0	0
CTGB	>40,000	>20,000	Unknown	Unknown
CT IPC	~13,000	~13,000	~1,000	~1,000
Energize Delaware	~270	Unknown	0	0
HI HGIA	393	305 ²	1,074	1,074
LA FNO ³	0	0	0	0
MD MCEC ⁴	0	0	0	0
MD Climate Access Fund	0	0	~1,600 ⁵	~1,600
MD MCGB	11	Unknown	~500	Unknown

Green Bank	Single-Family Solar Installations		Units Served by Multi-Family Solar	
	Total	LMI	Total	LMI
Michigan Saves	~700	Unknown	Unknown	Unknown
NYCEEC	0	0	~750	~750

¹The Colorado Clean Energy Fund was still in the start-up phase and had not yet begun financing projects.

²HGIA uses a high threshold of 140 percent AMI to determine LMI status. Of the 305 households classified as LMI, 127 were below 80 percent of AMI.

³Finance New Orleans had only just begun to develop green bank financing, and had not yet deployed capital for solar projects.

⁴MCEC had financed some solar projects, but all of these were commercial scale, and did not include any residential installations.

⁵The Climate Access Fund has three active projects under development, but as of May 2021 they were not yet complete. The projects are projected to serve around 1,600 LMI families.

All of the green banks interviewed were focused on energy projects, and generally did not provide any financing for other types of environmental projects such as brownfield remediation, clean water, forestry, or sustainable agriculture. CO CCEF had aspirations to eventually expand into some of these areas, but they would not be among the first programs launched.

Most green banks financed projects only within their own states. NYCEEC and CT IPC were exceptions, with NYCEEC providing finance across the Northeast region, and CT IPC providing financing across the U.S. The MD MCGB limited its financing to within Montgomery County, and the MD Climate Access Fund focused its financing in the Baltimore area.

Like other green banks, the Climate and Equitable Jobs Act of 2021 would allow the Clean Energy Jobs and Justice Fund to pursue clean energy projects in Illinois broadly, rather than any particular project type. However, the Act did specify equitable distribution of clean energy benefits as a purpose of the fund. This would focus the Fund on projects, including solar power, that benefit LMI and minority communities.

Capital Disbursed and Capital Leveraged

Green banks were asked about the amount of capital that they had directly disbursed or committed. However, green banks generally aimed to increase their impact by leveraging investment from traditional lenders or other parties, rather than relying only on their own capital. This leverage ratio was usually a key metric for the green bank in evaluating their success, however, the ratio of green bank to private investment varied by the types of financing methods used. For example, LLR and other credit enhancements generally achieved a higher leverage than co-lending.

High leverage may also come at a trade-off in terms of the types of projects that can be financed. Small loans to LMI borrowers may be especially unattractive to traditional lenders, making it necessary for the green bank to commit more capital to support these projects. Green banks may also need to deploy more of their own capital in their first years before they have built up a network of lending partners and established proven programs that are attractive to traditional lenders.

Table IX-7 displays the amount of green bank capital disbursed or committed and the overall capital deployed for green bank supported projects including leveraged capital from lending partners. Three green banks (MD Climate Access Fund, CO CCEF, and LA FNO) had not yet disbursed any capital for green bank projects and are excluded from the table.

**Table IX-7
Green Bank Capital Deployed**

Capital Deployed	Number of Banks	
	Own Capital	Total with Leverage
<\$5 million	2	0
\$5 - \$20 million	2	1
\$20 - \$100 million	3	2
\$100 - \$500 million	1	4
>\$500 million	0	1
Total	8	8

The CTGB was the largest in terms of capital deployed. Since 2011 they made direct investments of approximately \$400 million and, with leveraged private capital, financed \$2 billion in green projects.

The smallest green bank in terms of capital deployed was the MD MCGB, which had invested \$2.5 million of its own capital, and deployed \$15 million for green projects including leveraged capital. Although this was less than other green banks, the MD MCGB was unique in being a local county-level organization, rather than a state green bank.

Michigan Saves had one of the largest differences between green bank capital used, and leveraged capital deployed. Michigan Saves had used around \$10 million of public money to leverage \$300 million in deployed capital. This high ratio reflects their approach of using loan loss reserves almost exclusively.

Details on funding sources and allocation of funding for the Clean Energy Jobs and Justice Fund remain to be determined. The Fund is intended to focus on LMI communities, and to “compensate for historical and structural barriers” that have limited access to traditional financing. These objectives may make it more difficult to leverage private capital, and require greater direct investments by the Fund.

C. Finance Recipients

Green bank representatives were asked about eligibility for financing, whether loans were made directly to households, and experiences providing financing to LMI households.

Loan Recipients

Green banks provide or support financing for a variety of borrowers, including homeowners, contractors, commercial property owners, public institutions, non-profits, and farms. Often green banks have several specific programs or products targeted at certain types of borrowers. For example, the CTGB had programs such as Smart-E Loan and RSIP that are directed at homeowners, as well as a Commercial Property Assessed Clean Energy (C-PACE) Program specifically for commercial businesses.

Both NYCEEC and the MD Climate Access Fund were more limited in who they provided financing to. These green banks only worked with larger scale projects, and did not finance any single-family residential projects.

Lending to LMI Borrowers

The green bank model was originally conceived to help facilitate financing for clean energy technologies and energy efficiency projects, where there was limited access to traditional lending markets. The focus of financing was often on transforming markets and accelerated the introduction of new technologies, with the aim of achieving environmental goals such as reducing greenhouse gas emissions. Lending to LMI households, or supporting projects that benefited disadvantaged communities, was therefore, not a primary objective. In some cases, green bank representatives also noted that taking on debt may not be in the best interests of LMI households, and there may be other programs or approaches that are more suitable and provide similar benefits.

As solar markets have developed, in many states it is now often possible for higher-income households to secure loans to install solar from traditional lenders or solar vendors without green bank support. As a result, green banks have begun to shift their focus to other technologies and underserved markets. The new technologies include energy storage and electric vehicles, and new markets include solar energy for LMI households, who are still frequently unable to secure traditional financing for solar at affordable rates. Some newer green banks have begun their operations with a focus on LMI populations and equity in solar markets. This is reflective of the broader trend in clean energy programs and policy.

The only green bank with a strict focus on LMI communities was the MD Climate Access Fund. However, the MD Climate Access Fund limited its financing to LMI community solar projects and only lends to contractors. During the formation of the green bank, approaches including residential solar loans were discussed, but it was decided that community solar was the most effective way to increase LMI access to solar.

NYCEEC similarly provides financing for the benefit of LMI households, through loans to affordable housing buildings, but does not make loans to individual households.

HI HGIA currently provides residential loans only to income-qualified households. However, households up to 140 percent of AMI can qualify for loans, which is more inclusive than most definitions of LMI.

Although the CTGB provides financing broadly, without an exclusive focus on the LMI population, they have made efforts to achieve equity in their programs. Over 50 percent of residential solar financing has gone to projects for households in census tracts with a median income at or below 100 percent of AMI. Although income data are not available for actual program participants, the distribution of participants across census tracts is comparable to the population of Connecticut as a whole.

Michigan Saves and MD MCEC do not target LMI households, and the green bank representatives noted that the type of financing they support would not always be suitable for LMI households. Michigan Saves provides loan loss reserves for lending partners, which allows them to make loans for clean energy that would otherwise be considered too risky, or would be provided at less affordable rates.

While this model has been successful for leveraging large amounts of private capital for solar installations, the loans may still be unaffordable or too risky for LMI households that have fewer assets and cannot afford to take on large debt. The green bank representative noted that a separate program that lends directly to LMI households may be required, as private lenders are unlikely to approve these households for loans at affordable rates.

Barriers to LMI Financing

Table IX-8 displays barriers to LMI participation in green bank financing that were reported by green bank interviewees. The most common barriers were lack of trust, affordability of loans, and an inability to communicate and market to LMI communities. Other barriers mentioned were a lack of financial literacy or engagement, problems with housing stock and access to homes for inspection, and the demographic diversity of the green bank's lending partners.

Table IX-8
Barriers to LMI Participation

Barrier	Number of Green Banks
Total Number of Interviewed Green Banks	11
Trust	3
Affordability	3
Communication	3
Financial Literacy	2
Housing Stock	1
Diversity of Lending Partners	1

Note: Some green banks listed multiple barriers.

Many of these issues are related to lower engagement of LMI households with traditional lending and the banking system. LMI communities have also often been the targets of predatory financing and scams.¹⁰⁵ Furthermore, LMI households may lack the financial literacy and resources to understand and appreciate the financing that green banks offer.

Green banks may find that traditional marketing and communication methods are less effective at reaching LMI households. Energize Delaware found that LMI households were not responsive to impersonal advertising, such as mailers or radio commercials. Instead, marketing required direct outreach to communities, including talking face-to-face with community leaders. The Michigan Saves representative also noted that the pool of lending partners for their green bank lacked diversity, and therefore had fewer shared experiences with, and direct connections to, LMI communities. This created a barrier to communication between lenders and potential LMI borrowers.

Green banks also encountered affordability of loans as a barrier for LMI households. The CTGB largely overcame this barrier for solar installations by partnering with PosiGen to offer leased systems. This allowed CTGB to finance systems for LMI households, but rather than taking on debt, the household pays a monthly fee to lease the system, which is covered by the energy savings of the system. Another advantage of leasing is that the contractor that owns the system can take advantage of solar tax credits, which may not be available to LMI households with a low tax liability.

HI HGIA has mitigated the challenge of affordability by using an on-bill financing model, where loan recipients pay back the loan through a charge on their utility bill. This structure is more affordable for LMI households and results in reliable repayment. To ensure that energy savings are large enough to cover the on-bill charges, projects must demonstrate that they can achieve at least ten percent energy savings.

The Climate and Equitable Jobs Act of 2021 directs the Fund to focus on providing financing to benefit LMI communities, and providing equitable distribution of clean energy. However, it does not necessarily require the green bank to provide financing directly to LMI households. One of the initiatives proposed in the Act is “a solar lease, power-purchase-agreement, or loan-to-own product specifically designed to complement and grow the Illinois Solar for All Program”. The borrower would likely be an ILSFA Approved Vendor (AV) or another third-party system owner. This would avoid some of the barriers to lending to LMI households directly, while ensuring that financed projects benefit LMI communities.

Default Rates

Not all green banks were able to provide information on default rates, and some new green banks either had not built a portfolio or had a portfolio that was too small and recent to accurately show defaults. However, from the information that was available, green banks appeared to have quite low default rates.

¹⁰⁵See for example: Center for American Progress, How Predatory Debt Traps Threaten Vulnerable Families, October 2016. https://cdn.americanprogress.org/wp-content/uploads/2016/10/06060236/DebtTrap-brief.pdf?_ga=2.258058124.700066253.1621433826-751256270.1621433826

The longer running green banks, Michigan Saves and the CTGB, had information on defaults over several years and from large portfolios. For Michigan Saves, the default rate for residential loans was approximately 1.5 percent, and for commercial loans the rate was below one percent,. The CTGB had a default rate of 0.8 percent for its residential solar lease program, and 1.7 percent for the Smart-E loan program, which provides financing to upgrade home energy performance.

Energize Delaware had a smaller portfolio, but of around 270 residential loans only two were in default. Default rates were not available for MD MCEC's current loan programs, but their former residential loan program (MHELP) had a default rate of around 0.5 percent.

These rates are lower than the default rate for bank cards, which has been around three percent in recent years, and quite similar to the default rates for auto-loans and first mortgages, which have been around one percent.¹⁰⁶

No green banks were able to provide breakdowns of default rates by income level. However, green banks and loan programs that served LMI households did not appear to have higher default rates and no green bank representative was aware of problems with high default rates when serving LMI households. For example, HI HGIA had a default rate of less than one percent, and a portfolio that is mostly comprised of households below 140 percent of AMI.

D. Financing and Incentive Programs

Many of the energy projects that green banks provide financing for are eligible for incentives or tax credits from other programs. These programs are often important to the structure of green bank products, and green bank financing may also be important to the successful operation of incentive programs.

The green bank model aims to maximize the impact of investments in clean energy by leveraging private capital, and reusing capital. Although green banks usually rely on a continuing source of outside funding, especially in the first years they are operating, most intend to become self-sufficient and use revenue from their investments to fund operations, and return capital for later ventures.

Most green banks therefore exclusively used financing tools to achieve their energy goals, rather than using any of their budgets to provide incentives, or grants. Energize Delaware is an exception, and has several energy programs which provide grants or direct benefits, rather than financing.

Some other green banks administered grant programs, although they did not use their own capital to support these programs. For example, the CTGB is the administrator for the Residential Solar Investment Program (RSIP). Although RSIP is funded by ratepayers, the

¹⁰⁶<https://www.prnewswire.com/news-releases/spexperian-consumer-credit-default-indices-show-second-straight-increase-in-composite-rate-in-february-2021-301248642.html>

CTGB played an important role in this program by fronting the money for RSIP projects to cover the cost of implementation, and later recouping those costs from SREC sales after projects were constructed and energized.

Green banks can also support contractors when program incentives are not released until project completion and the contractor must cover upfront costs of implementation. NYCEEC, MD MCGB, and CTGB provided some loans of this type. However, this was not usually a major part of green bank operations, and was typically done on a case-by-case basis.

The Climate and Equitable Jobs Act of 2021 specifically directs the Fund to provide complementary financing to help grow the ILSFA Program. Such financing could help smaller AVs and contractors of color who do not have the available capital to construct the project and provide collateral prior to energizing the project and receiving the RECs payments.

E. Partnerships

Green banks were asked about the government and non-profit partners they worked with and their respective roles.

In addition to the private lenders that green banks partner with, many also had close partnerships with government bodies, non-profits, and community organizations, who they work with on areas such as outreach, and project origination.

Municipalities and non-profit partners were often important in outreach and trust building efforts in communities. The CTGB and CT IPC worked closely with municipalities to endorse and promote residential programs such as RSIP and Smart-E Loan. Representatives from Michigan Saves and MD MCEC also reported that local authorities conducted outreach in local communities.

NYCEEC worked closely with several other non-profits, the Green Housing Preservation Program (GHPP), the Joint Ownership Entity New York City (JOE NYC), and the Community Preservation Corporation (CPC). These partners worked with the green bank on comprehensive building projects that included multiple components, of which energy efficiency upgrades were just one part.

Green banks also worked together to exchange information, and to provide technical support to new green bank startups. This was most clearly the case for CT IPC which spun-out of the CTGB. Due to the state-based nature of most green banks, the relationships between green banks do not typically include joint lending, or other financial entanglements.

F. Performance

Green banks were asked what they consider to be the most innovative aspects of their organizations, their accomplishments, the challenges they face, and the metrics they use to evaluate performance.

Innovations and Accomplishments

There was substantial diversity in the approaches that green banks took to finance clean energy and energy efficiency. Many green banks had unique programs or characteristics, and innovation was a central theme of the green bank models.

The CTGB representatives pointed to the programmatic approach that they took, where structured financial products were designed that could be replicated and repeated across many projects. This approach was intended to facilitate market transformation as the private market reproduces the proven financial products over time. The green bank then winds down each program and recycles the capital to be used for new programs that provide novel financial products.

In contrast, NYCEEC emphasized its focus on complex projects that required specialist technical knowledge and expertise. For example, they introduced the use of predevelopment loans which provide funds for project planning. This was vital for advanced high-performance building projects, which have a long pre-development phase that includes significant costs for specialist consulting work. Contractors were more constrained in their ability to secure financing at this stage of a project. For example, one of the partners they worked with, the GHPP, can only disburse capital after construction has begun. NYCEEC therefore filled an important financing gap for these projects. To be successful with these technically complex projects, NYCEEC incorporated engineers on its team to a greater extent than most green banks.

Some green bank representatives pointed to their more focused approaches as innovations that allowed them to be successful. For example, Michigan Saves focused on using LLRs to achieve very high leverage of private capital. This maximized the impact of their green bank dollars. The MD Climate Access Fund also was innovative in restricting its focus to a single project type (community solar) and targeting access for LMI households.

Several green banks had innovative programs that were unique in their structure, or filled a particular market niche. For example, HI HGIA structured an on-bill financing program, where other green banks have expressed interest, but not yet successfully established such programs. Energize Delaware created financing programs specifically to meet the needs of farms' energy efficiency upgrades. And while CO CCEF had yet to launch its programs, the planned small commercial building program was an innovative design that aimed to fill a difficult financing gap.

There was also a diversity of ways in which green banks originated, and several green banks described the process as innovative. The representative for CO CCEF mentioned that they were the first example of a green bank that was organized without a significant initial investment of funds from the state. LA FNO was also unique in being a housing development authority with a long history that is now expanding into green bank activities. The MD MCGB was unique in establishing itself as a county-based green bank. These innovative approaches to starting green banks provide new models that may be replicated in other states.

Finally, CO CCEF, the MD Climate Access Fund, HI HGIA, and CT IPC were innovators in designing programs and products specifically targeted towards LMI households. Each of these green banks created programs that were restricted by income-qualifications, and were intended to expand the scope of green bank objectives to equity.

The Clean Energy Jobs and Justice Fund will have substantial flexibility to innovate financial products and approaches. Its focus on LMI communities followed the recent example of some other green banks. But the Clean Energy Jobs and Justice Fund is innovative within the area of equity by specifically including financing to minority-owned businesses as part of its mission. One way in which the Fund will seek to achieve this goal is through requirements that board members be representative of, and have expertise in serving, LMI and minority communities.

Challenges and Opportunities

One of the most common challenges that green banks mentioned moving forward was securing adequate funding and becoming self-sufficient. Although self-sufficiency was a stated goal of green banks, most relied to some extent on outside sources of funding. However, most green banks were optimistic about funding in the near future. MD MCEC which has historically not had a reliable source of funding had recently secured a reliable source of revenue from RGGI auctions. Others, such as CO CCEF, were hopeful that they would be able to secure more state funding this year due to increased political support for stimulus spending as a result of the COVID pandemic. Energize Delaware also expected to receive more federal funding and higher revenues from RGGI auctions in the next year.

One development that was mentioned by several green bank representatives as a potential “game changer” was the proposed creation of a national “Clean Energy and Sustainability Accelerator.” This accelerator would function as a national green bank which could provide low interest loans to capitalize state green bank programs. Rather than crowd out state green banks, it was expected that a national entity would deploy much of its capital for clean energy projects through state-level green banks.

Overall, the current developments mean that green banks are mostly looking to expand their operations or roll out new programs. Energize Delaware, and MD MCGB both mentioned managing expansions as the main challenge moving forward.

The Clean Energy Jobs and Justice Fund is a positive development for the ILSFA Program. However, the challenges of developing and launching new programs and products may limit the bank’s impact in its first years of existence. In comparison, existing green banks may be able to deploy new funds more rapidly.

Metrics

For many green banks the most important metrics were the amount of capital deployed and leveraged. Some green banks had specific targets for the ratio of green bank capital to private capital. Other important metrics were number of jobs created, and greenhouse gas emissions avoided.

Two green banks, CTGB and HI HGIA, reported metrics on the income of participants in their programs. The MD Climate Access Fund also considered the proportion of LMI subscribers in the community solar projects as a key metric, as well as the discount in energy prices provided to these customers.

X. Program Administrator Assessment

This section provides a summary of Elevate's responsibilities in the ILSFA Program, challenges faced, tasks completed, and an assessment of Elevate's performance to date. Findings in this section are based upon review of publicly available material on the ILSFA website and additional program information and data provided by Elevate and interviews with Elevate managers and staff, stakeholders, and AVs.

A. Overview

Following approval of the Long-Term Plan, Elevate was hired to administer the ILSFA Program. Elevate is responsible for the DG, CS, and NP/PF sub-programs. NERA Economic Consulting (NERA), the IPA's Procurement Administrator, is responsible for the LICS Pilot sub-program.

B. Outreach

Elevate has wide-ranging responsibilities with respect to outreach to stakeholders, low-income households, energy efficiency vendors, and job training organizations.

Elevate put forth three stakeholder requests for comment, on project selection, the DG referral process, and panel production efficiency in the first half of 2021. Elevate reported that they advertised the request for comments and webinars through newsletters, stakeholder emails, and reminders about timelines. They are continuing to do additional outreach, particularly with other programs at Elevate, such as an income-eligible multi-family energy efficiency program and job training organizations. They have added to their stakeholder lists based on this outreach.

In addition to the email lists and ILSFA website, Elevate works with the Grassroots Educators to get the word out about the ILSFA in their communities.

When asked specifically about connecting with Community Action Agencies (CAAs) and other organizations that provide services to low-income households, Elevate reported that they have had two or three conversations with various low-income housing agencies regarding ILSFA outreach. They have also coordinated with energy efficiency programs, such as the Income-Eligible Multifamily Savings Program and the Chicago Porch and Roof Replacement Program to provide ILSFA information to past participants and during future weatherization work.

Elevate is administering the City of Chicago Home Repair program. They will use their solar pre-assessment with that work and connect households that receive roof replacement through the program with ILSFA staff.

Elevate spoke at the Illinois Community Action Agency annual meeting in May 2021. They tried to connect with the Illinois Department of Commerce & Economic Opportunity (DCEO) to develop more systematic outreach to CAAs. They are now focusing on working with CAAs through the Illinois Association of Community Action Agencies (IACAA).

Elevate has also been working with ComEd's Income-Eligible Multifamily Savings Program. They use the data from the program to reach out to past participants since they are also eligible for the ILSFA. They have sent approximately 2,000 emails to single and small multifamily owners and one to large (5+ unit) multifamily owners. Elevate has obtained a handful of interested customers from this outreach to past energy efficiency program participants and a few are ready to be connected with vendors.

When asked about moving forward with a previously reported plan that was approved by the IPA to screen potential program participants for ILSFA during LMI energy efficiency program delivery, Elevate reported that the utilities were no longer willing to participate. The utilities were concerned that they would be re-directing money dedicated for energy efficiency to renewables. They are now discussing cross-promotion of programs.

Elevate has continued to work on increasing outreach, but still needs to strengthen its work in this area to increase ILSFA Program knowledge and opportunities for collaboration. This includes more direct communication with CAAs and other local organizations that work with LMI households. Elevate should increase their proactive outreach and seek participation from key groups in the stakeholder process in addition to sending email blasts.

C. Call Center

Elevate has a call center to field questions about the ILSFA Program and provide guidance and information. Elevate databases caller contact data in a Salesforce-driven system that records information about every call, such as the contact date, time of the call, caller contact information, phone number, nature of inquiry, etc. This information is shared with the IPA via a monthly email, and Elevate provided these reports for the evaluation.

Elevate's call center metrics report does a very good job of providing information on the volume and type of calls handled. The report shows that from November 2020 through March 2021, a total of 92 incoming calls were handled, 16 voicemails were received, and 43 outgoing calls were made. Calls were most likely to be received from homeowners and vendors. The most common topics covered were DG participation, general program information, and AV registration.

D. Program Materials

Elevate is responsible for developing the program manual and related documents for use by AVs. They are also responsible for assisting in the development of contracts, disclosure forms, and brochures used by ILSFA AVs and Community Based Organizations (CBOs). Elevate has developed most of these materials with detailed review and edits provided by the IPA.

Elevate reported that they have made the following updates to program materials and guidelines since December 2020.

ILSFA Program Announcements

The following announcements were made relating to materials posted on the ILSFA website.

- DG Stakeholder Feedback Session: The video of the stakeholder session to discuss changes to the sub-program.
- Net Metering: Updated information on the value of net metering in Illinois.
- CS Project Selection: Selected CS projects for the 2020-2021 program year.
- DG Referral: Request for comments on the Draft Proposal, comments received, response to comments.
- Project Selection: Request for comments on proposed protocol for 2021-2022 program year, comments received, response to comments, redlined protocol.
- AV Manual: Request for comments on proposed changes to the manual, comments received, response to comments, redlined and clean updated manual, and video recording of the updates review presentation.
- REC Contract: Request for comments on the refreshed ILSFA REC contract, video recording of the feedback session, and comments received.
- Grassroots Education: Request for Proposals for the third round, recording of two RFP webinars, questions and answers.
- RPS Funding: Information on RPS funding.
- Calendar: Program year 2021-2022 proposed schedule.
- Marketing Guidelines: Updated COVID-19-related marketing guidelines.
- Evaluation: Phase II Third Interim Evaluation Report.
- Resource Guide: Updated guide with information on energy efficiency programs.
- LICS Pilot: Request for comments on LICS Pilot procurement.
- Long-Term Plan: Update on the stakeholder feedback process.

Outreach Materials

- CS Subscriber Directory: A directory of CS projects that were accepting subscribers or would soon be accepting subscribers was originally published in October 2020 and is updated as needed. The directory included the utility territory and contact information for households interested in subscribing. The February 2021 list included three projects in Ameren's service territory and three projects in ComEd's service territory.
- DG Offers: A list that provides standardized summaries of the available DG offers was originally published in September 2020 and is updated as needed. The list includes offers from AVs by region, roof type, offer type (PPA or lease), date of expiration, contract length, and the offer rate. The April 2021 version included four offers. Two of the four offers required no participant payments, one offer required no participant payment for single-family and \$15/month for multi-family, and the fourth offer required payments of \$.025 to \$.059 per kWh and a minimum credit score of 660.
- Case Studies: The first case study was published in fall 2020. Elevate is developing five new case studies that include two non-profit projects, two DG projects, and one job training testimonial. They are expected to be published in June 2021.

Elevate reported that CS has been a challenge because an AV had difficulties estimating their project timeline and had some miscommunication with potential subscribers.

AV Materials

- Project Selection Protocol: The new protocols were published in March 2021.
- AV Manual: An updated version of the AV manual was posted in April 2021. The manual will take effect for Program Year 2021-2022 which begins in June 2021.
- DG Referral: The new process will allow Elevate to send interested participants to AVs. The intake form is expected to be launched soon.
- Spanish CS Disclosure Form: A Spanish version of the disclosure was made available to the Approved Vendors.
- CS Disclosure Process: Elevate developed a process for AVs to generate CS disclosure forms for a standard offer outside of the ILSFA Portal.

Other Materials

- Income Verification: New form to be used for income verification conducted by Elevate.

As shown above, Elevate has developed and updated a large amount of materials over the past six months. They should place increased emphasis on simplicity for customer-facing materials.

E. ILSFA Website

Elevate created and updates the ILSFA website. This resource is meant to provide up-to-date ILSFA Program information. They use Google Analytics to track how individuals use the website and respond to marketing emails.

Elevate reported that they made the following improvements to the website since December 2020.

- Illinois Residents: This page was updated.
- Sub-program Pages: The explanations were simplified and the pages were made more user-friendly.
- Audience Pages: New pages were added for Renters, Homeowners and Building Owners, and Non-Profit Organizations and Public Facilities.
- AV Directory: A filter was added to make it easier to search for MWBE AVs.
- Evaluation and Reports: A new page was added that includes links to all published evaluation reports, the first annual program summary, and the project information page.
- Income Verification Pages: The pages for the new income verification process will include intake forms and frequently asked questions. This should launch in June 2021.
- Home Page: They are planning to improve the design of the homepage.
- Fact Sheets: They developed new factsheets. One factsheet provides information on DG opportunities and one provides information on CS opportunities.

Elevate plans to continue simplifying the language and improving the ease of use of the website.

As in previous assessments, the evaluation team recommend significant additional improvement to the website. Improved website organization could make the program more accessible to the public, potential participants, and vendors. Key recommendations for improvement are as follows.

- The website should provide an overview of the ILSFA Program on the home page above the announcements. This would include a broad overview of the program for all audiences, similar to the “How the program works” section on the “For Illinois Residents” page.
- Important information is only available in the program announcements (some of this information may be needed by Approved Vendors and project developers rather than potential participants). Additional menus and links should be provided so that this information is easily found without searching or looking through the announcements. Examples include the following.
 - Frequently Asked Questions (FAQs) for various audiences
 - Case Studies
 - COVID-19-related Market Guidelines
 - Net Metering Updates
 - Program Resources Guide Update
 - Program Calendar
- Information is often provided in PDFs rather than on webpages. This information would be more easily accessible if it included on web pages.
 - DG and CS offer lists
 - EJ community self-designation process
 - Case studies
 - Program resources
- Tabs across the top of the page that show all sub-pages included within these pages would make the website easier to navigate. This way the user can see all the page options at once and easily shift between them.
- Menus could be expanded to provide easier access to key information.

Additional issues for particular groups are summarized below.

- Issues for Participants
 - The website directs participants to contact an AV to get started in the program. However, there is not a good system to help search for and identify an appropriate AV. Participants are linked to the AV directory which has the following problems.
 - AV information shows which programs AVs said they are interested in, but this information does not always reflect the projects they actually work on.
 - The map does not show AVs and cannot be zoomed.
 - There are also “current offerings” for community solar and residential that can be downloaded – and may be more helpful than the directory. It may be confusing to participants which to use, and most links about joining the program connect to the directory.
 - The page for homeowners has a section called “How much can I save” that does not provide any savings information, except that it depends on “a variety of factors”. In comparison the brochure has a hypothetical example, which is more helpful, and gives

- an impression of the type of savings that are possible. Some brief examples of savings could be included here.
- Participant eligibility information is incomplete and difficult to access.
 - The information on eligibility just provides a link to download a PDF of income tables. It would be useful to have a dropdown menu for users to choose their county and see the income eligibility for that specific county on the webpage.
 - There is no guidance to participants about how they should calculate their income, or what documents their AV will require.
 - There is no mention of the verification process or other qualification methods.
 - There is a Spanish language brochure and the EJ community self-designation process is available in Spanish, but most of the website is only in English.
 - It would be useful to have a full list of steps for participants in the “How do I participate?” section. For example, an outline of the CS steps would be as follows.
 1. Determine eligibility (with eligibility information described above).
 2. Find a CS project in your utility area. Click here for a list of available vendors and projects.
 3. Contact an ILSFA AV from the list above that is currently accepting subscribers in your utility area.
 4. Sign up for a project and demonstrate income eligibility.
 5. Start receiving credits.
 - Issues for AVs
 - There are a set of boxes that provide the requirements to become an AV. Several of these (e.g. community engagement) do not have links and it is not always clear how to find more detailed information, even in the AV manual.
 - Guidelines say to prepare responses before submitting, but when linking to the form, it does not allow viewing all questions before submitting answers. There is a PDF that can be downloaded that has the questions and a rubric – which is helpful, but this resource is not immediately obvious from navigating the AV page.
 - The registration form includes the rubric, but does not explain how the rubric works – this information is available in the AV manual, but not on the form itself.
 - For Community Organizations
 - The consumer protections page mostly connects to longer and more technical PDFs. Some may benefit from more concise and straightforward information.
 - The EJ community page allows analytical results download and an interactive map – but does not provide a codebook or explanation of what the scores in these resources mean.
 - There is a page for Grassroots Educators, but this is more about applications, and does not provide a well-organized set of resources.
 - The job training directory is helpful, but there is not any information about how to start a job training program, or how to qualify an existing program for ILSFA.

F. Approved Vendor Portal

Elevate maintains a portal that includes information on AVs, projects, participants, and Grassroots Education.

There are several users of the database system.

- IPA and Elevate, for program reporting.
- Elevate, AVs, and GEs, for data entry and review
- Grid Alternatives, for job training oversight
- Shelton Solutions and Elevate staff responsible for recipient verification
- Elevate IT staff
- Elevate Call Center staff

This portal has many uses, including the following.

- Vendors complete applications to become AVs.
- AVs submit project applications.
- AVs submit job training, income verification, and other data during later project phases.
- GEs submit information on education events.
- Call center staff enter information on calls received.
- The quality control subcontractor will submit information on completed site inspections.

Elevate designed the portal using the Salesforce platform. They have a team of developers and have also worked with external contractors to assist with the development. Elevate reported that they worked to design the system to be as simple as possible for the users. However, they found that the AVs needed reinforcement of what is expected in each field, so they provided training sessions on this topic. The AVs reported many challenges with the portal, and Elevate's vendor managers have spent a great deal of time supporting AVs in using the portal and responding to their questions and problems.

Elevate reported that they made the following changes to the AV Portal since December 2020.

- **Salesforce Version:** They are moving to a new version with more capabilities.
- **AV Manual Consistency:** They have been making changes to ensure that the language is aligned between the AV manual and the portal.
- **ABP Portal Consistency:** Creating greater consistency between the ABP and the ILSFA Portal where possible.
- **Rate Changes:** Adding fields in the DG rate based upon the year the project was submitted.
- **CS Disclosures:** Updating the portal to enable AVs to upload CS disclosures through an Excel CSV file.
- **Production Calculations:** The first-year energy production calculations were updated to show each component of the process with respect to how final REC values and savings are determined.
- **Part II REC Calculations:** Changes with new code that they wrote.
- **Help Text:** Added help text bubbles to some fields in the portal.
- **Vendor Names:** Will add a list so AVs can select their name rather than typing it in.

- Review: They reviewed all data fields and requirements to ensure the structure was correct.
- CS Reports: Began planning for new CS report that will collect information from AVs on system production, how much of the project is subscribed, the percent of LMI subscribers, and energy received by CS subscribers. Information from the report will be used to determine the amount of funds released to the AVs.

Elevate reported that they had to solve issues with related software and individual users' systems, mislabeling of files, or not including all required files, but that the portal has otherwise been working well. Moving forward, Elevate plans to work on the following.

- CS Report: Completing the report and the Part II REC calculations.
- Program Year Four: Mapping out changes that are needed.
- Income Verification: Creating forms to allow Elevate to pre-screen potential participants for income-eligibility. They are planning to launch the process soon.
- Recalculation Button: They are developing a button so the user can choose when to recalculate.
- Language: Standardizing the language between the AV manual and the portal.
- Help Text: Adding more help text and a PDF that provides examples of what is required. For example, the document will provide examples of the types of pictures of the installed system that are required to streamline the review process.
- Notes Field: Adding an open text field where AVs can provide notes to explain any challenges or inconsistencies as they submit their Part I and Part II applications.
- Documents: Reducing the number of documents that AVs are required to upload. In the DG sub-program, AVs currently upload approximately nine documents and that will be reduced to five with the consolidation of the system design.
- Reduced Requirement: Reducing the requirement that the certificate of completion was received from the Authority Having Jurisdiction.
- Progress Tracking: They would like to implement a way to indicate vendor progress through the portal without necessarily requiring certain steps to come before or after one another (because income verification does not have a set place within the process).
- Salesforce Programming: They are changing the system used within Salesforce to provide a better user experience.

Elevate has begun using a database to track program requirements and show how they have changed over time. The database also shows how, when, and why changes were made for each field in the database. They said this is especially important with staff working remotely during COVID.

Elevate should continue to advance and test the portal to make it easier for AVs to use, as the AVs still report challenges with the site.

G. Grassroots Education

Elevate is responsible for coordinating the distribution of funding for Grassroots Education by CBOs and overseeing the Grassroots Educators' work. Elevate implemented the third Grassroots Education RFP and selected ten organizations.

GEs have started to hear more skepticism from customers who do not believe the zero cost offers will actually be no cost to them. To overcome the skepticism, Elevate plans to continue to communicate with GEs and develop more case studies. Elevate increased their communication with the GEs during the past year and have had several checkpoints. At these meetings, GEs share ideas and Elevate receives more information about challenges the GEs face.

The case studies show potential participants how the program works. Some GEs have even discussed inviting the participants who were featured in the case studies to speak with neighborhood organizations and be a part of their outreach efforts. They have also discussed developing a video with the case study participants if they are not able to come to a meeting themselves.

Additionally, Elevate has set up calls between GEs and AVs to open communication lines between these two groups. They are specifically setting up calls so AVs can present to GEs when they have CS offers available. This helps the GEs to communicate the CS offers accurately. The calls also provide an opportunity to share information on participant concerns and AV limitations and challenges.

H. Energy Efficiency

Elevate has continued to reach out to utilities and DCEO to coordinate programs and information. The CAAs may provide a better opportunity for coordination than the utilities. Elevate should focus their work on DCEO and the CAAs that deliver IHWAP.

I. Vendor Administration and Support

Elevate has responsibilities for administering and supporting the vendor registration and project submission process. They are responsible for assisting the AVs to meet the ILSFA Program requirements by acting as a liaison with job training organizations and informing AVs of energy efficiency, weatherization, lead abatement, and other program opportunities that could provide additional benefits to participants.

Elevate's vendor management team works directly with the vendors. This involves supporting vendors through the application and vetting process, reviewing vendor applications, and making recommendations to the IPA about whether they should approve each vendor. Once vendors are approved, Elevate performs the vendor onboarding process, provides them with vendor credentials to access the portal, trains them on how to access the system, helps them submit projects, and answers questions on their projects. Elevate assesses the needs of each AV and tailors specialized training to those needs.

As the AVs move forward in the process, they have asked for clarifications on the requirements for Part II submissions. The AV managers go through the process with each AV, review the manual, and will review documents if the AVs want to check something before submitting. For the most part, the AVs build the system on their own so there is not much follow-up between Part I and Part II applications, at least for the DG and NP/PF sub-programs.

For the CS projects there is more interaction with AVs because they are starting to develop disclosure forms, reach out to interested participants, sign up customers, and verify recipient information. The AV managers have helped with these processes, but there is not much support needed for construction. The AV managers have been able to provide assistance and solve any problems the AVs bring up.

Elevate has connected with interconnection teams at ComEd and Ameren and can now reach out to them with questions about interconnection, documentation timelines, and other issues that pertain to ILSFA approvals. Elevate reported that AVs have not recently raised issues regarding interconnection.

Elevate's job training group had a webinar recently and invited AVs. They are continuing to work with ComEd and had discussions about hosting a job fair for FEJA trainees and AVs. They are working with ComEd to push that forward.

COVID caused delays for the AVs, and there have been many extension requests as projects were not able to energize in their initial timeframe. There have been delays sourcing materials from suppliers and there are restrictions on in-person marketing. AVs have had to use digital methods as the primary means of contacting prospective customers, which has been a challenge.

Because the ABP funding has been completely allocated, some vendors have pivoted their ABP projects to the ILSFA and they have had several new AV registrations. Also, the Sunrun team has been submitting a steady stream of DG applications to the ILSFA.

Elevate has not directly followed up with all AVs to generate more DG projects. The AV management team checks-in with AVs to ask them about their project pipelines and the sub-programs they are interested in. However, AVs tend to stick to what they know and what works for their business model. For example, an AV that has submitted large NP/PF and CS projects usually will not have any interest in the DG sub-program because that does not fit their business model. Very few AVs are interested in DG and there are some barriers to submitting projects such as the batch requirement and the fact that these projects require a commitment from a homeowner.

Elevate has not brought on additional resources for the implementation of the projects. However, for the Part I process, they brought on two additional team members who are available on a part-time basis to review projects since Sunrun is submitting many projects. These additional staff members may review some Part II applications as needed.

J. Environmental Justice

Elevate was responsible for working with the IPA to develop the EJ determination process and the self-designation process. They developed a rigorous and well-documented process for determining the EJ communities, and the map and list of EJ communities is provided on the ILSFA website.

Elevate now continues to work with the IPA and community groups to score incoming EJ self-designation applications. They have also developed a systematic process for this scoring and meet with the scoring group on a regular basis to score EJ self-designation applications as they come in.

Since the initial applications in May 2019, there have been 29 EJ self-designation applications, including five resubmissions. Eight of these communities received EJ self-designation status and two are under review.

K. Reporting

Elevate is responsible for providing quarterly reports to the IPA and the ICC on the status of the program, including number of applications received, number of applications approved, number of projects completed, REC payments, payments for Grassroots Education efforts, status of Grassroots Education, and technical assistance provided. Elevate has submitted four of these quarterly reports to the IPA (the last one covering the fourth quarter of calendar year 2020).

Elevate has also developed the following reports to update the IPA on the ILSFA progress and has met with the IPA on a regular basis to provide updates.

- **Call Center Metrics:** This report provides information on the number of calls by month, inbound versus outbound, type of caller, and topic. This report does a good job of presenting the important information about the call center.
- **Technical Assistance:** This separate report provides information on the date, organization, contact, and nature of inquiries each month. This is a useful report to understand the types of questions received by Elevate.
- **Newsletter Report:** This report provides information on the date of the report, the number of recipients, the delivery and opening rate, and the rate at which hyperlinks were clicked. This is a detailed and informative report that does a good job of presenting the information.
- **Website Report:** This report provides information on use of the ILSFA website, including the number of sessions, the number of users, and the number of pages viewed. This is a detailed and informative report that does a good job of presenting the information.
- **Salesforce Reports:** These reports allow the IPA to view project details.
- **Project Dashboard:** This provides an overview of submitted projects, selected projects, and project funding.

- Grassroots Educator Invoicing: These invoices provide an update on Grassroots Education activities.

Elevate has done a good job of developing reports that provide important information to the IPA.

L. Quality Assurance

Elevate is responsible for developing a process for quality assurance, including photos of projects under construction and on-site inspection of a random sample of installations. Elevate has developed a comprehensive Onsite Inspection Checklist and contracted with a subcontractor to conduct the inspections. The Onsite Inspection Checklist systematically collects important information on the quality of the installation and the AV's work.

Elevate's subcontractor schedules inspections on a calendar directly with the AVs when the projects are verified as inspection ready. When the inspection is complete, the subcontractor provides a report to Elevate that identifies the score, the results, and any deficiencies that were found that would indicate the project is not ready to be paid out or completed. In that scenario, the AV would then be provided with information on whatever deficiency they need to correct.

To date, 24 projects have been inspected, all except one using mostly off-site video review due to the COVID pandemic. They report that the virtual site visits have not been a barrier and they have been able to get all of the needed information. These inspections have found that the projects are consistent with their plans and with the ILSFA requirements.

XI. Findings and Recommendations

This is the fifth and final report from the first Illinois Solar for All Program evaluation. The research conducted from August 2019 through June 2021 provided a comprehensive assessment of the program design, implementation, and impacts by interviewing IPA, Elevate, Approved Vendors, utilities, stakeholders, Grassroots Educators, Grassroots Education participants, job trainees, other state solar program managers, and green bank representatives; and by analyzing program data and other available data. The research found that the program has successfully approved numerous solar vendors, constructed solar projects, employed job trainees, and will provide benefits to low-income households and organizations in Environmental Justice and low-income communities around the state.

Key challenges were faced in quickly developing the infrastructure, tools, and materials for this complicated program in a short time period, and adjusting to many changes that were made during the first years of implementation. Because of these challenges, the systems that were developed were not optimized to provide a smooth process for Approved Vendors to meet the numerous program requirements. Additionally, sufficient outreach to AVs and key partnerships and collaborations with energy efficiency programs and other organizations that serve low-income households were not developed soon enough to utilize much of the available funding for the DG sub-program.

Recommendations to address these issues were made in the previous evaluation reports, and the IPA and Elevate made many improvements over the initial program years. This section provides key findings and recommendations from the most recent assessment undertaken from January through June 2021.

A. Key Findings

The key findings are summarized below.

- **AV Participation:** The ILSFA Program has achieved good participation by solar vendors and participation has continued to increase. However, there is still need for greater participation in the DG sub-program.
 - As of April 2021, there were 58 AVs.
 - Thirty different AVs submitted projects and 20 different AVs had selected projects.
 - Only four AVs submitted DG projects and had DG projects selected.
- **Project Diversity and FEJA Goals:** The ILSFA Program is meeting some of the important program goals regarding EJ communities and low-income communities.
 - **Urbanicity of Project Locations:** Sixty-three selected projects were characterized as being in urban locations, 30 in suburban locations, and 23 in rural locations. Thirteen percent of the REC value was in urban areas, 25 percent was in suburban areas, and 62 percent was in rural areas.
 - **Minority Composition of Project Locations:** The census tracts that had selected projects were comprised of an average of 58 percent minorities (non-white), compared

to an average of 29 percent minorities in census tracts that did not have selected projects.

- EJ Communities: Seventy-one of the 116 selected projects were in EJ communities. Sixty-nine percent of the REC value was in EJ communities.
- Low-Income Census Tracts: Ninety-four of the 116 selected projects were in low-income census tracts. Almost all of the REC value was in low-income census tracts.
- DG Projects: Participation is slowly increasing. However, all 14 AVs who were interviewed and reported that they attempted to develop DG projects faced challenges. Additional work may be needed to reduce barriers to participation in this sub-program.
- Job Trainees: Twelve AVs with a combined portfolio of 63 projects submitted 107 job training affidavits as of May 2021. Across all projects, job trainees worked an average of 28 percent of total project hours. On average, 44 percent of trainee hours were spent on installation. The trainees generally provided very positive reviews of the training and the impact of the program on their lives.
- ILSFA Impacts: The ILSFA Program's expected solar production will have large impacts as calculated in this report. These impacts are equivalent to the following.
 - Homes powered: 100,720
 - iPhones charged: 90 billion
 - Cars taken off the road for one year: 190,840
 - Trees planted over 10-year growth period: 13.90 million

The estimated value of avoided emissions is over \$4 million in first year benefits and \$66.5 million in lifetime benefits from the first three ILSFA Program years.

The estimated value of the increase in economic output in Illinois is over \$34 million in first year benefits and \$40.8 million in lifetime benefits from the first three ILSFA Program years.

The ILSFA Program is estimated to create 100 full-time job years from first-year economic benefits and 265 job years from lifetime economic benefits from the first three ILSFA Program years.

- COVID-19 Impact: The pandemic has impacted the ILSFA Program by reducing in-person opportunities for outreach, sales of solar systems, and on-site inspections of completed projects. It has also created delays in obtaining materials and permits, and in project construction.
- AV Challenges: AVs reported challenges providing the high volume of information required, using the portal, meeting job training requirements, encountering housing stock issues when developing DG projects, and adapting to COVID restrictions.

- Elevate Assessment: Elevate implemented the complicated ILSFA Program in a short time period; developed numerous materials, the website, and portal; recruited and supported numerous solar vendors; and selected projects in all sub-programs. They focused on core responsibilities and ensured that program requirements were met. They have been taking more proactive steps to address challenges, increase outreach, and forge connections. To achieve greater program success, they need to continue on this path.
 - Outreach: Elevate has taken steps to increase outreach to critical groups, including adding to their stakeholder list, having discussions with the Illinois Department of Commerce and Economic Opportunity (DCEO), reaching out to utility energy efficiency managers, and developing a DG referral process.

Elevate needs to further strengthen program outreach to increase ILSFA Program knowledge and opportunities for collaboration. This includes more direct communication with CAAs and other local organizations that work with LMI households. Elevate should increase their proactive outreach and seek participation from key groups in the stakeholder process in addition to sending email blasts.

- Call Center: Elevate has a call center to field questions about the ILSFA Program and provide guidance and information. Elevate's call center metrics report does a very good job of providing information on the volume and type of calls handled.
- Program Materials: Elevate has developed and updated a large amount of materials over the past six months. These include updates to available DG and CS projects, the DG referral documents, disclosure forms, and income verification forms to be used by Elevate. Elevate should place increased emphasis on simplifying customer-facing materials.
- ILSFA Website: Elevate made some improvements to the ILSFA website and plans to continue making improvements. Significant additional improvement to the website's organization could make the program more accessible to the public, potential participants, and AVs.
- Approved Vendor Portal: Elevate has continued to update the portal with additional capabilities that are needed as projects move forward, as well as to improve the process for AVs. Many AVs still report that using the portal is challenging. Elevate should review and streamline the process to ensure that it is as straightforward as possible and that there is no duplication of requested information.
- Grassroots Education: Elevate implemented the third Grassroots Education RFP and selected ten organizations. Elevate has set up calls between GEs and AVs to open communication lines between these two groups. Some AVs commented that the Grassroots Educators have been helpful in their efforts to recruit customers.

- Energy Efficiency: Elevate has continued to take actions to improve coordination of the ILSFA Program with energy efficiency programs. The utilities are not willing to screen energy efficiency participants for the ILSFA Program, but the CAAs may provide a better opportunity for coordination. Elevate should focus their work on DCEO and the CAAs that deliver WAP.
- Vendor Administration and Support: Elevate has responsibilities for administering and supporting the vendor registration and project submission process. Elevate has provided extensive support to the AVs and they speak favorably about their experience with Elevate and the tremendous assistance that Elevate has provided.

Elevate has connected with interconnection teams at ComEd and Ameren and can now reach out to them with questions about interconnection, documentation timelines, and other issues that pertain to ILSFA approvals.

Elevate has not directly followed up with all AVs to generate more DG projects. More proactive outreach may be needed in this area.

- Environmental Justice Communities: Elevate was responsible for working with the IPA to develop the EJ community determination process and the self-designation process. They developed a rigorous and well-documented process for determining the EJ communities, and the map and list of EJ communities is provided on the ILSFA website. Elevate continues to work with the IPA and community groups to score incoming EJ self-designation applications. They have also developed a systematic process for this scoring and meet with the scoring group on a regular basis to score EJ self-designation applications as they come in.
- Reporting: Elevate is responsible for providing quarterly reports to the IPA and the ICC on the status of the program, including number of applications received, number of applications approved, number of projects completed, REC payments, payments for Grassroots Education efforts, status of Grassroots Education, and technical assistance provided. Elevate has also developed comprehensive and useful reports on call center metrics, technical assistance, newsletters, and use of the ILSFA website.
- Quality Assurance: Elevate is responsible for developing a process for quality assurance, including photos of projects under construction and on-site inspection of a random sample of installations. To date, 24 projects have been inspected using mostly off-site video review due to the COVID pandemic. These inspections have found that the projects are consistent with their plans and with the ILSFA requirements.

B. Recommendations

Recommendations from the Phase II Final Evaluation are summarized below.

ILSFA Program Design

Recommendations relating to the ILSFA Program design are summarized below.

- **DG Project Barriers:** Continue to reduce barriers to DG projects. This may include examining where requirements can be reduced, removing redundancies in required documentation, reducing or removing the waiting period between disclosures and contract execution, and reducing the batch requirement for the first set of projects. Some of these changes may require modifications to the Long-Term Plan.
- **Utility Screening:** Future legislation that specifies how utilities engage with the ILSFA Program and provides funding to support other aspects of project development could be considered.
- **Limit Program Changes:** Program design changes should focus on refinements that reduce barriers to DG project development and participation. Limiting program changes in this manner will allow Elevate to focus more of their attention on streamlining the project development and implementation processes and increasing DG project implementation.
- **ILSFA Website:** Improve the design of the website to make it easier to find information and understand the program. Key recommendations include providing an overview of the ILSFA Program on the home page, adding pages with information that is currently only included in the announcements, including information on webpages instead of only in PDF downloads, and adding menus for improved navigation.
- **ILSFA Portal:** Continue to improve the portal, remove glitches, and increase user-friendly design elements.
- **Green Bank:** Develop plans for how the Clean Energy Jobs and Justice Fund can aid AVs in project financing and support current and new MWBE AVs.

Program Implementation

Recommendations relating to the ILSFA Program implementation are summarized below.

- **Stakeholder Outreach:** Implement proactive outreach to stakeholders beyond the current email blasts to engage CAAs and other organizations that serve low-income households.
- **DG AV Outreach:** Conduct outreach to AVs to develop more offers to include on the offer list for potential participants.
- **DG Participant Outreach:** The Chicago Porch and Roof Replacement Program that Elevate implements is a good target for potential DG customers with solar-ready homes. Elevate

should provide increased outreach to past and current participants, and investigate whether participants in similar programs around the state can be targeted.

- **Community DG Outreach:** Elevate should promote the ILSFA Program through trusted messengers, including CAAs, churches, and other community organizations.
- **DG Screening:** All interviewed CAA Stakeholders said that they would be able to screen for ILSFA eligibility during energy efficiency service delivery. Some stated that they would require additional training, guidelines, or compensation. Some CAA respondents said that they would be able to provide lists of energy efficiency program participants who would be good candidates for solar to the ILSFA administrators. Elevate should develop and implement a process to work collaboratively with the CAAs.
- **Job Training:** Qualify additional job training programs outside of the Chicago area. Both job trainees and AVs stated that the limited locations of the job training programs was a barrier.
- **Project Submission:** Review the entire process and streamline wherever possible. AVs recommended presenting program information in a more synthesized and simplified manner, creating a manual for the portal, and allowing AVs to upload a large number of photos.
- **Part II Process:** Reduce barriers within this process. AVs reported challenges uploading documentation and photos, difficulties taking required pictures during construction, issues collecting job training documents, and redundancies in required documentation.

Appendix

This appendix provides detailed program data tables.

Table A-1 displays the reasons that projects were withdrawn.

Table A-1
All Submitted Projects
Reason for Vendor Withdrawal

Reason	PY1: 2018-2019				PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	DG	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Documentation Issues	0	0	0	0	5	0	0	5	0	0	0	0	5	0	0	5
Interconnection Agreement	4	0	0	4	1	0	0	1	0	0	0	0	5	0	0	5
Organizational Changes	0	0	0	0	2	0	0	2	0	0	0	0	2	0	0	2
Vendor Requested	0	0	0	0	0	0	0	0	2	0	0	2	2	0	0	2
Batching Issue	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
Financial Constraints	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
Other	2	0	0	2	1	0	0	1	1	0	0	1	4	0	0	4
Reason Not Provided	5	9	1	15	1	0	1	2	0	5	0	5	6	14	2	22
Not Withdrawn	16	36	0	52	28	30	10	68	32	12	68	112	76	78	78	232
Total	28	45	1	74	39	30	11	80	35	17	68	120	102	92	80	274

Table A-2 displays all submitted projects by program year and AV. Projects that were re-submitted are shown in both program years.

Table A-2
All Submitted Projects by Program Year
Approved Vendors

Vendor	Total PY1 2018-2019	Total PY2 2019-2020	Total PY3 2020-2021	Total PY1 – PY3 2018-2021
Sunrun Installation	0	0	52	52
Affordable Community Energy	0	4	26	30
Central Road Energy	9	8	12	29
Novel Energy Solutions	13	5	3	21
Promethean Solar	4	7	7	18

Vendor	Total PY1 2018-2019	Total PY2 2019-2020	Total PY3 2020-2021	Total PY1 – PY3 2018-2021
Community Power	9	5	0	14
Solar Sense, Inc.	9	4	1	14
Groundswell, Inc.	4	6	2	12
Certasun	0	10	0	10
Advanced Energy Solutions	6	2	0	8
Trajectory Energy Partners	3	1	3	7
Tattleaux Illinois Solar	0	6	0	6
Xolar Renewable Energy	0	2	4	6
Ameresco	5	0	0	5
CIC Energy Consulting	0	3	2	5
Envelop Group	2	3	0	5
Windfree Wind and Solar	0	2	3	5
Citrine Power	2	1	1	4
Nexamp Solar	2	1	0	3
Renewable Energy Evolution	0	2	1	3
SA Energy	2	1	0	3
Day and Night Solar	0	2	0	2
JCD Solar	1	1	0	2
LiveWire Electrical	2	0	0	2
VLV Development	0	1	1	2
WCP Solar	1	1	0	2
AMP Solar	0	0	1	1
Centralia City School Dist.	0	1	0	1
GRNE Solutions	0	0	1	1
PSG Energy Group	0	1	0	1
Total	74	80	120	274

Table A-3 displays all submitted projects by sub-program and AV.

Table A-3
All Submitted Projects by Sub-program
Approved Vendors

Vendor	Total PY1 – PY3: 2018-2021		
	NP/PF	CS	DG
Sunrun Installation	0	0	52
Affordable Community Energy	14	0	16
Central Road Energy	27	2	0
Novel Energy Solutions	2	19	0
Promethean Solar	0	18	0
Community Power	0	14	0
Solar Sense, Inc.	12	2	0
Groundswell, Inc.	8	4	0
Certasun	0	0	10
Advanced Energy Solutions	8	0	0
Trajectory Energy Partners	0	7	0
Tattleaux Illinois Solar	0	6	0
Xolar Renewable Energy	6	0	0
Ameresco	0	5	0
CIC Energy Consulting	5	0	0
Envelop Group	5	0	0
Windfree Wind and Solar	4	1	0
Citrine Power	0	4	0
Nexamp Solar	0	3	0
Renewable Energy Evolution	3	0	0
SA Energy	0	1	2
Day and Night Solar	2	0	0
JCD Solar	0	2	0
LiveWire Electrical	2	0	0
VLV Development	2	0	0
WCP Solar	0	2	0
AMP Solar	0	1	0
Centralia City School Dist.	1	0	0
GRNE Solutions	0	1	0
PSG Energy Group	1	0	0

Vendor	Total PY1 – PY3: 2018-2021		
	NP/PF	CS	DG
Total	102	92	80

Table A-4 displays the number of selected projects by city.

Table A-4
All Selected Projects
Illinois City

City	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Chicago	0	0	0	6	0	8	14	3	0	21	24	9	0	29	38
Champaign	1	2	3	2	0	0	2	2	0	0	2	5	2	0	7
Aurora	1	0	1	4	0	0	4	1	0	0	1	6	0	0	6
Urbana	2	1	3	2	1	0	3	0	0	0	0	4	2	0	6
Chicago Ridge	0	0	0	2	0	0	2	0	0	1	1	2	0	1	3
East St. Louis	0	0	0	3	0	0	3	0	0	0	0	3	0	0	3
Peoria	0	0	0	2	0	0	2	1	0	0	1	3	0	0	3
Antioch	0	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Bloomington	0	0	0	0	0	0	0	2	0	0	2	2	0	0	2
Cahokia	0	0	0	0	1	0	1	0	1	0	1	0	2	0	2
Country Club Hills	0	0	0	0	0	0	0	1	0	1	2	1	0	1	2
Des Plaines	0	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Effingham	0	0	0	0	0	0	0	2	0	0	2	2	0	0	2
Freeport	0	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Kankakee	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2
Matteson	0	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Montgomery	1	0	1	0	0	0	0	1	0	0	1	2	0	0	2
Normal	0	0	0	0	0	0	0	2	0	0	2	2	0	0	2
Rockford	0	1	1	0	0	0	0	0	0	1	1	0	1	1	2
Romeoville	0	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Alton	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1
Berwyn	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Bridgeview	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Buffalo Grove	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Centralia	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
Channahon	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1

City	PY1: 2018-2019			PY2: 2019-2020				PY3: 2020-2021				PY1 – PY3: 2018-2021			
	NP PF	CS	Total PY1	NP PF	CS	DG	Total PY2	NP PF	CS	DG	Total PY3	NP PF	CS	DG	Total
Chicago Heights	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Crest Hill	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Dekalb	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Dupo	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
Galesburg	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Glenwood	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Harvard	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Hoffman Estates	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Homer Glen	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Joliet	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Lombard	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Maywood	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Richton Park	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Rock Island	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
Schiller Park	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
University Park	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Waukegan	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Zion	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Total	6	4	10	23	4	9	36	19	3	48	70	48	11	57	116

Table A-5 displays the first year projected costs savings, total costs, and savings for the NP/PF projects for each program year.

Table A-5
Non-Profit and Public Facility Projects, 2018-2021
Projected Project Costs and Savings for Selected Projects

Project Year	Costs and Savings	#	Selected Non-Profit/ Public Facility Projected Project Costs and Savings							
			Mean	Min	Percentile					Max
					P10	P25	P50	P75	P90	
PY1: 2018-2019	First Year Costs	6	\$10,077	\$12	\$12	\$12	\$2,706	\$22,228	\$32,800	\$32,800
	Total Costs	6	\$237,904	\$181	\$181	\$181	\$78,184	\$322,000	\$948,692	\$948,692
	First Year Savings	6	\$16,880	\$5,400	\$5,400	\$10,573	\$13,779	\$24,951	\$32,800	\$32,800
	Total Savings	6	\$408,527	\$156,187	\$156,187	\$249,159	\$324,628	\$447,869	\$948,692	\$948,692
PY2: 2019-2020	First Year Costs	22	\$5,710	\$0	\$12	\$102	\$2,162	\$8,288	\$15,753	\$30,600
	Total Costs	22	\$118,453	\$0	\$181	\$1,970	\$40,431	\$133,332	\$377,117	\$599,786
	First Year Savings	22	\$7,862	\$1,535	\$2,177	\$2,369	\$4,587	\$8,415	\$15,753	\$34,413
	Total Savings	22	\$202,861	\$17,776	\$51,751	\$55,869	\$112,320	\$204,700	\$534,148	\$981,288
PY3: 2020-2021	First Year Costs	19	\$5,249	\$0	\$12	\$874	\$2,134	\$4,594	\$24,164	\$25,368
	Total Costs	19	\$74,867	\$0	\$181	\$7,855	\$17,878	\$75,755	\$349,911	\$380,520
	First Year Savings	19	\$9,460	\$409	\$936	\$2,464	\$4,528	\$10,232	\$27,998	\$44,786
	Total Savings	19	\$188,271	\$14,379	\$15,572	\$29,026	\$62,143	\$157,406	\$775,218	\$1,163,011
PY1-PY3: 2018-2021	First Year Costs	47	\$6,081	\$0	\$12	\$162	\$2,134	\$8,288	\$24,164	\$32,800
	Total Costs	47	\$116,082	\$0	\$181	\$3,135	\$28,603	\$133,332	\$377,117	\$948,692
	First Year Savings	47	\$9,659	\$409	\$2,128	\$3,164	\$4,706	\$10,953	\$27,998	\$44,786
	Total Savings	47	\$223,218	\$14,379	\$20,987	\$54,095	\$110,677	\$300,744	\$581,070	\$1,163,011

Note: One PY2 project with a Purchase Agreement only had data for First Year Costs and was excluded from the table.

Table A-6 displays the total projected savings percentage over the term of the agreement for NP/PF projects.

**Table A-6
Non-Profit and Public Facility Projects
Total Projected Savings over the Term of Agreement**

Total Projected Savings	Non-Profit / Public Facility Participants											
	PY1: 2018-2019			PY2: 2019-2020			PY3: 2020-2021			PY1 – PY3: 2018-2021		
	Selected		Total PY1	Selected		Total PY2	Selected		Total PY3	Selected		Total
	Yes	No		Yes	No		Yes	No		Yes	No	
19%	0	2	2	0	0	0	0	0	0	0	2	2
50%-59%	3	10	13	9	6	15	0	0	0	12	16	28
60%-69%	0	2	2	4	4	8	12	1	13	16	7	23
70%-79%	0	2	2	1	2	3	4	1	5	5	5	10
80%-83%	0	0	0	0	0	0	1	0	1	1	0	1
96%-98%	0	0	0	3	0	3	0	0	0	3	0	3
100%	3	6	9	5	4	9	2	0	2	10	10	20
Unknown*	0	0	0	1	0	1	0	14	14	1	14	15
Total	6	22	28	23	16	39	19	16	35	48	54	102
Mean	76%	67%	69%	73%	71%	72%	72%	69%	72%	73%	68%	71%

Note: “Not Selected” includes eligible projects that were not selected and all projects that were ineligible, withdrawn, or under review as of April 2021.

*Fourteen PY3 projects lack data on projected savings. One PY2 project that was selected lacks data on projected savings.

Table A-7 breaks down the projected savings by more detailed status for projects that were not selected including eligible, ineligible, withdrawn, and under review.

**Table A-7
Non-Profit and Public Facility Projects
Total Projected Savings over the Term of Agreement
For Projects Not Selected by Detailed Status**

Total Projected Savings	Non-Profit / Public Facility Participants			
	PY1 – PY3: 2018-2021			
	Eligible	Ineligible	Withdrawn	Total
19%	0	2	0	2
50%-59%	1	7	8	16
60%-69%	1	1	5	7
70%-79%	1	2	2	5
100%	0	2	8	10

Total Projected Savings	Non-Profit / Public Facility Participants			
	PY1 – PY3: 2018-2021			
	Eligible	Ineligible	Withdrawn	Total
Unknown*	0	11	3	14
Total	3	25	26	54
Mean	65%	58%	75%	68%

*Fourteen PY3 projects lack data on projected savings.