ILLUME
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report

Illinois Solar for All:

Program Year Six (PY6) Annual Evaluation Report

Prepared for:
Illinois Power Agency

Prepared by:
ILLUME Advising, LLC
An E Source Company

Acknowledgments

ILLUME Advising, LLC, An E Source Company (ILLUME) is a forward-thinking consulting company at the rare intersection of insight and execution. Founded in 2013, the company has quickly grown to include a deep bench of quantitative and qualitative research experts. ILLUME uses cutting-edge research strategies to help build a resilient energy ecosystem to enrich lives, improve global health, and ensure a more secure and sustainable future.

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Executive Summary

This summary includes evaluated impacts and findings for Illinois Solar for All (ILSFA) program year 6 (PY6), which took place from June 1, 2023, to May 31, 2024. ILSFA is implemented by the Illinois Power Agency (IPA) and administered by Elevate.

The evaluation team examined and modeled impacts based on projects approved during PY6 or projects energized through the end of PY6, depending on the type of impact. ILSFA awarded funding to approved PY6 projects, but some may not have been constructed or energized by program year-end; therefore, **approved projects** represent projected impacts. By contrast, **energized projects** are fully constructed, connected to the grid, and delivering benefits, representing modeled actual impacts for project energized by May 31, 2024. The date of project energization is based on when the project received approval on the Part II application, which is submitted after the project is constructed and energized to verify project completion and specifications. Approval of the Part II application also initiates the payment of Renewable Energy Credits (RECs) to the project. The energized project count includes projects that have been approved and energized in prior program years. The team analyzed **one-time impacts** (e.g., construction costs) and **ongoing impacts** (e.g., bill savings), specifying them in each impact section.

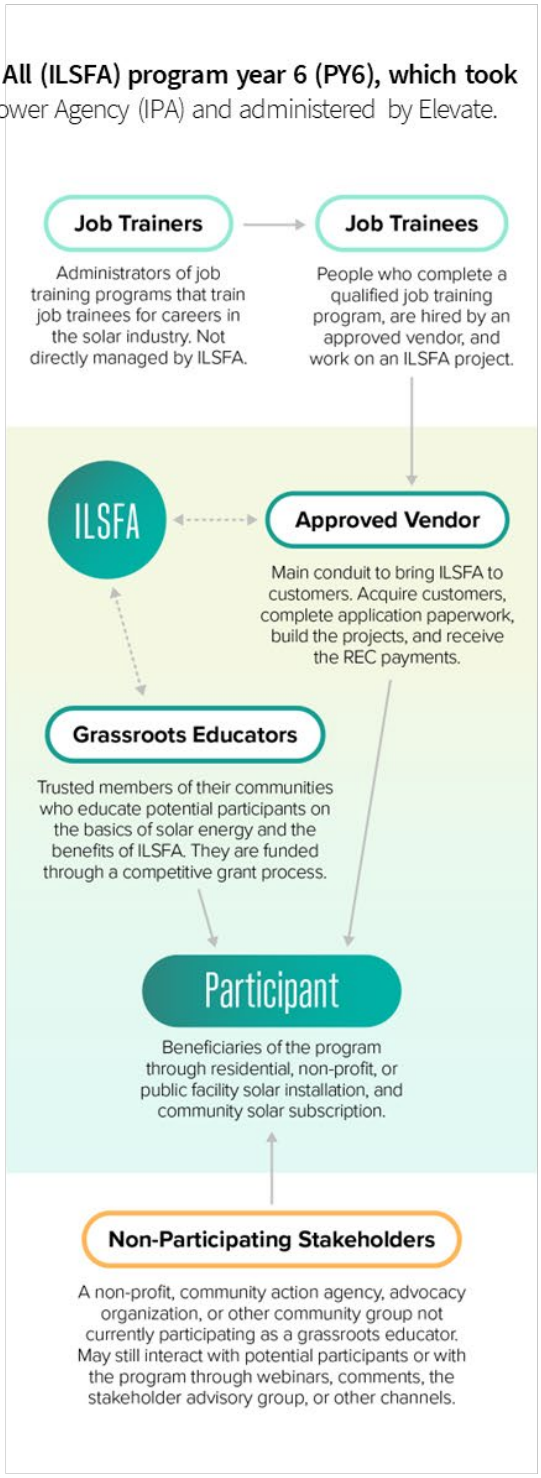
The process assessment in PY6 was a key part of the program evaluation, aiming to understand the experiences of those involved in the program and assess the performance of the program administrator, Elevate.

Key stakeholders include **households**, **property managers**, **non-profits**, and **public facilities** who directly benefit from the program, as well as entities that facilitate participation:

- **Program administrators** (IPA and Elevate)
- **Approved Vendors (AVs)**—recruit participants and install projects
- **Grassroots Educators**—educate about solar and ILSFA
- **Job trainees**—deliver projects
- **Job training administrators**—provide job training

Additional stakeholders, such as **non-profits**, **community action agencies**, and **advocacy groups**, may also engage with the program through partnerships, webinars, or community education.

For the PY6 evaluation report, we collected feedback from program administrators, AVs, and participants. The process assessment focuses on these findings but also includes feedback from the PY5 evaluation to provide a complete picture of program actors' perspectives.



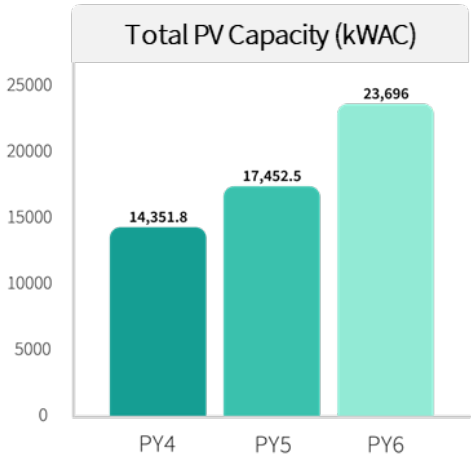
Program Summary PY4-PY6

June 1, 2021 – May 31, 2024

Program project **volume increased more than sixfold** from PY4 to PY6 with the Residential Solar Small program (installing solar on 1–4 unit households) driving most of this growth. This increase in project volume was due to a backlog of projects built before they were submitted to the program in PY5 and PY6.

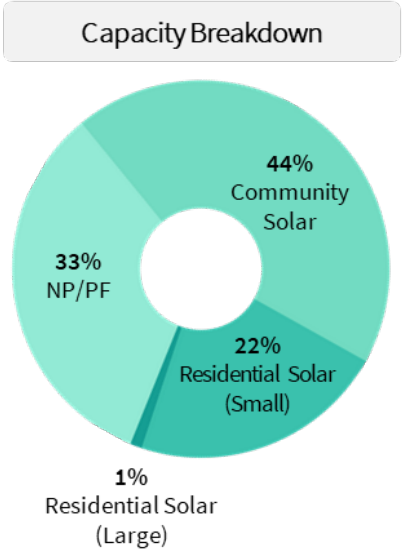
The program approved **55.5 MW in new solar capacity,** which are anticipated to produce over 100 GWh of electricity in their first year of operation.

Approved projects are estimated to **avoid over 888 million pounds of CO2**, the equivalent of **powering 12,880 homes** or taking **9,628 cars off the road.**



The 237 projects that have been fully constructed and energized by the end of PY6 are anticipated to produce over **$66 million in bill savings** for customers and an estimated **$133 million in GDP impacts.**

The program invested **$54,217,459 in environmental justice communities** (EJCs).



The program invested **$39,638,379 in energy sovereignty (ES)** over PY5-PY6. (ES was not part of the program before PY5.)

The projects installed in PY4-PY6 are estimated to have created demand for **660 full-time equivalent jobs** in Illinois.

Electricity Impacts | Approved and Energized Projects

To assess electric energy impacts, our team looked at both PY6 approved projects and PY6 energized projects. PY6 approved projects are all projects that received Part I approval through ILSFA in PY6. These projects reflect recent program activity that will eventually lead to increased installed photovoltaic (PV) capacity. PY6 energized projects are all projects that have received Part II approval by the end of PY6. This count includes projects that were approved and energized in earlier program years. These projects are connected to the grid and generating electricity. We summarize the number of PY6 approved projects and their average capacity below. Average project cost includes PY6 energized projects only as project costs are not always collected before a system has been energized.

Distributed Generation

1-4 Units

Number of Approved Projects: **1,296**

Total Approved PV Capacity (KW_{AC}): **9,644.6**

Average Energized Project Cost per KW_{AC} : **$3,434**

5+ Units

Number of Approved Projects: **1**

Total Approved PV Capacity (KW_{AC}): **197.5**

Average Energized Project Cost per KW_{AC} : **$2,929**

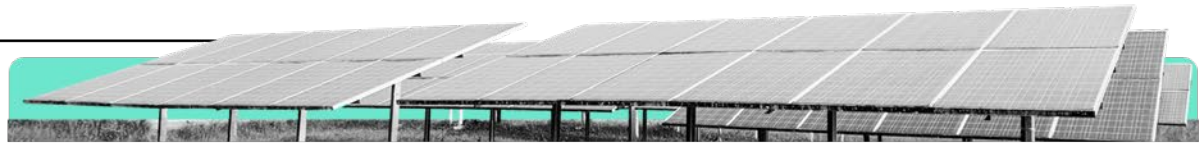
Non-Profit /Public Facilities

Number of Approved Projects: **39**

Total Approved PV Capacity (KW_{AC}): **5,453.9**

Average Energized Project Cost per KW_{AC} : **$2,950**

Community Solar



Number of Approved Projects: **4**

Total Approved PV Capacity (KW_{AC}): **8,400.0**

Average Energized Project Cost per KW_{AC} : **$2,882**

Key Findings

- PY6 approved projects will result in an estimated 40.5 GWh/year of solar energy produced.
- The evaluation team estimated how much PY6 approved projects would reduce peak demand in two independent system operator (ISO) regions in Illinois. ISO regions control and monitor the electrical power system in different grid sections of the state. PY6 energized projects will provide an estimated 8.243 MW, or 0.01% of peak-hour demand savings, in the PJM-ComEd ISO region, covering the Chicago region and parts of northern Illinois. These projects will provide 2.036 MW, or 0.03% of peak-hour demand savings, in the MISO-Illinois-Zone 4 region, covering central and southern Illinois and the parts of northern Illinois not covered by the PJM-ComEd region. Solar arrays installed through ILSFA help meet electricity demand on high-temperature days that strain the grid.

Bill Impacts | Energized Projects

To assess bill impacts, our team looked at PY6 energized projects. These projects received Part II approval by the end of PY6, meaning they are connected to the grid and generating electricity. This count includes projects that were approved and energized in earlier program years. Since bill impacts occur once projects are energized and continue over the life of the solar array, looking at energized projects is aligned with the timing when participants see bill impacts. The program also does not collect final project cost data until solar arrays are constructed, meaning the data needed to calculate bill impacts is more complete for energized projects.

Distributed Generation

1-4 Units

Number of Energized Projects: **134**

Average Net Monthly Estimated Bill Savings per Customer: **$105.62**

Average Net Monthly Savings (% of Pre-Solar Utility Bill): **88%**

5+ Units

Number of Energized Projects: **3**

Average Net Monthly Estimated Bill Savings per Customer: **$55.16**

Average Net Monthly Savings (% of Pre-Solar Utility Bill): **72%**

Non-Profit /Public Facilities

Number of Energized Projects: **89**

Average Net Monthly Estimated Bill Savings per Customer: **$1,842.67**

Average Net Monthly Savings (% of Pre-Solar Utility Bill): **60%**

Community Solar

Number of Energized Projects: **11**

Average Net Monthly Estimated Bill Savings per Customer: **$46.15**

Average Net Monthly Savings (% of Pre-Solar Utility Bill): **36%**

Key Findings

- The total net present value (NPV) of lifetime net bill savings of energized projects is $66.6 million.
- In PY6, the Community Solar subprogram had the lowest percent bill savings because customers were only credited benefits based on the supply portion of electricity cost and not on the distribution or taxes/fees portion of electricity bills.
  - By contrast, Distributed Generation customers received the full value of retail net metering, which credited both supply and distribution charges.
  - ILSFA does not define how customers are credited for Distributed Generation or Community Solar on their bills. Rather, Illinois law determines this, including the Climate and Equitable Jobs Act (CEJA). These findings reflect the billing structures in effect during the PY6 timeframe.

Environmental Impacts | Estimated First-Year Avoided Emissions for Approved Projects

To assess environmental impacts, our team looked at both PY6 approved and PY6 energized projects. We calculated environmental impacts based on the energy impacts—in other words, we assume the energy generated by the solar arrays offsets the energy that would otherwise be generated by other types of power plants connected to the electric grid. Therefore, our team looks at the same set of projects for environmental impacts as for energy impacts. We show impacts for approved projects below and include results for energized impacts in the detailed findings section of the report.

Distributed Generation

1-4 Units

Number of Approved Projects: **1,296**

CO_2e lbs: **17,522,252**

NO_X lbs: **8,372**

SO_2 lbs: **9,422**

5+ Units

Number of Approved Projects: **1**

CO_2e lbs: **368,846**

NO_X lbs: **170**

SO_2 lbs: **191**

Non-Profit /Public Facilities

Number of Approved Projects: **39**

CO_2e lbs: **12,734,535**

NO_X lbs: **8,000**

SO_2 lbs: **9,227**

Community Solar

Number of Approved Projects: **4**

CO_2e lbs: **21,728,231**

NO_X lbs: **12,927**

SO_2 lbs: **14,846**

Key Findings

- First-year avoided emissions of PY6 approved projects are estimated to be equal to 52.4 million pounds CO_2e, 29.5 thousand pound of NO_x, and 33.7 thousand pounds of SO_2.
- Total lifetime avoided emissions are estimated to be equal to 307 million pounds CO_2e, 361 thousand pounds of NO_x, and 412 thousand pounds of SO_2.
- First-year avoided emissions of approved projects are equivalent to:

5,280 Homes Powered for a Year

3,428 Cars Taken Off the Road for a Year

Workforce and Economic Impacts | New PY6 Energized Projects

To assess workforce and economic impacts, our team looked at modeled impacts for new projects energized in PY6. For this analysis, we looked only at new energized projects, excluding projects energized in prior program years. Since economic impacts occur at a single time when a solar array is constructed, we look at actual impacts to the economy (GDP, jobs created in Illinois, and employee compensation) occurring as a result of this construction.

Distributed Generation

1-4 Units

Number of New Energized Projects: **24**

Employee Compensation: $**330,000**

GDP Impacts: $**1,100,000**

5+ Units

Number of New Energized Projects: **1**

Employee Compensation: $**30,000**

GDP Impacts: $**110,000**

Non-Profit /Public Facilities

Number of New Energized Projects: **31**

Employee Compensation: $**8,420,000**

GDP Impacts: $**26,260,000**

Community Solar

Number of New Energized Projects: **6**

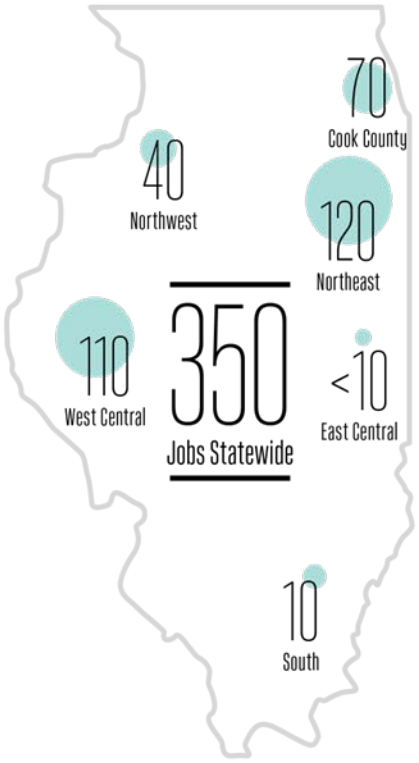
Employee Compensation: $**11,210,000**

GDP Impacts: $**37,630,000**

Key Findings

- The modeled GDP impacts of PY6 energized projects totaled over $67 million of which more than $37 millions came from investments in community solar projects.
- Community Solar and Non-Profit/Public Facility projects generated the largest share of modeled spending, which occurred in Northeast and East Central region and supported large employment and GDP impacts in this area. Similar to previous years, a ripple of indirect impacts in northern Illinois suggests other parts of the state still rely on Chicago and the surrounding suburbs for construction parts and supplies.
- Across the ILSFA projects energized in PY6, approximately 31% of total project costs were modeled as going toward hiring in-state labor related to project installations.
- Production, import, and construction taxes accounted for 60% of modeled state tax impacts. This suggests that while participating households benefit from ILSFA, they do not bear the primary tax burden. For federal taxes, employee compensation taxes were the largest share of tax burden.
- As in previous years, based on economic models of household spending patterns, new household spending following on-bill savings generated additional economic activity focused on the healthcare and housing sectors, indicating participants likely use money saved through the program to meet their basic needs.

Demand for New Jobs in Illinois



On an annual basis, 25% of subprogram REC budgets are set aside for Environmental Justice Community (EJC) and for Energy Sovereignty (ES) projects. Therefore, the team assessed the social impacts for PY6 approved projects.

Distributed Generation

1-4 Units

Portion of RECs set aside for EJCs: $**8,654,134**

RECs Awarded to Approved Projects in EJCs: $**10,855,589**

Portion of RECs set aside for ES: $**8,654,134**

RECs Awarded to Approved ES Projects: $**1,018,386**

5+ Units

Portion of RECs set aside for EJCs: $**8,654,134**

RECs Awarded to Approved Projects in EJCs: $**0**

Portion of RECs set aside for ES: $**8,651,134**

RECs Awarded to Approved ES Projects: $**350,099**

Non-Profit /Public Facilities

Portion of RECs set aside for EJCs: $**3,535,473**

RECs Awarded to Approved Projects in EJCs: $**4,809,922**

Portion of RECs set aside for ES: $**3,535,473**

RECs Awarded to Approved ES Projects: $**9,464,631**

Community Solar

Portion of RECs set aside for EJCs: $**6,707,784**
RECs Awarded to Approved Projects in EJCs: $**0**

Portion of RECs set aside for ES: $**6,707,784**
RECs Awarded to Approved ES Projects: $**11,330,770**

Key Findings

- In PY6, the Non-Profit/Public Facilities and Residential Solar (Small) subprograms awarded their full EJC budget carveout, while the Community Solar subprogram did not due to a lack of approved projects in EJCs.

  > **Program recommendation:** Given the higher complexity of building Community Solar projects and the various paths to receive RECs, ILSFA may consider studying the barriers for Community Solar development in EJCs. This review could clarify the lack of approved projects and offer insights for targeted strategies and program alignment and consolidation to support Community Solar project development on EJCs.

- ILSFA awarded the full 25% ES incentive carveout for Community Solar and Non-Profit/Public Facilities subprograms but only 2% for the Residential Solar (Small and Large) subprograms. Within the Residential Solar subprograms, grassroots educators, non-participating stakeholders, and AVs noted that they find the ES requirements unclear and therefore rarely discuss this option with participants. Additionally, they raised concerns about the additional financial, maintenance, and decommissioning responsibilities participants would assume if they owned their solar arrays.

  > **Program Recommendations:** Develop clear and tailored guides on what ES means in practice for all stakeholders and different participants across subprograms, including ownership responsibilities, risks, long-term benefits, and best practices for managing ES projects.

- The primary benefits participants report receiving from the program are the utility bill savings and environmental benefits. Beyond these participant-level benefits, the evaluation team investigated the possibility of community-level benefits, including increased adoption of solar within communities where households or organizations have solar installed, grid-level impacts, and reduced exposure to heat-island effect among communities in Chicago.

Process Evaluation Findings

The following is a summary of abbreviated key findings and recommendations from our process evaluation.

Administrative Spending

Program administrative costs comprised 10% of the total program budget

Program Administrative Costs | Program Year 6 (PY6) (June 1, 2023 – May 30, 2024)

Category	Entity	Total Spend
Program Implementation	IPA	$839,082
Program Administration	Elevate	$8,855,535
Evaluation	ILLUME	$654,985 [a]
Grassroots Educators	All PY6 Grassroots Educators	$557,420 [b]
Total Administrative Costs		**$10,907,022**

[a] These costs are aligned with the fiscal year, spanning July 1, 2023 – June 30, 2024
[b] Grassroots Educator costs were incurred from September 2023 – June 2024

For the PY6 evaluation, we focused primarily on feedback from participants and vendors and incorporated feedback from PY5 respondents where applicable.

The team developed recommendations to address program barriers ranging from process improvements that the IPA or Elevate can implement directly to those requiring collaboration with grassroots educators or AVs. Some recommendations may require the IPA to form new partnerships or pursue a major design change or program expansion, and a few of these might require changes to legislation.

Recommendations were categorized into four categories (below) to distinguish near-term actions from longer-term efforts. We also indicate where additional research may be required to get more information.

Process Improvement

Partnership

Program Design Expansion or Change

Future Research

Participant Experience

Program Overall

Participant Success: ILSFA participants are satisfied with their overall program experience and are excited about the bill savings and environmental benefits of solar.

Grassroots Educator Success: Grassroots educators were excited about the benefits ILSFA could deliver to individuals and their communities.

AV Success: Almost all AVs interviewed cited helping their communities as a primary motivation for participating in ILSFA, noting the program's higher RECs make this possible.

"I don't need to worry about other things like ordering pictures of my kid's sports teams at school. I couldn't afford that before."

– ILSFA Residential Solar (Small) Participant

Program Overall

Participant Success: Community Solar and Residential Solar (Small) subprogram participants share similar motivations, with many initially considering rooftop solar but turning to Community Solar when installation isn't feasible.

Recommendation: Advertise Community Solar and Residential Solar (Small) subprograms together.

Program Awareness

Participant Success: Program participants most often learn about the program through word of mouth. Conversations with trusted messengers—such as grassroots educators, community action agencies, and previous participants—play a key role in building trust and credibility in program offerings.

Recommendation: Use referrals from successful participants, case studies, program events at sites with installed solar, and community-based marketing to boost awareness and trust in the program.

AV Success: AVs emphasized the importance of trust-building efforts by grassroots educators and reported grassroots educators and word of mouth as the most common ways participants learn about the program.

Grassroots Educator Success: Grassroots educators felt their role was important for building trust in communities, using long-standing relationships and tailored community outreach.

Grassroots Educator Challenge: Grassroots educators noted losing community trust when they promote the program, but people are unable to follow through due to lack of AVs, lack of Community Solar subscriptions, or complicated processes.

"We want to have fun doing the work—it brings such joy. Doing [our[part to make climate and community healthier and cleaner. That's the reason we do this."

– Grassroots Educator

"Once you whet the appetite and they've qualified, but the opportunity doesn't exist, it builds distrust of ILSFA."

– Grassroots Educator

Participant Experience

Participation Process (Overall)

Participant Challenge: The Residential subprograms are complex and difficult to navigate. Participants want more support and information throughout the process of participating.

Recommendation: Develop a "buyer's guide" for Community Solar subscribers as well as Residential (Small) customers to provide information on next steps, timelines, and what to expect.

Recommendation: Consider adding more information to the "Find an Approved Vendor" section of the ILSFA website, such as customer reviews and a list of questions to ask AVs.

Recommendation: Improve awareness of customer support services including the ILSFA call center. Assess channels by which this information is distributed to ensure it reaches potential participants

AV Challenge: AVs find the program "somewhat difficult" or "very difficult" to explain to participants.

Grassroots Educator Challenge: Grassroots educators noted that the Residential (Small) subprogram processes are time-consuming with lengthy timelines. While many Grassroots educators attempted to support community members throughout the process, they felt additional program support was needed.

"It felt like I was on a treasure hunt trying to find answers to the questions I had. A little more guidance would have been helpful."

– ILSFA Residential Solar (Small) Participant

Participation Process (Participant Acquisition)

Participant Challenge: Structural and electrical issues, along with the cost of repairs and upgrades, are barriers to participation in the Residential Solar (Small) program.

Recommendation: Continue to explore funding sources and grants that can pay for home repairs. Explore opportunities to braid funding for home repair as part of collaboration with other programs.

AV Challenge: AVs noted that when homes are not considered "solar ready," it can create significant financial burdens for participants.

Grassroots Educator Challenge: Grassroots educators noted some interested households are not able to participate in the Residential Solar (Small) subprogram because of structural or electrical issues in their homes.

Participant Experience

Program Process (Documentation)

Participant Success: Program participants said the income verification process was not challenging.

Recommendation: To better understand the experience with income verification, future qualitative research should include partial participants who showed interest but did not make it past this stage.

AV Mixed Feedback: A few AVs cited the income verification process as a drop-out point due to participants being unwilling to provide information or having more pressing priorities.

Grassroots Educator Mixed Feedback: Grassroots educators cited income verification as a drop-off point due to long wait times and the burden of providing documentation, although some said this process had gotten easier over time.

Participation Process (Post-Installation)

Participant Challenge: Participants found it challenging to understand their bills after installing solar, particularly when solar charges and credits appeared on separate statements.

Recommendation: Include resources on interpreting electric utility bills with and without solar on the website along with other educational materials.

Grassroots Educator Challenge: Grassroots educators also recognized this as a common challenge for participants.

Vendor Experience

Participation Process (Overall)

AV Challenge: AVs reported challenges with Elevate's communication including delays and non-responsiveness and inconsistent/contradictory or vague guidance, particularly with the AV Portal.

Recommendation: Provide more timely responses to both grassroots educators and AVs. Leverage Standardized Operating Procedures (SOPs) and other program documentation to provide consistent guidance.

Recommendation: Explore other resources to help these grassroots educators and AVs navigate the program, including guides, webinars, and legal guidance over the most complex requirements.

Grassroots Educator Challenge: Grassroots educators also noted unclear communication and slow response times as challenges, citing data entry into Salesforce as a particular barrier.

Program Administrator Challenge: Elevate noted staff turnover in PY5 and PY6 made program operations difficult.

Vendor Experience

Participation Process (Participant Acquisition)

AV Challenge: Financing remains one of the biggest challenges for AVs, especially for smaller companies.

Recommendation: Provide greater clarity and faster processing to alleviate AVs' financial strain and cashflow challenges while projects are being built.

Recommendation: Provide information and clearer guidance on available financing programs. Form partnerships with these financing programs to offer products specific to ILSFA

Program Processes (Part 1 and Part 2 Application)

AV Challenge: Submitting project documentation is challenging for most AVs, particularly due to the complexity and time-consuming nature of Part I and Part II applications.

Recommendation: Streamline processes and reduce bottlenecks for Part I and Part II applications. Vendors offered several suggestions to accomplish this, which are included in the report.

Participation Process (Part 1 and Part 2 Application)

AV Challenge: Overall usability of the portal received mixed feedback with significant opportunities for improvement identified.

Recommendation: Enhance the usability, design, and regular updates of the AV Portal.

Recommendation: Strengthen training and support for AVs to address knowledge gaps in the AV Portal and improve the feedback and inquiry process by introducing additional tools.

Job Training

AV Challenge: AVs found ILSFA job training requirements challenging primarily due to difficulty finding trainees. They also noted training gaps in technical and hands-on experience.

Recommendation: Provide more support and facilitation in connecting AVs with job trainers and trainees.

Job Trainer Challenge: Job trainers also expressed desire for more support connecting with AVs.

Job Trainee Success: Some trainees were able to find jobs with AVs through their program.

Introduction

ILSFA Program Overview

In 2017, revisions to Section 1-56(b) of the Illinois Power Agency (IPA) Act contained in the Future Energy Jobs Act (also known as FEJA or Public Act 99-0906) created the Illinois Solar for All (ILSFA) program to "include incentives for low-income distributed generation and community solar projects." The program objectives are to "bring photovoltaics to low-income communities in this state in a manner that maximizes the development of new photovoltaic generating facilities to create a long-term, low-income solar marketplace throughout this State, to integrate, through interaction with stakeholders, with existing energy efficiency initiatives, and to minimize administrative costs."

To accomplish this, FEJA originally created four subprograms, including:

- Low-Income Distributed Generation for on-site solar projects, which included incentives for small (1–4 unit) and large (5+ unit) residential projects.
- Low-Income Community Solar, for off-site solar projects.
- Incentives for Non-Profits and Public Facilities to do on-site projects.
- Low-Income Community Solar Pilot Projects with distinct rules and incentives.

In September 2021, the Climate and Equitable Jobs Act (also known as CEJA or Public Act 102-0662) took effect. Under CEJA, ILSFA includes the following subprograms:

- Low-Income Single-Family and Small Multifamily Solar (1–4 units), referred to in this report as the Residential Solar (Small) subprogram.
- Low-Income Large Multifamily solar (5+ units), referred to in this report as the Residential Solar (Large) subprogram.
- Incentives for Non-Profits and Public Facilities, referred to in this report as the Non-Profit/Public Facilities (NP/PF) subprogram.
- Low-Income Community Solar, referred to in this report as the Community Solar (CS) subprogram.

Key terms used in the ILSFA program:

Environmental Justice Community (EJC): A community area that has historically been affected by environmental health hazards and/or has been left out of dialogues that have direct impact on the quality of life of the community due to potential environmental and public health effects.

Income-Eligible: Households whose income does not exceed 80% of the area median income (AMI).

Photovoltaic (PV): A renewable electricity generation technology that provides electricity by converting photons from sunlight into electrical potential.

Renewable Energy Credit (REC): The environmental value of energy generated by renewable sources, including solar. A REC is issued when one megawatt-hour of electricity from a renewable energy source is added to the electrical grid.

Energy Sovereignty: A solar contract where an eligible low-income household or community organization owns, or is on a clear path to owning, a majority or full share of a PV facility or holding membership in a cooperative that owns it. Beginning in PY5, projects submitted to ILSFA could apply for energy sovereignty status.

Our evaluation covers program year 6 (PY6) of the ILSFA program, which ran from June 1, 2023, to May 31, 2024.

Changes to the Program

The most significant change to the ILSFA program in PY6 was the introduction of two pilot programs aimed at addressing participation rates in the Residential Solar (Small) subprogram.

- **Bright Neighborhoods:** The Bright Neighborhoods initiative was created to address barriers to serving participants in parts of the state historically underserved by the ILSFA program. These barriers include economic challenges that vendors face in trying to serve more rural parts of the state, difficulties raising awareness in parts of the state where participation is limited, and the complexity of the Residential Solar (Small) participation process, which can discourage potential participants from engaging with the program. To address these barriers, the Bright Neighborhoods initiative shifted marketing, outreach, and customer acquisition from the approved vendors (AVs) to the program administrator. To do this, the initiative identified three underserved areas and chose one AV for each area through a Request for Proposal process to serve customers in that area. The initiative also tested streamlined customer experience and tactics for increasing participation in the Residential Solar (Small) subprogram. This initiative began during PY6. Given its limited scope, the evaluation team did not specifically collect feedback on this initiative although we include any feedback we did receive in the Process Evaluation sections of the PY5 and PY6 annual evaluation reports. The program administrator published a report on the first year of the initiative, which is available on the ILSFA website.[1]
- **Home Repairs and Upgrades:** The Home Repairs and Upgrades initiative focuses on addressing home repairs and electrical upgrades needed to make eligible ILSFA homes solar ready. Income-eligible households may not have the financial ability to pay for or finance these upgrades prior to participating in the ILSFA program. To address this, the Home Repairs and Upgrades initiative makes additional incentives available to vendors to assist participants with these repairs. The initiative may also seek to connect participants with federal, state, or non-profit funding to address these repairs. Given the initiative's limited scope, the evaluation team did not specifically collect feedback on it although we include any feedback we did receive in the Process Evaluation section of the PY5 and PY6 annual evaluation reports. The program administrator published a report on the first year of the initiative, which is available on the ILSFA website.[2]

A more detailed explanation of other key program modifications implemented in PY6 can be found in the Process Evaluation section.

[1] https://www.illinoissfa.com/wp-content/uploads/2024/06/Bright-Neighborhoods-2023-2024-Program-Year-Report.pdf

[2] https://www.illinoissfa.com/wp-content/uploads/2024/07/Home-Repairs-and-Upgrades-Initiative-Final-Report.pdf

Program Year Six Summary

PY6 featured three separate initial project submission windows: 1) for the Residential Solar (Small and Large) subprograms, 2) for the NP/PF subprograms, and 3) for the CS subprogram. The Residential Solar (Small and Large) initial project submission window remained open for five weeks, while those for NP/PF and CS remained open for two weeks. In the Residential Solar (Small and Large) subprograms, submissions during the initial project submission window did not exceed the available budget, so the program administrator opened a rolling submission window in August 2023 and another one in September 2023 for the remainder of the program year. The program administrator also opened a rolling project submission window for the NP/PF subprogram in October 2023 and for the CS subprogram in January 2024 for the same reason. Additionally, the program administrator opened a rolling submission window for Environmental Justice Community (EJC) projects in the CS subprogram in February 2024.

For the Residential Solar (Small and Large) and CS subprograms, the incentive values for the approved projects never reached the budgeted amount of funds available for these subprograms, so the remaining funds were rolled over to the PY7 subprogram budgets. A small number of unawarded incentives were also rolled into PY7 for the NP/PF subprogram, although the amount was too small for the program to have used these funds in PY6.

Figure 1 summarizes key dates in the PY6 timeline.

Figure 1. Key Dates in PY6

Source: Illinois Solar for All 2023-2024 Program Year Calendar. https://www.illinoissfa.com/announcements/2023/05/calendar-for-2023-2024-program-year-announced/. Accessed February 20, 2025.

Table 1, below, shows a breakdown of the overall budget for the ILSFA PY6 subprograms, as well as the total number of approved projects, their system capacity, and their total inventive value.

Table 1. ILSFA PY6 Budget and Approved Projects by Subprogram

SUBPROGRAM	BUDGET	TOTAL APPROVED PROJECTS	TOTAL SYSTEM CAPACITY (MW)[b]	TOTAL APPROVED PROJECT INCENTIVE VALUE
Residential Solar (Small)	$34,616,535[a]	1,296	9.646	$31,992,496
Residential Solar (Large)	$34,616,535[a]	1	0.191	$350,099
Non-Profit/Public Facilities	$14,141,893	39	5.451	$13,889,309
Community Solar	$26,831,137	4	8.400	$19,480,180
Total PY6	$110,206,101	1,340	23.688	$65,712,084

[a] The budgets for the Residential Solar (Small) and Residential Solar (Large) subprograms were held separately for the first nine months of the program year, then combined.
[b] This information comes from the Illinois Solar for All Project Dashboard: June 2023 – May 2024, accessed February 20, 2025. Small discrepancies exist between these numbers and others included in this report because other report values are based on program tracking data. Program tracking data was pulled to reflect project stages and information as of the end of PY6 in order to reflect the state of the program during the evaluation period. Within the dashboard on the ILSFA website, capacity values are adjusted as projects submit Part II applications to reflect actual constructed capacity. Therefore, the capacity values in this table reflect the program data as of when the dashboard was accessed.
Sources: Illinois Solar for All Sub-Program Budgets for 2023-2024 Announced. https://www.illinoissfa.com/announcements/2023/07/sub-program-budgets-for-2023-2024/. Accessed February 20, 2025; Program Year 6 Tracking Data; Illinois Solar for All Project Dashboard: June 2023 – May 2024. https://www.illinoissfa.com/vendors/project-dashboard/?project_year=6 . Accessed February 20, 2025.

Evaluation Objectives and Approach

Program Year Six Evaluation Approach

Assessments included in the PY6 evaluation are as follows:

Impact assessment: The impact assessment models and quantifies program participation, costs, and impacts. In PY6, the team evaluated the following impacts:

1. **Energy impacts:** Evaluating energy impacts and peak demand savings.
2. **Bill impacts:** Evaluating participants' annual bill savings in dollars.
3. **Environmental impacts:** Evaluating reduced pollutants, including greenhouse gases, NO_x, and SO_2.
4. **Social impacts:** Evaluating the extent to which communities are directly benefiting from program investments.
5. **Workforce and economic impacts:** Evaluating workforce and economic impacts, including but not limited to, total GDP impacts, employment demand created, tax impacts, and reduced energy burden.

Process evaluation: The process evaluation evaluated program operations and processes through research with program actors and participants. The research team assessed the performance of Elevate as the program administrator, the experiences of various parties who help implement or interact with the Illinois Solar for All (ILSFA) program, and the experiences of who participate in and benefit from the program.

For the program year six (PY6) evaluation from June 2023 through May 2024, the program team conducted an impact assessment and a process evaluation.

Our evaluation consisted of primary data collection activities, program materials review, and tracking data review, which then supported our program impact and process evaluation. The program tracking data includes information about participants and projects in the ILSFA program and is maintained by the ILSFA implementer, Elevate, in a Salesforce database. More information about the tracking data can be found in *Appendix A. Methodologies*.

Table 2, below, presents the primary and secondary data sources that supported our analyses.

Table 2. PY6 Data Collection Activities and Sources

DATA SOURCE	TARGET COMPLETES	ACTUAL COMPLETES	OBJECTIVE	ANALYSIS SUPPORTED
1.a. Program Materials	NA	NA	Understand ILSFA goals, design, and any recent changes made to the program that would impact our research activities.	All assessments
1.b. Program Tracking Data	NA	NA	Assess whether the information necessary to complete the evaluation was available and evaluate it for completeness and accuracy.	All assessments
1.c. Program Administrator Interviews	Up to 6	4	Understand program design changes, delivery, and implementation successes and challenges.	Process evaluation
1.d. Participant Interviews and Focus Groups	Varied	39	Gain insight into the participant experience including program awareness, questions or concerns participants had, the installation process, and post-installation benefits and experience.	Process evaluation
Residential Solar (Small)	18	14		
Residential Solar (Large)	Census	1		
Non-Profit/Public Facilities	18	6		
Community Solar	18	18		
1.e. Approved Vendors (AVs) Survey and Interviews	7-8	10	Understand vendor experience with the ILSFA process, satisfaction with the program, and key barriers to program participation and the application process.	Process evaluation

We provide more detail on the methodologies for these activities in *Appendix A. Methodologies*.

Furthermore, we provide objectives, approach, and any limitations or considerations for the impact and processes analyses in the Detailed Findings chapter with any additional details included in

Appendix A. Methodologies. For activities supporting the process evaluation, we report both cross-cutting findings and those from individual data collection activities.

Participatory Evaluation

For PY6, the evaluation team continued accepting comments about the ILSFA evaluation on an ongoing basis through an email inbox: ILSFAEvaluation@IllumeAdvising.com and through a form on the ILSFA website.[3] However, we did not receive any additional feedback for the PY6 evaluation report beyond what was included in prior evaluation reports.

Below, we re-summarize comments that we received during prior year evaluations where we noted items that would be addressed in PY6. Each topic is summarized followed by information on the year we received it, and the last column includes how these comments were incorporated in the PY6 report:

COMMENT(S) THEME	SUMMARY OF COMMENT(S)	COMMENT(S) SOURCE	HOW COMMENT(S) WERE ADDRESSED
Participant Experience	Stakeholders wanted more information on the customer experience from participant focus groups and AV surveys. Specifically, stakeholders were interested in participants' experiences with income verification, billing, wait-times, and AVs who participate in and drop-out of the program.	PY4 Evaluation Planning Webinar	The team collected feedback from AVs and participants across subprograms for the PY6 evaluation and received feedback on the topics of interest. Findings are summarized in the Process Evaluation section of this report.
Program Geographic Reach	Stakeholders noted that the ILSFA program struggles to reach participants in central and southern Illinois due to the availability of AVs and grassroots educators in those regions and challenges serving customers in rural areas.	PY4 Evaluation Planning Webinar	The team has examined the geographic reach of ILSFA through the social impacts analysis across PY4-PY6. We also explored the geographic reach specifically of the Residential Solar (Small) subprogram through the Mid-Year Report on Residential Solar (Small) Subprogram: Barriers and Opportunities.[a] The team also considered geography when recruiting for participant data collection, ensuring members spoke to participants from across the state. Findings pertaining to PY6 can be found in the Social Impacts and Process Evaluation section of this report.

[3] https://forms.office.com/pages/responsepage.aspx?id=AWKQWor8WUKuHaEwaqCh69vwt4ofGmBDu8BgnjApTb9UMVJNWjFGUkxFUjJaUFU1NTRXV00wWlVTOSQlQCN0PWcu

COMMENT(S) THEME	SUMMARY OF COMMENT(S)	COMMENT(S) SOURCE	HOW COMMENT(S) WERE ADDRESSED
Material Accessibility	ILSFA materials are often inaccessible to non-English speakers and use technical language that can be difficult for a lay audience to understand. Grassroots educators and AVs struggle to educate customers due to the lack of translated materials.	PY4 Stakeholder Interviews	In the PY5 evaluation report, the evaluation team talked to grassroots educators about materials and strategies they use to raise awareness and educate participants about ILSFA. For the PY6 evaluation report, participants shared their understanding of the program, and AVs provided feedback on how easily they can explain it. Findings are summarized in the Process section of the PY5 and PY6 evaluation reports.
Residential (Small) Participation	Participation in the Residential Solar (Small) subprogram remains low, though it has increased since PY4, mainly due to a backlog of projects from one vendor. AVs cited complicated funding structures and bureaucratic challenges as deterrents, while stakeholders mentioned that the Residential Solar (Small) subprogram is difficult for customers to navigate.	PY4 Stakeholder Interviews	The evaluation team researched barriers to participation in the Residential Solar (Small) program in the Mid-Year Report on Residential Solar (Small) Sub-Program: Barriers and Opportunities.[a] The team also collected feedback from grassroots educators on barriers to participation across subprograms, including Residential Solar (Small) for the PY5 evaluation report. For the PY6 evaluation, the team talked to AVs, the program administrator, and participants to assess Residential Solar (Small) subprogram project financing, participation challenges, and efforts to increase engagement. Feedback from program actors can be found in the Process Evaluation sections of the PY4, PY5, and PY6 evaluation reports.
Consolidated Billing in Community Solar	A stakeholder promoting Community Solar (CS) noted that it would be helpful to receive more information on how adoption of consolidated billing was impacting communities.	PY4 Annual Report Webinar	The evaluation team estimated energy, bill, and environmental impacts associated with the CS subprogram in the PY4, PY5, and PY6 evaluations. Additionally, we spoke with CS participants about their experiences with billing. Findings are summarized in the Process Evaluation section of this report.
Participant Decision-Making Process	Stakeholders highlighted that Residential (Small) and CS represent different participation decisions for participants.	P4 Annual Report Webinar	The evaluation team conducted focus groups and interviews with participants from each subprogram in PY6. Findings are summarized in the Process Evaluation section of this report.
Program Advertising	Stakeholders suggested using media advertising to raise awareness of the program beyond grassroots educators and expressed interest in comparing ILSFA's advertising strategies to those of other programs like	PY4 Annual Report Webinar	The evaluation team discussed marketing strategies for PY6, and findings are included in the Process Evaluation section. However, we did not prioritize the program comparison in the PY6 report. We recommend this be considered for a future mid-year report.

COMMENT(S) THEME	SUMMARY OF COMMENT(S)	COMMENT(S) SOURCE	HOW COMMENT(S) WERE ADDRESSED
	the Supplemental Nutrition Assistance Program (SNAP) or the Low-Income Home Energy Assistance Program (LIHEAP).		
Job Trainee Requirements	Stakeholders raised concerns about the ILSFA job training requirement, noting that the three-year trainee eligibility limit poses challenges, especially for small AVs. They suggested increasing flexibility in trainee eligibility to ease compliance.	Online Comment Submitted During PY5 Evaluation	We spoke with AVs in PY6 to understand their perspectives on job trainee requirements. Findings are summarized in the Process Evaluation section of this report.
AV Portal	Stakeholders reported significant usability issues with the AV Portal, citing difficulties with its intuitiveness and challenges when uploading information. They requested a complete overhaul to enhance functionality, particularly concerning the AV directory.	PY4 Stakeholder Interviews and Online Comment Submitted During PY5 Evaluation	In the PY6 evaluation, the evaluation team collected feedback from AVs and participants about their specific experiences with the AV Portal. Findings are summarized in the Process Evaluation section of this report.

[a] https://www.illinoissfa.com/wp-content/uploads/2024/01/ILSFA_Mid_Year_Report_01_2024.pdf

Detailed Findings

This section summarizes detailed findings from the energy impacts, bill impacts, environmental impacts, jobs and economic impacts, social impacts, and process analyses.

For energy and environmental impacts, we report impacts for all program year six (PY6) approved projects. Approved PY6 projects are projects that applied for the Illinois Solar for All (ILSFA) program in PY6 and received Part I approval between June 1, 2023, and May 31, 2024 (including all subsequent project stages). For bill impacts, we report impacts for all PY6 energized projects, which are projects that applied for the ILSFA program in PY1 through PY6 and received Part II approval by May 31, 2024. We also show impacts for PY6 energized projects for energy and environmental impacts. For the jobs and economic analysis, we show projects energized from PY1 to PY5 and projects energized in PY6 separately. We refer to the projects energized in PY6 as new PY6 energized projects. In PY6, 10 projects fell into both the PY6 approved and PY6 energized project analysis categories: eight Residential Solar (Small) projects and two Non-Profit/Public Facilities (NP/PF) projects.

Key terms used to describe program impacts:

PY6 approved projects: Projects that applied for the ILSFA program in PY6 and have received Part I approval between June 1, 2023, and May 31, 2024 (including all subsequent project stages).

PY6 energized projects: Projects that applied for the ILSFA program in PY1 through PY6 and have received Part II approval by May 31, 2024 (including all subsequent project stages).

New PY6 energized projects: Projects that applied for the ILSFA program in PY1 through PY6 that received Part II approval between June 1, 2023, and May 31, 2024. This category excludes projects energized in prior program years.

Through our analyses, as well as in *Appendix E. PY4-PY6 Results Summary*, we include a comparison of trends spanning the evaluation period, PY4–PY6. These comparisons illustrate how program activity has evolved over time.

We also include updated results for PY4 in *Appendix F. PY4 Electricity, Bill, Environmental, Workforce, and Economic Impacts*. The evaluation team received updated program data between the PY4 evaluation report and the PY5 evaluation report. We also made updates to data handling procedures and methodological assumptions. These updates resulted in changes to our PY4 results. As such, the reissued PY4 results in this report replace those that are found in the PY4 evaluation report.

Electricity Impacts

The evaluation team estimated the electricity savings and coincident demand savings of PY6 approved projects and PY6 energized projects. These values represent the electricity generated by the solar systems installed through ILSFA. The research questions addressed by the electricity impact analysis are outlined in Table 3, below.

Table 3. Electricity Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Project Summary	What is the total number of approved and energized projects? What is the total capacity (kW_{AC}) of approved and energized projects? What is the average system cost per kW_{AC} of project capacity (approved and energized)?
Electricity Savings	How much electricity would be produced in a typical meteorological year (TMY) from approved and energized projects? [4]
Demand Savings	How much peak load would be reduced by the electricity generated by approved and energized projects?

Below, we summarize our key findings from this analysis.

Key Findings

FINDING 1

In PY6, ILSFA approved 1,340 projects (Part I approval) totaling 23.7 MW in new solar capacity across the four subprograms. The PY6 approved projects included 1,296 Residential Solar (Small) projects, one Residential Solar (Large) project, 39 NP/PF Distributed Generation, and four Community Solar (CS) projects. In PY6, the program also energized 10 approved projects. The remaining PY6 projects remain under development and will be energized in subsequent years.

FINDING 2

Across all PY1 to PY6 projects, 237 projects with 28.8 MW in solar capacity achieved Part II approval ("energized" status) by the end of PY6 on May 31, 2024. This included three projects in the Residential Solar (Large) subprogram, 134 projects in the Residential Solar (Small) subprogram, 89 projects in the NP/PF Distributed Generation subprogram, and 11 projects in the CS subprogram. The new CS projects increased energized CS capacity to 13.2 MW for a total capacity that's more than double the total capacity as of PY5.

[4] Typical meteorological year weather and solar radiation data is a widely used type of data that represents median weather conditions over a multiyear historical period.

FINDING 3

The evaluation team estimated how much PY6 energized projects helped to satisfy participant electricity demand on a day when the high temperature was nearly 100°F and electric grid loads reached their annual maximum values in the two independent system operator (ISO) regions in Illinois. ISO regions are different sections of the electric grid that control and monitor operation of the electrical power system in that portion of the state. Reducing load on the electrical grid during these times allows utilities to avoid purchasing high-cost wholesale electricity. The estimated system peak hour demand impacts of PY6 energized projects were 8.243 MW (PJM-ComEd, 4:00–5:00 p.m.) and 2.036 MW (MISO-Illinois-Zone 4, 6:00–7:00 p.m.), or 0.01% and 0.03% of the peak load in each region, respectively. While the peak hours of both ISO regions occurred on the same day (August 27, 2024), each ISO region reached its maximum demand during a different hour of the day.

Project Summary

Table 4 summarizes program participation by displaying the number of projects, total capacity (kW_{AC}), and average capacity per project for PY6 approved projects. The evaluation team calculated these metrics using program tracking data. The PY6 approved project capacity was approximately 23.7 MW with 65% of capacity from Distributed Generation projects and 35% from CS. There are notable differences in project sizes across the two groups: CS projects are larger by design to serve many households. Among PY6 approved projects, CS projects, on average, have roughly 280 times the capacity of Residential Solar (Small). Among Distributed Generation projects, the average size of NP/PF approved projects is approximately 18 times that of Residential Solar (Small) projects.

Table 4. Total and Average Capacity of **PY6 Approved** Projects

PROJECT TYPE		NUMBER OF PROJECTS	TOTAL PV CAPACITY (kW_{AC})	AVERAGE PV CAPACITY PER PROJECT (kW_{AC})
Distributed Generation	Residential Solar (Small)	1,296	9,644.6	7.4
	Residential Solar (Large)	1	197.5	197.5
	Non-Profit/ Public Facilities	39	5,453.9	139.8
	Total	**1,336**	**15,296.0**	**--**
Community Solar	**Total**	**4**	**8,400.0**	**2,100.0**
All Approved Projects		**1,340**	**23,696.0**	**--**

Table 5, below, presents the total number of approved projects and capacity in PY4, PY5, and PY6.

Total project capacity increased significantly in PY6, with a 36% increase from PY5. This was driven by a substantial increase in the number of approved Residential Solar (Small) projects (223 in PY5 and 1,296 in PY6). This project volume is attributable to a single approved vendor (AV) who had constructed these projects in previous years but did not submit them to the program until PY5 and PY6, with most of the project volume being approved in PY6.

Over time, the average size of approved Residential Solar (Small), Residential Solar (Large), and CS projects increased. The CS subprogram had the largest year-over-year average project size increase with the average size of approved projects increasing from 1,750 kW_{AC} in PY5 to 2,100 kW_{AC} in PY6. The average size of NP/PF decreased by 35% from PY5 (216.7 kW_{AC}) to PY6 (139.8 kW_{AC}).

Table 5. Total and Average Capacity of **PY4-PY6 Approved** Projects—All Subprogram Totals

METRIC	PY4	PY5	PY6
Number of Approved Projects	207	261	1,340
Total PV Capacity (kW_{AC})	14,351.8	17,452.5	23,696.0

Table 6 summarizes PY6 energized projects by number of projects, total capacity (kW_{AC}), average capacity per project, and average project cost per kilowatt of system size. There are 10 projects that fall into both the PY6 approved and PY6 energized project analysis categories (eight Residential Solar (Small) projects and two NP/PF projects).

Table 6. Total Capacity and Average Project Costs of **PY6 Energized** Projects

PROJECT TYPE		NUMBER OF PROJECTS	TOTAL PV CAPACITY (kW_{AC})	AVERAGE PV AC CAPACITY PER PROJECT (KW)	AVERAGE PROJECT COST PER AC KW
Distributed Generation	Residential Solar (Small)	134	847.4	6.3	$3,434
	Residential Solar (Large)	3	2,370.8	790.3	$2,929
	Non-Profit/ Public Facilities	89	12,413.0	139.5	$2,950
	Total	**226**	**15,631.2**	**--**	**--**
Community Solar	**Total**	**11**	**13,168.3**	**1,197.1**	**$2,882**
All Energized Projects		**237**	**28,799.5**	**--**	**--**

A three-year comparison of average project costs is presented in Table 7, below. The average project costs of all energized projects through PY6 increased slightly over the previous program year across all subprograms. Though previous program years had seen a trend in falling system costs in most subprograms, these new program year findings suggest that more recent (nominal) system costs have risen slightly. This trend is consistent with overall residential solar costs, which only decreased by $100/kW from 2022 to 2023 in real (inflation-adjusted) terms.[5] The projects' costs shown in Table 7 are nominal costs and do not include inflation adjustments.

Table 7. Average Project Cost per kW_{AC} of **PY4-PY6 Energized** Projects by Subprogram

SUBPROGRAM	PY4	PY5	PY6
Residential Solar (Small)	$3,521	$3,377	$3,434
Residential Solar (Large)	$2,368	$2,908	$2,929
Non-Profit/Public Facilities	$3,114	$2,936	$2,950
Community Solar	$3,405	$2,667	$2,882

Electric Energy Savings

This section presents the estimated first-year and lifetime electric energy savings by project type. Electric energy savings for photovoltaic (PV) systems are the kilowatt-hours generated by the PV systems installed through the program. The electricity generated from these projects displaces electricity from the grid. Table 8 and Table 9, below, present the first-year estimated electrical generation by project type for PY6 approved projects and PY6 energized projects, respectively. These tables also include the average first-year estimated energy savings per project and an estimated capacity factor.

The total first-year energy savings from PY6 approved projects is 40.5 GWh. About 60% of the savings come from Distributed Generation projects, and 40% come from CS projects. Among PY6 energized projects, estimated first-year electric energy savings are split nearly evenly between Distributed Generation (49%) and CS (51%) projects.

Overall estimated first-year capacity factors are in line with PV production expectations for fixed and tracking systems, respectively. Capacity factor is a metric of system utilization and is defined as the amount of energy generated during a given period divided by the amount of energy that would have been generated during that period assuming continuous output at the rated system size. Because PV systems do not generate electricity at night and daytime output varies with weather, annual capacity factors are expected to be approximately those presented in the table.

[5] Tracking the Sun: Pricing and Design Trends for Distributed Photovoltaic Systems in the United States, 2024 Edition, Lawrence Berkeley National Lab, August 2024 (https://emp.lbl.gov/sites/default/files/2024-10/Tracking%20the%20Sun%202024_Report.pdf)

Table 8. First-Year Estimated Electric Energy Savings of **PY6 Approved** Projects

PROJECT TYPE		ESTIMATED FIRST-YEAR ELECTRIC ENERGY SAVINGS (MWH)	NUMBER OF PROJECTS	AVERAGE ANNUAL ESTIMATED ELECTRIC ENERGY SAVINGS PER PROJECT (MWH)	AVERAGE ESTIMATED ANNUAL CAPACITY FACTOR (AC)
Distributed Generation	Residential Solar (Small)	15,186.4	1,296	11.7	18.1%
	Residential Solar (Large)	326.3	1	326.3	18.9%
	Non-Profit/ Public Facilities	8,921.3	39	228.8	18.5%
	Total	**24,434.1**	**1,336**	**--**	**--**
Community Solar	**Total**	**16,020.0**	**4**	**4,005.0**	**20.7%**
All Approved Projects		**40,454.0**	**1,340**	**--**	**--**

Table 9. First-Year Estimated Electric Energy Savings of **PY6 Energized** Projects

PROJECT TYPE		ESTIMATED FIRST-YEAR ELECTRIC ENERGY SAVINGS (MWH)	NUMBER OF PROJECTS	AVERAGE ANNUAL ESTIMATED ELECTRIC ENERGY SAVINGS PER PROJECT (MWH)	AVERAGE ESTIMATED ANNUAL CAPACITY FACTOR (AC)
Distributed Generation	Residential Solar (Small)	1,226.0	134	9.1	16.5%
	Residential Solar (Large)	4,754.4	3	1,584.8	19.4%
	Non-Profit/ Public Facilities	19,022.9	89	213.7	18.3%
	Total	**25,003.3**	**226**	**--**	**--**
Community Solar	**Total**	**26,249.2**	**11**	**2,386.3**	**22.2%**
All Energized Projects		**51,252.5**	**237**	**--**	**--**

The analysis presented here assumes that participants do not change their electric consumption. However, if participants do increase their electricity consumption after PV systems installation, there will be a reduction in electric energy savings impacts (along with environmental and billing savings impacts) relative to the assumption of no change in participant electric energy consumption. For reference, in 2022, the evaluation team analyzed household energy consumption outside of Illinois and found that many households increased their energy consumption following the installation of solar.[6] It is also important to note that the energy savings presented here are based on TMY weather estimates. If metered PV production data was available, more accurate estimates of energy savings would be possible.[7]

A three-year review of first-year estimated electric energy savings for approved projects is presented in Table 10, below. Total first-year estimated electric energy savings increased year-over-year by 22% in PY5 and again in PY6. In both years, the largest growth in energy savings occurred within the Residential Solar (Small) subprogram with 65% year-over-year growth in PY5 and 542% year-over-year growth in PY6.

Table 10. First-Year Estimated Electric Energy Savings (MWh) of **PY4-PY6 Approved** Projects

SUBPROGRAM	PY4	PY5	PY6
Residential Solar (Small)	1,429.9	2,364.6	15,186.4
Residential Solar (Large)	539.5	NA	326.3
Non-Profit/Public Facilities	9,366.3	11,331.8	8,921.3
Community Solar	15,855.2	19,364.0	16,020.0
Total	**27,191.0**	**33,060.3**	**40,454.0**

Demand Savings

Our team assessed demand savings to understand how the ILSFA program mitigates overall strain on the electric grid. Peak demand refers to a period when the strain on the grid is at its highest due to the demand for energy usage at that time. Peak coincident demand savings measure the amount of that demand that is offset by solar energy generated from systems installed through ILSFA.

By generating electricity during system peak hours, ILSFA projects allow the electric utility to avoid the purchase of high-cost wholesale energy. At the same time, the electric utility reduces its transmission and distribution losses during hours of high system congestion.

[6] https://verdantassoc.com/wp-content/uploads/IEPEC-2022_Residential-Solar-Consumption.pdf

[7] This information is not available for evaluation unless benefitting customer signs a release form of their data. For this reason, the data was not available for the PY6 evaluation. The evaluation team investigated whether annual REC reporting data could be used as a proxy for annual generation in the PY5 and PY6 evaluations. Due to possible misalignment of REC reporting and REC production this source of PV generation data was deemed unsuitable for impacts evaluation purposes.

The evaluation team estimated demand savings for two conditions: (1) the single hour of the year when grid loads reached their maximum value and (2) the savings coincident with the grid's top 100 peak hours.

Peak Hour Impacts

The evaluation team estimated impacts on PJM-ComEd and MISO-Illinois-Zone 4 annual system peaks using simulated PV generation values. PJM-ComEd and MISO-Illinois-Zone 4 are the two ISO regions in Illinois. ISO regions are different sections of the electric grid that control and monitor the operation of the electrical power system in that portion of the state. The PJM-ComEd ISO region covers the Chicago region and parts of northern Illinois, and the MISO-Illinois-Zone 4 region covers central and southern Illinois as well as the parts of northern Illinois not covered by the PJM-ComEd region.

Table 11, below, shows peak hour impacts by ISO region for PY6 approved and energized projects. The 2024 annual peaks for both ISO regions occurred on August 27, 2024, a day when high temperatures in the Chicago area approached 100°F. The PJM-ComEd peak occurred during the hour between 4:00 p.m. to 5:00 p.m., while the MISO-Illinois-Zone 4 peak occurred later, between 6:00 p.m. to 7:00 p.m. It is important to note that these are not the hours when ILSFA PV systems typically reach their highest output; it is typically during the middle of the day when irradiance peaks.

The estimated peak hour impacts for PY6 approved projects are equivalent to 0.03% of the 2024 PJM-ComEd peak load and 0.01% of the 2024 MISO-Illinois-Zone 4 peak load. The estimated impacts for PY6 energized projects are similar; differences are attributable to differences in the mix of PV system orientations. The estimated peak hour capacity factors for the MISO-Illinois-Zone 4 region are lower than those for the PJM-ComEd region because of the different timing of system peaks. The MISO-Illinois-Zone 4 peak occurred two hours later when solar radiation levels were lower than they had been two hours prior.

Table 11. Estimated Peak Hour Generation for **PY6 Approved and Energized** Projects

PROJECT GROUP	ISO REGION	NUMBER OF PROJECTS	ESTIMATED PEAK HOUR GENERATION (MW)	ESTIMATED PEAK HOUR CAPACITY FACTOR
Approved Projects	PJM-ComEd	1,251	6.040	45.4%
	MISO-Illinois-Zone 4	89	0.976	11.8%
Energized Projects	PJM-ComEd	176	8.243	43.1%
	MISO-Illinois-Zone 4	61	2.036	11.2%

Top 100 Peak Hours

The estimated PJM-ComEd and MISO-Illinois-Zone 4 peak hour coincident generation is a snapshot of the program's beneficial impacts. Table 12, below, shows the total estimated generation coincident with PJM-ComEd and MISO-Illinois-Zone 4 2024 top 100 hours, alongside estimated capacity factors during the top 100 hours for PY6 approved and energized projects. Looking at the top 100 hours of generation shows how the program benefits the grid over a longer period of time. These results for the top 100 hours are very similar to those presented above for the top hours, signifying that the top 100 hours tend to occur at similar hours of the day as the top hour.

Table 12. Estimated Generation Coincident with Top 100 Hours for **PY6 Approved and Energized** Projects

PROJECT GROUP	REGION	NUMBER OF PROJECTS	ESTIMATED TOP 100 HOURS GENERATION (MWH)	ESTIMATED TOP 100 HOURS CAPACITY FACTOR
Approved Projects	PJM-ComEd	1251	638.0	47.7%
	MISO-Illinois-Zone 4	89	346.1	31.4%
Energized Projects	PJM-ComEd	176	813.8	43.9%
	MISO-Illinois-Zone 4	61	477.1	31.5%

Bill Impacts

The evaluation team estimated two metrics to assess impacts to participant bills because of their participation in Illinois Solar for All (ILSFA): first-year electric bill savings and lifetime electric bill savings compared to participant costs. Table 13 shows the research questions addressed by the bill impacts analysis.

Table 13. Bill Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Bill Impacts	How much in bill savings can participants expect due to the energy produced by ILSFA projects? How do bill reductions compare to the participant's cost to acquire solar (represented as the ratio of lifetime costs to lifetime bill savings)?

The evaluation team calculated bill savings from energized projects by estimating the difference between a participant's electric bills with and without photovoltaic (PV) benefits. See *Appendix A. Methodologies* for additional details about the bill calculation methodology. For the lifetime view, we compared bill savings and the participants' costs to acquire solar PV (e.g., system costs, debt service payment, lease/PPA payments) over the 20-year estimated life of the system.

Below, we summarize our key findings from this analysis.

Key Findings

FINDING 1

On average, participants' first-year net utility bill savings (bill savings minus participant PV costs) are 36% to 87% percent of their total electric utility bills (assuming no PV).[8] Savings vary by subprogram: The average per-participant monthly net savings range from $55 to $106 for Residential Solar (Small and Large) participants. Non-Profit/Public Facilities (NP/PF) participants save an estimated average of $1,843 per month on their electricity costs. Community Solar (CS) participants were at the lower end of the range of net savings ($46.15) because CS participants receive credits for reduced supply charges but not the delivery or taxes/fees portion of the bill.

FINDING 2

The evaluation team estimated the total net present value (NPV) of lifetime net savings of energized projects at $61.7 million per year.

First-Year Electric Bill Savings

Table 14, below, shows the average first-year electric bill savings per participant by project type for PY6 energized projects, distinguishing between utility electric bill savings and net savings after accounting for costs of PV paid to vendors by participants. We express the results in terms of monthly averages across the year and calculate the net savings percentage with respect to the participant's total electric bill without PV. Note that this net savings percent metric is different than the savings percentage calculated for program savings requirements. The program savings requirement percent measures the ratio of the participants net bill savings (bill savings they realize through the program minus costs paid to the vendor) over the bill savings they realize through the program. Participants cannot pay more than 50% of the value of bill savings in costs to the vendor. By contrast, the net savings percentage used in this report calculates the ratio of modeled bill savings to the participant (bill savings realized through the program minus costs paid to the vendor) over their total pre-installation electricity bill, including costs due to delivery and taxes and fees.

Project size strongly influences bill savings; the largest projects produce the greatest electric bill savings. Other factors affecting electric bill savings include capacity factor, utility electricity prices,

[8] Note that this net savings percent metric is different than the savings percentage calculated for program eligibility. The program eligibility savings percent measures the ratio of the participants net bill savings (bill savings they realize through the program minus costs paid to the vendor) over the bill savings they realize through the program. Participants cannot pay more than 50% of the value of bill savings in costs to the vendor. By contrast, the net savings percentage used in this report calculates the ratio of modeled bill savings to the participant (bill savings realized through the program minus costs paid to the vendor) over their total pre-installation electricity bill, including costs due to delivery and taxes and fees.

and eligibility for full retail net metering benefits. Under full retail net metering, electricity generated by the PV system reduces several charges: supply, delivery, and taxes/fees. While Distributed Generation projects realize benefits of full retail net metering, CS project bill credits are limited to the supply portion of electricity costs only and do not include the distribution or taxes/fees portion of electricity bills. As a result of this limitation, CS projects have the lowest average net savings percentage (36.4%).

Table 14. First-Year Estimated Average Monthly Electric Bill Savings per Participant for **PY6 Energized** Projects

PROJECT TYPE		NUMBER OF PROJECTS	UTILITY MONTHLY ELECTRIC BILL SAVINGS	PV COSTS	NET SAVINGS	AVERAGE NET SAVINGS PERCENTAGE
Distributed Generation	**Residential Solar (Small)**	134	$111.90	$6.28	$105.62	87.5%
	Residential Solar (Large)	3	$65.69	$10.53	$55.16	71.5%
	Non-Profit /Public Facilities	89	$2,194.52	$351.85	$1,842.67	60.1%
Community Solar		11	$60.79	$14.65	$46.15	36.4%

Table 15, below, shows the first-year estimated average utility monthly electric bill savings for the past three program years. The year-over-year growth in the bill savings for the Residential Solar (Small) subprogram is largely driven by increasing electricity prices over time. The NP/PF subprogram's bill savings are driven both by increasing electricity prices and a wider variation (relative to residential projects) in electricity consumption at NP/PF sites prior to installing solar. The average bill savings of CS projects is affected by the total number of subscribers; systems of the same size that serve more customers provide lower bill savings to each individual customer.

Table 15. **PY4-PY6 Energized** Projects First-Year Estimated Average Utility Monthly Electric Bill Savings by Subprogram

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	$86.19	$97.69	$111.90
Residential Solar (Large)	$58.10	$58.49	$65.69
Non-Profit/Public Facilities	$1,525.15	$2,050.35	$2,194.52
Community Solar	$41.52	$91.28	$60.79

These bill savings estimates are approximate due to the limited information available regarding bills. We could improve the accuracy of the bill savings estimates if the following information was available: the individual's annual energy consumption prior to installation (monthly or hourly would be even better) and the individual's billing rate, all in a machine-readable format. Additionally, energy savings estimates based on metered PV performance would improve the accuracy of bill estimates.

Lifetime Electric Bill Savings Compared to Participants' Costs

Table 16, below, shows the NPV of lifetime electric bill savings and participants' costs by project type with net savings calculated as the difference between the two. The costs represent a participant's payment (total, per month, or per kWh) under their purchase agreement, lease agreement, power purchase agreement (PPA), or subscriber agreement over the duration of their contract. The table also includes a ratio of the lifetime participant costs (in NPV) to lifetime participant bill savings (in NPV).[9] The results are based on the assumption of a 0.5%/yr PV performance degradation rate.[10] The PV performance degradation rate is an assumption, representing that the performance of solar panels will decline over time due to factors such as panel cleanliness, maintenance, and general wear and tear.

We estimate the total NPV of lifetime utility electric bill savings of energized projects to be $81.1 million and the NPV of lifetime participant PV costs to be $14.6 million. Overall, this results in a ratio of costs to electric bill savings of 0.18, indicating that the lifetime bill savings are nearly five times greater than the lifetime participant costs.

The CS projects had the highest participant PV cost-to-utility-electric-bill-savings ratio at 0.29. While CS projects tend to have relatively high-capacity factors, electric utilities calculate bill credits based only on the supply portion of the electric utility bill. All else equal, this will tend to make costs larger in proportion to benefits when comparing to project types where participants receive the full retail net metering value for PV generation. Residential Solar (Small) projects had the lowest participant PV cost-to-utility-bill-savings ratio at 0.03. Lower cost-to-utility-bill-savings ratios indicate higher net savings, all else equal. These projects had the lowest ratio because most of these projects had $0 payment terms under their purchase agreement, lease agreement, power purchase agreement, or subscriber agreement (82% of projects), meaning they had no up-front costs or monthly fees.

[9] Note that this ratio of cost to bill savings is calculated over the 20-year estimated lifetime of the system. This metric is different than the savings percentage calculated for program eligibility, which is estimated over the customer's contract term.

[10] IPA uses an annual degradation rate of 0.5% for the purposes of program planning. We additionally model results with a 1.36% degradation rate in *Appendix E. PY4-PY6 Results Summary*.

Table 16. Net Present Value of Utility Electric Bill Savings and PV Costs of **PY6 Energized** Projects by Type

PROJECT TYPE	PROJECT TYPE	NUMBER OF PROJECTS	NPV LIFETIME UTILITY ELECTRIC BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY ELECTRIC BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Distributed Generation	**Residential Solar (Small)**	134	$2,877,071	$91,977	$2,785,094	0.03	110
	Residential Solar (Large)	3	$10,423,194	$1,968,882	$8,454,312	0.19	1
	Non-Profit /Public Facilities	89	$37,001,520	$3,592,396	$33,409,125	0.10	4*
	Total	226	$50,301,786	$5,653,254	$44,648,531	0.11	115
Community Solar	**Total**	11	$30,834,453	$8,918,335	$21,916,118	0.29	6
All Energized Projects		237	$81,136,239	$14,571,589	$66,564,650	0.18	121

*The customer payment terms were not available for one NP/PF project since the approved vendor (AV) and the customer were the same entity. However, since the total renewable energy credit (REC) incentives for this project were greater than the total project cost, the customer cost for this project is modeled as a $0 payment.

We show the NPV of utility bill savings and participant's PV costs by sector and ownership type in Table 17, below, for Distributed Generation projects, assuming a PV performance degradation rate of 0.5%/yr. For Residential Solar (Small and Large) projects, the leased projects had the lowest cost to savings ratio (0.01). This is because 89% of these projects had $0 payments on their contract terms. The Residential subprogram PPA projects had a cost-to-savings ratio of 0.20.

Ownership models in the ILSFA program:

Lease: Participants lease the project. The project is on the participant's property but owned by someone else.

Power Purchase Agreement (PPA): Participants purchase electricity generated by the solar project through a PPA. The project is on the participant's property but is owned by someone else.

Purchase: Participants purchase the solar project outright. The participant may take out a loan to finance the purchase.

The NP/PF projects with a lease/PPA payment structure had a much lower proportion of projects with $0 payments (one PPA and no lease projects). The savings ratios for NP/PF are all less than 0.12.

Table 17. Net Present Value of Electric Bill Savings and Cost by Sector and Ownership Type of **PY6 Energized** Distributed Generation Projects

SECTOR	OWNERSHIP TYPE	NUMBER OF PROJECTS	NPV LIFETIME UTILITY ELECTRIC BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY ELECTRIC BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Residential (Small and Large)	**Lease**	95	$1,987,923	$26,559	$1,961,363	0.01	85
	PPA	30	$9,939,528	$1,987,841	$7,951,687	0.20	23
	Purchase	12	$1,372,814	$46,458	$1,326,356	0.03	3
Non-Profit/ Public Facilities	**Lease**	15	$3,308,301	$347,896	$2,960,405	0.11	0
	PPA	68	$29,702,629	$2,892,436	$26,810,193	0.10	1
	Purchase	6	$3,990,591	$352,064	$3,638,527	0.09	3

Environmental Impacts

The evaluation team estimated the environmental impacts of program year six (PY6) approved projects and energized projects. We calculated the emission impacts as the difference between the emissions generated by the program photovoltaic (PV) systems and baseline emissions that would have occurred in the absence of the Illinois Solar for All (ILSFA) program. The results presented here are based on the modeled electricity impacts, as described in the methodologies appendix (*Appendix A. Methodologies: Energy Impact Analysis*). The research questions addressed by the environmental impact analysis are listed in Table 18, below.

Table 18. Environmental Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Environmental Impacts	What are the first-year and lifetime reduction of emissions associated with approved and energized ILSFA projects?

Below, we summarize our key findings from this analysis.

Key Findings

FINDING 1

The evaluation team estimates the first-year avoided emissions of PY6 approved projects to be equal to 52.4 million pounds CO_2e, 29.5 thousand pounds of NO_x, and 33.7 thousand pounds of SO_2. Assuming a 1.36%/yr PV performance degradation rate and a 3% (real) discount rate, we estimate the total lifetime avoided emissions to be equal to 292 million pounds CO_2e, 338 thousand pounds of NO_x, and 386 thousand pounds of SO_2.

FINDING 2

The evaluation team estimates the first-year avoided emissions of PY6 energized projects to be equal to 66.3 million pounds CO_2e, 37.3 thousand pounds of NO_x, and 42.6 thousand pounds of SO_2. Assuming a 0.5%/yr PV performance degradation rate and 3% (real) discount rate, we estimate total lifetime avoided emissions to be equal to 307 million pounds CO_2e, 361 thousand pounds of NO_x, and 412 thousand pounds of SO_2.

First-Year and Lifetime Avoided Emissions

We estimated avoided emissions using the National Renewable Energy Laboratory (NREL) Cambium dataset of marginal CO_2e emissions rates[11] and marginal CO_2e, NO_x and SO_2 emissions rates from the U.S. Environmental Protection Agency's (EPA) AVoided Emissions and geneRation Tool (AVERT).[12] We calculated emissions impacts as the product of marginal emissions rates and estimated PV generation. Our estimates of environmental impacts would be more accurate if metered PV production data was available.

Using AVERT data, we estimated first-year avoided CO_2e emissions of PY6 approved projects equal to 52.3 million pounds, which corresponds to an average rate of 1,294 pounds CO_2e per MWh (energy production from Table 8). We estimated reductions of NO_x emissions (29.5 thousand pounds) and SO_2 emissions (33.7 thousand pounds) using marginal emissions rates from AVERT. Table 19 shows the distribution of estimated emissions impacts by project type.

[11] https://www.nrel.gov/analysis/standard-scenarios.html

[12] https://www.epa.gov/avert

Table 19. **PY6 Approved** Projects Estimated First-Year Avoided Emissions per NREL Data

PROJECT TYPE		FIRST YEAR ESTIMATED AVOIDED LBS OF CO_2E	FIRST YEAR ESTIMATED AVOIDED LBS OF NO_X	FIRST YEAR ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	17,522,252	8,372	9,422
	Residential Solar (Large)	368,846	170	191
	Non-Profit/ Public Facilities	12,734,535	8,000	9,227
	Total	**30,625,632**	**16,542**	**18,840**
Community Solar	**Total**	**21,728,231**	**12,927**	**14,846**
All Approved Projects		**52,353,863**	**29,469**	**33,686**

For PY6 energized projects, we estimate that first-year operations reduce CO_2e emissions by 66.3 million pounds, NO_x emissions by 37 thousand pounds, and SO_2 emissions by 42.6 thousand pounds. Table 20 shows the distribution of estimated emissions impacts by energized project type. Average NO_x and SO_2 emissions reductions rates are 0.73 lbs/MWh and 0.83 lbs/MWh, respectively (calculated using the energy production values in Table 9).

Table 20. **PY6 Energized** Projects Estimated First-Year Avoided Emissions

PROJECT TYPE		FIRST YEAR ESTIMATED AVOIDED LBS OF CO_2E	FIRST YEAR ESTIMATED AVOIDED LBS OF NO_X	FIRST YEAR ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	1,394,574	651	730
	Residential Solar (Large)	5,374,044	2,480	2,781
	Non-Profit/ Public Facilities	24,922,902	14,242	16,301
	Total	**31,691,519**	**17,373**	**19,812**
Community Solar	**Total**	**34,616,038**	**19,936**	**22,834**
All Energized Projects		**66,307,558**	**37,309**	**42,646**

Table 21 shows the lifetime emissions impacts estimates by project type for PY6 approved projects using PV degradation rates of 0.50%/yr.[13] The emissions rate assumed for the first year was obtained from AVERT, while emissions rates forecast for future years are from NREL's Cambium dataset.

We used a discount rate of 3% (real) to calculate these values. These projects are estimated to reduce CO_2e emissions by 307 million pounds, NO_x emissions by 361 thousand pounds, and SO_2 emissions by 412 thousand pounds.

Table 21. **PY6 Approved** Projects Estimated Lifetime Avoided Emissions per NREL Data

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	96,000,458	102,517	115,364
	Residential Solar (Large)	1,987,189	2,084	2,337
	Non-Profit/ Public Facilities	77,957,456	97,952	112,986
	Total	**175,945,103**	**202,554**	**230,687**
Community Solar	**Total**	**131,147,537**	**158,286**	**181,788**
All Approved Projects		**307,092,640**	**360,840**	**412,475**

Table 22 shows the estimated emissions impacts by project type for energized projects.

Table 22. **PY6 Energized** Projects Estimated Lifetime Avoided Emissions per NREL Data

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	7,581,758	7,967	8,943
	Residential Solar (Large)	29,643,926	30,369	34,049
	Non-Profit/ Public Facilities	146,486,792	174,383	199,596
	Total	**183,712,476**	**212,719**	**242,588**

[13] IPA uses an annual degradation rate of 0.5% for the purposes of program planning. We additionally model results with a 1.36% degradation rate in *Appendix E. PY4-PY6 Results Summary*.

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
Community Solar	Total	206,486,747	244,113	279,596
All Energized Projects		390,199,223	456,832	522,184

Impact Equivalencies

To help understand the magnitude of the energy and environmental estimated impacts, the evaluation team calculated estimates of equivalent actions that would reduce the same amount of energy or CO_2 emissions as the ILSFA PV first-year project impacts. Table 23 shows these impact equivalents.

Table 23. Estimated First-Year Impact Equivalents for **PY6 Approved Projects**

EQUIVALENT IMPACT	PY6 APPROVED PROJECTS	PY6 ENERGIZED PROJECTS
Number of homes powered for a year	5,280	6,690
Number of cars taken off the road for a year	3,428	4,342

The average annual amount of electricity sold to residential customers in Illinois was 7,662 kWh in 2023.[14] Therefore, the first-year energy savings from PY6 approved projects is equivalent to the energy consumption of 5,280 homes. The first-year energy savings of PY6 energized projects is equivalent to the energy consumption of 6,690 homes.

The reduction in CO_2 emissions from program projects can also be considered in terms of the number of cars taken off the road. The EPA estimates that the average CO_2 emissions per vehicle per mile in 2024 was 514 grams.[15] The U.S. Department of Transportation estimates that the average annual miles driven per driver is 13,476 miles.[16] Therefore, the average vehicle emits 6,926,664 grams of CO_2 per year, or 15,271 pounds. The first-year estimated CO_2e emissions reductions of PY6 approved projects is equivalent to taking 3,428 cars off the road. The first-year estimated CO_2e emissions reductions of energized projects is equivalent to taking 4,342 cars off the road.

[14] Illinois Commerce Commission Comparison of Electric Sales Statistics for 2023 and 2022 (2024 was not available at time of reporting).

[15] U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personal communication, Jan. 15, 2025: https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and

[16] https://www.fhwa.dot.gov/ohim/onh00/bar8.htm

A three-year comparison of first-year impact equivalencies of approved projects is found in Table 24, below. As the first-year energy savings estimates of approved projects increase year-over-year, so do the impact equivalents. By contrast, the first-year avoided CO_2e emissions estimates decreased in PY6 due to a decrease in emissions factors that accelerated faster than the increase in project capacity. For this reason, the number of cars taken off the road estimated for PY6 approved projects did not increase over PY5.

Table 24. Estimated First-Year Impact Equivalents of **PY4-PY6 Approved** Projects

EQUIVALENT IMPACT	PY4	PY5	PY6
Number of homes powered for a year	3,285	4,315	5,280
Number of cars taken off the road for a year	2,704	3,496	3,428

Workforce and Economic Impacts

This section considers the impact of the Illinois Solar for All (ILSFA) program's implementation on the Illinois workforce, as well as other economic impacts.

As program participants gain access to new distributed solar power under the ILSFA program, the awarded funds go to support a variety of activities. These activities include site inspections and planning for installation, purchase of solar panels, purchase of other necessary construction materials, and installation of the panels. Additionally, program participants benefit from on-bill energy cost savings once the new solar systems are energized. While some of the economic impacts created by ILSFA's activities are unlikely to create significant economic impacts within Illinois (such as the manufacturing of solar panels, which largely takes place overseas), other impacts, such as the sourcing of construction materials and installation activities, will take place locally and have an impact on the local economy.

Below, we summarize our key findings from this analysis.

Key Findings

FINDING 1

The modeled GDP impact of program year six (PY6) newly energized projects (projects energized during PY6, excluding those energized in previous program years) totaled over $67 million, of which more than $37 million came from investments in Community Solar (CS) projects. As was the case in PY5, CS investments made up the largest portion of spending and associated economic impacts in PY6.

FINDING 2

The largest share of modeled spending occurred in the Northeast and West Central Illinois program regions on CS and Non-Profit/Public Facilities (NP/PF) projects and supported large employment and GDP impacts in these areas. New PY6 energized project spending in the Northeast region resulted in modeled indirect impacts in the that area, and spending in the central and southern parts of the state also resulted in modeled indirect impacts in northern Illinois. This is consistent with results from previous program years and suggests continued reliance on Chicago and its suburbs for construction inputs.

FINDING 3

Across the ILSFA projects newly energized in PY6, the economic model estimates that approximately one-third (31%) of total project costs went to hiring in-state labor related to project installations.

FINDING 4

Almost 60% of modeled state tax impacts from program operations for newly energized projects in PY6 came from production and import taxes as well as corporate taxes, meaning participating households enjoy the benefits of ILSFA but do not bear the primary tax burden. In fact, households with an annual income of less than $50,000 a year shouldered less than 1% of the overall state tax burden from program activities. For federal taxes, employee compensation taxes made up the largest share of the tax burden with a modeled impact of $1.4 million.

Detailed Results

Given the range of possible economic impacts and their potential relevance to the Illinois geography, we assessed two high-level economic contributions of the ILSFA program: near-term investments constructing and installing new solar infrastructure as well as ongoing energy bill savings following program participants' resulting access to affordable solar power. To measure these two economic effects, we aimed to answer the research questions summarized in Table 25.

Table 25. Workforce and Economic Impacts Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Near-Term Employment Impacts	How is near-term employment affected by spending on ILSFA projects?
New Employee Income	What portion of ILSFA's investments directly or indirectly become local employee wages?
Contribution to GDP	What is the total amount of additional value added to in-state GDP?

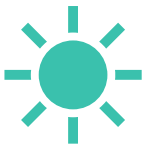
CATEGORY	PRIMARY RESEARCH QUESTIONS
New Household Savings Spending Patterns	Where in the economy do households spend their on-bill savings?
Impacts on Taxes	What are the changes in collected taxes resulting from program spending?

This analysis makes use of the IMpact analysis for PLANning (IMPLAN) input/output economic model using ILSFA program data inputs to estimate the workforce and economic impacts described above. IMPLAN approximates a multisectoral cash flow model of the economy with the ability to disaggregate by geography (state, county, etc.). Essentially, the model tracks dollars as they are spent in one economic sector (e.g., hospitals) and in turn generates additional spending in other related sectors (e.g., healthcare supplies).

For the purposes of this analysis, we use IMPLAN to track the effects of new spending within the Illinois solar industry and subsequent ripple effects throughout the state's economy. For each dollar of new program spending, IMPLAN estimates new demand for employment, new employee compensation, impacts on taxes, and other changes.

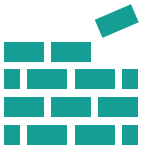
Where possible, we show metrics disaggregated by ILSFA program region. For this analysis, IMPLAN is configured to accept new investments aligned with the ILSFA program regions while accounting for the fact that new spending in one region will also cause spillover impacts in nearby regions. For example, a project in the East Central region may rely on some labor or materials from the adjacent West Central region. Out-of-state impacts are not captured as a part of this analysis.

IMPLAN also differentiates three different types of economic impact: direct, indirect, and induced effects, which differentiate the ways an investment (i.e., an ILSFA project) can affect the local economy. These effects are defined as follows:



Direct Effects

New demand for employment that is a direct result of program-funded activities and investment dollars including, for example, the installation of new solar arrays.



Indirect Effects

Employment and dollars that are generated by changes in supply chain demand due to the product, such as the purchase of tools, materials, and other inputs that are necessary for completing the construction of ILSFA projects and are produced or provided by companies located in Illinois.

Induced Effects

Changes in expenditure driven by newly earned income following new employment in the direct and indirect sectors or by household savings resulting from lower energy costs. For example, a new employee in the solar installation field might spend part of their pay on a haircut or at a restaurant, contributing to demand for employment and products in those sectors.

The following sections outline the results of this IMPLAN analysis broken out based on the two high-level economic contributions of ILSFA: near-term solar installations and ongoing energy bill savings.

Total Near-Term Impacts

Levels of modeled economic impact roughly correspond to the number of projects as well as the overall level of direct project costs associated with each program region. This analysis focuses specifically on projects newly energized in PY6, herein referred to as new PY6 energized projects. Near-term impacts refer to impacts that occur within a year of spending. These projects may have applied for the program in any year from PY1 to PY6 but received Part II approval during PY6 (June 1, 2023, to May 31, 2024), meaning projects were fully constructed, connected to the grid, and had received renewable energy credit (REC) payout from the program. Since economic impacts largely occur during project construction, these results reflect the fully realized economic and workforce impacts of ILSFA projects. The core PY6 analysis does not include projects energized in earlier program years, but we include them for comparison purposes in Table 26, Figure 2, and Figure 3.

Table 26 details modeled GDP and employee compensation impacts by project type for direct, indirect, and induced impacts. We show the total impacts by project type, and the statewide total reflects the full dollar amount of economic impacts for the state of Illinois resulting from new PY6 energized project spending. PY6 marked a significant uptick in spending on NP/PF projects, which rippled into sizable GDP and employee compensation impacts. The total modeled GDP impact from PY1 to PY6 totals over $130 million.

Table 26. Modeled GDP and Employee Compensation Impacts by Project Type for **New PY6 Energized Projects**

IMPACT TYPE	PROJECT TYPE		EMPLOYEE COMPENSATION	GDP IMPACTS
Direct	Distributed Generation	Residential Solar (Small)	$210,000	$650,000
		Residential Solar (Large)	$20,000	$70,000

IMPACT TYPE	PROJECT TYPE		EMPLOYEE COMPENSATION	GDP IMPACTS
		Non-Profit/ Public Facilities	$5,280,000	$16,780,000
	Community Solar		$7,030,000	$22,350,000
Indirect	Distributed Generation	Residential Solar (Small)	$50,000	$210,000
		Residential Solar (Large)	$10,000	$20,000
		Non-Profit/ Public Facilities	$1,400,000	$5,420,000
	Community Solar		$1,860,000	$7,220,000
Induced	Distributed Generation	Residential Solar (Small)	$70,000	$240,000
		Residential Solar (Large)	$10,000	$20,000
		Non-Profit/ Public Facilities	$1,740,000	$6,050,000
	Community Solar		$2,320,000	$8,060,000
Total	Distributed Generation	Residential Solar (Small)	$330,000	$1,100,000
		Residential Solar (Large)	$30,000	$110,000
		Non-Profit/ Public Facilities	$8,420,000	$26,260,000
	Community Solar		$11,210,000	$37,630,000
	Statewide Total		**$19,990,000**	**$67,100,000**

Table 27, below, compares the total investments in energized ILSFA projects from PY1 to PY5 with investments in projects newly energized in PY6. New CS projects in the East Central region made up a significant portion of program spending in PY5, leading to this region having the highest project spending through PY5. In contrast, new energized project spending in PY6 reflected higher investment in Northeast and West Central Illinois on both CS and NP/PF projects.

Furthermore, project spending on newly energized projects in PY6 exceeded project spending in all other years combined, showing the continued acceleration of the ILSFA program. Notably, more than half of newly energized project spending in PY6 was on six CS projects across Cook County, Northwest and West Central Illinois, which bolster affordable energy for households in urban population centers as well as suburban and rural downstate residents.

Note that one vendor submitted several projects to the program in PY6 that had already been constructed in previous years. Because the PY6 newly energized project definition uses Part II application approval to capture energized date, these projects and their associated impacts are captured as part of the PY6 evaluation impacts, reflecting when projects were accepted into the program. However, the actual construction spending may have occurred in earlier program years.

Table 27. **New Energized** Projects and Actual Project Spending

REGION	PROJECTS NEWLY ENERGIZED IN PY1-PY5	PROJECT SPENDING IN PY1-PY5	PROJECTS NEWLY ENERGIZED IN PY6	PROJECT SPENDING IN PY6
Cook County	87	$8,067,394	21	$6,595,415
Northeast	40	$4,924,652	15	$14,340,577
Northwest	15	$10,617,195	6	$4,103,477
East Central	20	$12,047,579	2	$310,100
West Central	7	$2,145,783	14	$13,261,411
South	6	$1,739,933	4	$1,239,336
Total	175	$39,542,536	62	$39,850,316

The injection of project spending in the West Central and Northeast regions increased demand for workers and worker compensation overall. Figure 2 and Figure 3, below, compare the total employment impacts and the employee compensation for new PY6 energized projects and new PY1–PY5 energized projects. As with project spending, new PY6 energized projects have the highest impacts in the Northeast and West Central regions. Note that the employment impacts and spending impacts in this section can be spread out in different ways across the state (i.e., spending in one region does not directly translate to a proportional employment impact in that region or indirect/induced impacts in that region).

Figure 2. Total Modeled Employment Impacts of **New Energized** Projects Across Project Years

Figure 3. Total Modeled Employee Compensation from **New Energized** Projects Across Project Years

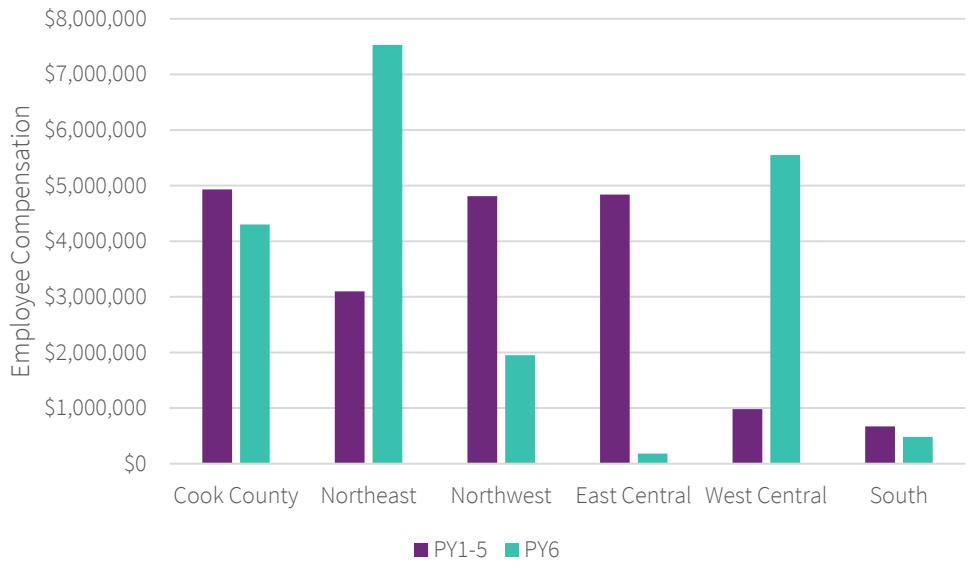
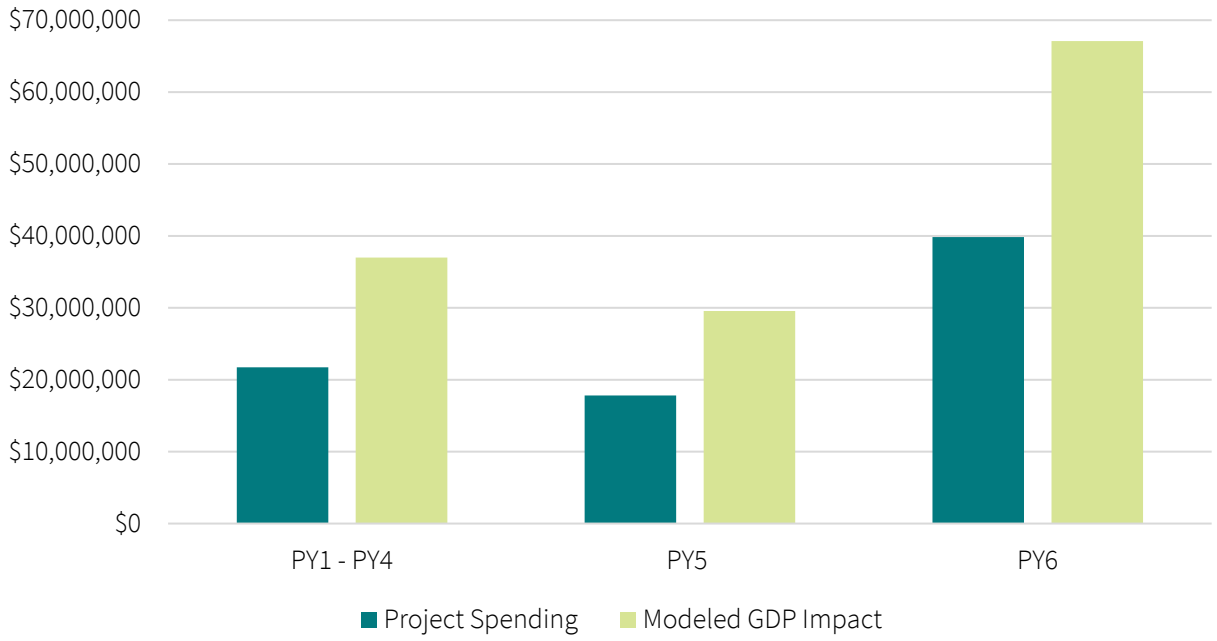


Figure 4, below, shows the growth in project spending and modeled GDP impacts by project year. Spending and impacts in PY6 exceed both PY1 to PY4 and PY5. Overall, ILSFA projects have had a modeled GDP impact of over $133 million from direct investments of almost $80 million.

Figure 4. Project Spending and Modeled GDP Impacts by Project Year for **New Energized** Projects



Direct Impacts

Direct impacts include those resulting from the actual installation of solar panels and any related development activities. Table 28 details the impact from direct effects for each of the ILSFA regions. The impacts measured are changes to:

- Total employee compensation: measures wages earned by employees in jobs created by direct impact
- Impacts on GDP: quantifies new industry spending across activities related to solar installation

Across the ILSFA projects newly energized in PY6, the model estimates that approximately 31% of the total project costs went to hiring in-state labor related to project installations. The highest employee compensation and GDP impacts are focused on the Northeast and West Central regions, which aligns with the high concentration of project spending in those regions.

Table 28. Incremental Modeled Direct Impacts of **New PY6 Energized** Projects by Program Region

REGION	MODELED EMPLOYEE COMPENSATION	DIRECT PROJECT COST IMPACTS TO GDP
Cook County	$2,100,000	$6,600,000
Northeast	$4,870,000	$14,340,000
Northwest	$1,270,000	$4,100,000
East Central	$90,000	$310,000
West Central	$3,870,000	$13,260,000

REGION	MODELED EMPLOYEE COMPENSATION	DIRECT PROJECT COST IMPACTS TO GDP
South	$340,000	$1,240,000
Total	$12,540,000	$39,850,000

Indirect Impacts

As seen below in Table 29, indirect impacts (i.e., the "ripple effects" of purchasing supplies and services in Illinois to support project construction) have smaller increases for employment demand, wages, and GDP than direct impacts. These effects come from more subtle changes in demand for tools, materials, and other inputs needed to construct new solar installations, and they are separate from (and can be added to) the direct effects. In the context of indirect impacts, GDP contributions can be interpreted as additional upstream supply chain spending to support direct installation activities.

The Northeast region has the highest portion of indirect impacts to GDP and employee compensation. While the West Central region had much higher levels of new PY6 energized project spending than Cook County, the indirect effects spilled into Cook County, indicating that construction inputs to projects constructed in other regions rely heavily on that region.

Table 29. Incremental Modeled Indirect Impacts of **New PY6 Energized** Projects by Program Region

REGION	MODELED EMPLOYEE COMPENSATION	INDIRECT PROJECT COST IMPACTS TO GDP
Cook County	$950,000	$3,150,000
Northeast	$1,210,000	$4,480,000
Northwest	$320,000	$1,320,000
East Central	$50,000	$240,000
West Central	$730,000	$3,320,000
South	$60,000	$360,000
Total	$3,320,000	$12,870,000

Induced Impacts

Induced impacts represent the smallest set of impacts in dollar value, but these impacts often represent the most significant reach within the communities served by the ILSFA program. This is because they reflect the local economic impacts of spending the money earned by those employed in the construction of the projects. Table 30, below, shows these induced impacts, which occur in a broad range of industries where wages are spent, including housing, retail, and healthcare, and they reflect the increased need for jobs (e.g., employees in retail or services) as well as the demand for products and services themselves (e.g., food and medicine).

As before, the induced impacts are concentrated in the Northeast and West Central regions, though Cook County also has a high level of induced impacts. For the most part, induced spending stays within the same region as where the project's spending occurred; however, Cook County attracts some additional consumer spending, which can be explained by a higher cost of living and a higher population in this area. This is consistent with the results seen in prior program years.

Table 30. Incremental Modeled Induced Impacts of **New PY6 Energized** Projects by Program Region

REGION	TOTAL MODELED EMPLOYEE COMPENSATION	ONE-TIME INDUCED IMPACTS TO GDP
Cook County	$1,250,000	$3,720,000
Northeast	$1,460,000	$5,020,000
Northwest	$360,000	$1,320,000
East Central	$40,000	$170,000
West Central	$950,000	$3,760,000
South	$90,000	$380,000
Total	$4,150,000	$14,370,000

Incremental Modeled Employment Impacts

Total employment impact approximates the total demand for employees in Illinois in PY6 from program-funded direct activities. The employment impact metric is not a rigid count of annual full-time employees. Rather, it reflects the total demand for full-time equivalent employment across the entire year, including temporary demand for a portion of the year. For example, demand for 10 workers for six months would be captured as a total employment impact of five.

Key terms used to describe employment impacts:

Direct Employment Impacts: Specific to the demand for jobs that facilitate the construction of solar projects from the ILSFA program in PY6.

Indirect Employment Impacts: Estimate of the demand for jobs that enable the purchasing of supplies and services that enabled construction.

Induced Employment Impacts: Demand for employment in other sectors of the economy that benefit from increased spending due to economic activity from direct and indirect impacts.

Table 31 below shows the modeled employment impacts for each program region. The greatest employment impact was in the Northeast region where a high level of investment in new CS and NP/PF projects created a high demand for workers.

Table 31. Incremental Modeled Employment Impacts in Illinois of **New PY6 Energized** Projects by Program Region

REGION	DIRECT EMPLOYMENT IMPACT	INDIRECT EMPLOYMENT IMPACT	INDUCED EMPLOYMENT IMPACT	TOTAL
Cook County	40	10	20	**70**
Northeast	70	20	30	**120**
Northwest	20	10	10	**40**
East Central	<10	<10	<10	**<10**
West Central	80	10	20	**110**
South	10	<10	<10	**10**
Total	**220**	**50**	**80**	**350**

Note: In the above table, "<10" approximates any single-digit estimates for employment impacts. Totals may not sum due to rounding.

Tax Impacts

This section also includes a tax impact modeling analysis to estimate the effects of ILSFA on specific groups of taxpayers at the federal, state, and local levels. Potential tax impacts may include:

- Federal and state employment and income taxes on wage earners
- Local property taxes
- State sales taxes and some local assessments
- Federal and income taxes on corporations

Key terms used to describe tax impacts:

Employee Compensation: Social security taxes paid by employees.

Enterprise (Corporations): Taxes paid by corporations.

Households: Personal income taxes paid by households with various annual income levels.

Tax on Production and Imports: A range of various taxes such as excise taxes, import duties, property taxes, and sales taxes that may be paid by individuals or larger entities depending on the situation.

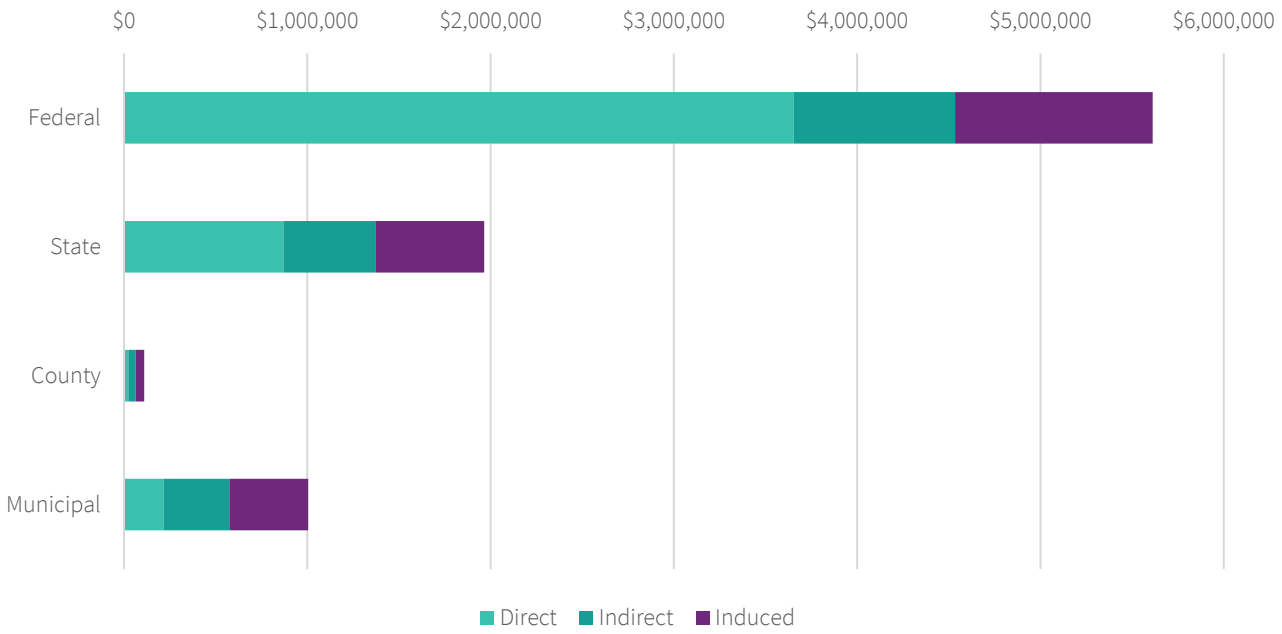
Note that federal tax impacts do not include potential tax savings due to the solar investment tax credit (Solar ITC). This analysis quantifies taxes paid by households and corporations, which provide revenue for the government to redistribute to public resources. Most tax impacts for corporations come from paying taxes on buying materials for construction and employing additional workers. For households, these impacts are the result of additional income from project spending, whether that be employment on an ILSFA job site or increased tips for service staff at a restaurant frequented by construction workers.

Because ILSFA directly affects both regional employment and household spending and has potential longer-term impacts on property values, the related tax impacts can be complex. While the tax impacts are small compared to the total project impacts, they may overlap and have the effect of redistributing some program benefits.

New program activity (e.g., purchasing supplies, employing workers) results in additional taxes paid by companies including employment, sales, and corporate income taxes. However, new taxes paid to municipalities or counties could directly benefit program participants through the funding of public programs serving individuals living in that community. The overall benefits of the tax impacts are overlapping and might cancel out in some cases.

Figure 5 shows the breakdown of direct, indirect, and induced tax paid to federal, state, and local (including county and municipal) taxes.

Figure 5. Modeled Direct, Indirect, Induced Tax Impacts of **New PY6 Energized** Projects

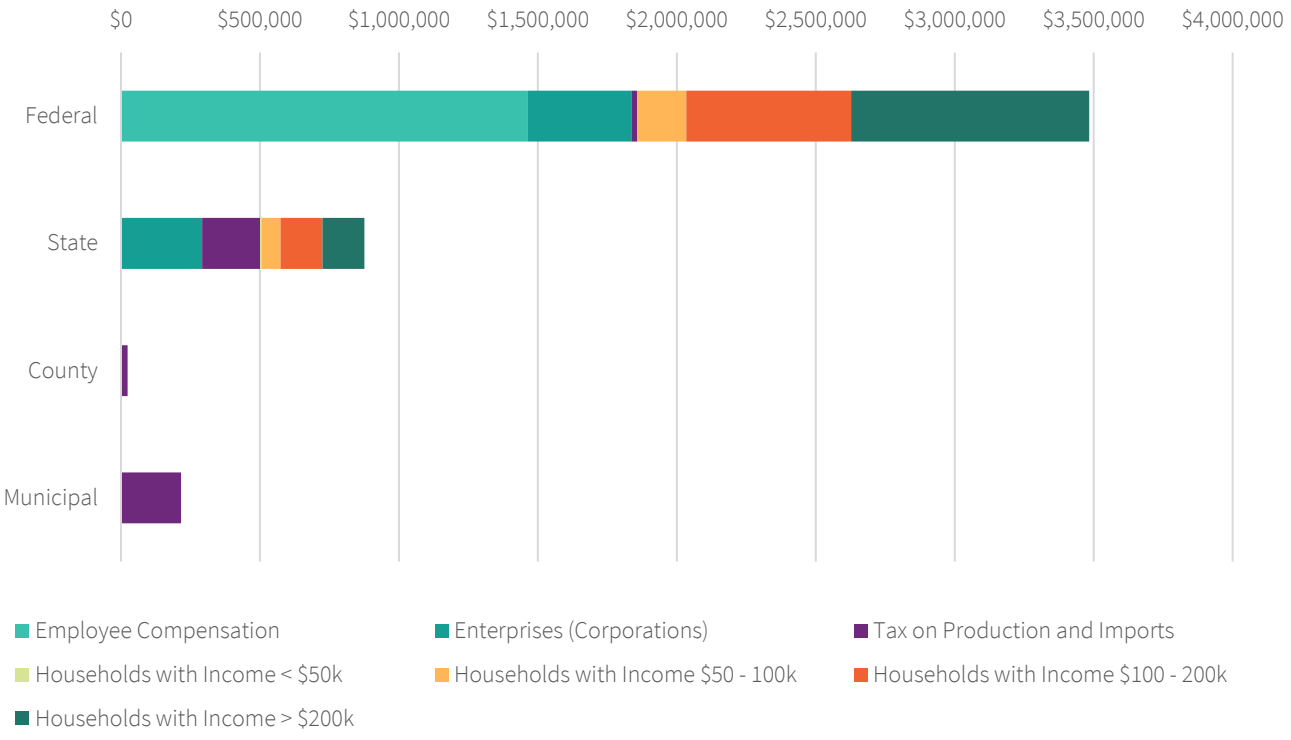


*Note: Direct tax impacts are those resulting directly from project spending, indirect effects come from economic activity related to inputs or supplies for projects, and induced effects are the result of money that flows from project spending into other parts of the economy.

Figure 6, below, shows the distribution of how direct tax effects flow from various taxpayers. The taxpayer categories are typically separated by the payer and the type of tax paid.

More than 40% of the modeled federal tax impacts come from employee compensation taxes, which are paid by employees toward social security. An increase in social security taxes implies an increase in income overall, which reiterates the positive impacts of ILSFA. Production and import taxes make up a very small portion of federal tax impacts but are larger contributors for state and municipal impacts. This signals that direct production expenses are most likely to benefit taxpayers directly by way of municipal programs that benefit their constituents.

Figure 6. Modeled Direct Tax Impacts of **New PY6 Energized** Projects by Source



Direct project spending results in economic activity, such as demand for labor and materials, which impacts firms and individuals in segments of the economy not directly participating in ILSFA. These modeled economic ripple effects result in tax revenues for actors not participating in ILSFA. Notably, the state and federal tax impacts personal income taxes for households in higher income brackets than ILSFA program participants, reflecting tax impacts on higher paid workers at firms that construct and maintain the projects. For a more detailed breakdown of tax impacts, please refer to *Appendix B. Direct Tax Impacts.*

Ongoing Impacts from Household Energy Bill Savings

In addition to one-time impacts from direct investments in solar installations, ILSFA also supports access to ongoing energy bill savings for program participants. Once new solar installations are energized, program participants will pay less for electricity expenses, assuming there are no changes in their usage habits. These on-bill savings (see Bill Impacts section) effectively operate as new disposable household income. Households have the option to use these funds for the purpose of their choosing, and subsequent spending in those sectors leads to additional induced impacts. Because this benefit will accrue annually for all program participants, it will increase in overall magnitude as ILSFA progresses and more projects are energized.

For this section, we use IMPLAN to assess household spending from bill impacts for all PY6 energized projects, or all projects energized through the end of PY6, including those energized in prior program years. This is consistent with the set of projects examined in the Bill Impacts section. This analysis limits its assessment of ongoing impacts to those associated with household energy bill savings from the Residential Solar (Small), Residential Solar (Large), and CS subprograms.

Additional benefits due to bill savings accrue to NP/PF entity participants but spending patterns in these cases are likely to reflect the specialized operating budgets of those organizations and are not captured here. To the extent that these entities are funded by taxpayer resources, these savings may simply represent a more effective distribution of public funds.

We estimate that Residential Solar (Small), Residential Solar (Large), and CS subprogram participants have received approximately $1.3 million in increased household disposable income in PY6 because of reduced energy bill burdens from PY6 energized ILSFA projects (see Bill Impacts section). IMPLAN identifies the sectors where this influx of income is likely to generate the newest induced economic activity and nets out cash savings before developing the spending profile. The spending profile comprises a multitude of sectors and is specific to Illinois households with incomes of less than $70,000 since almost all ILSFA subscribers in PY6 fall into this bracket. New induced activity generated by participant spending in turn creates additional induced activity, creating a ripple effect. For example, if a program participant spends more money at the grocery store following new on-bill energy savings, there is a small additional induced ripple effect as grocery store employees go out and spend their earnings.

As discussed above, induced effects from project spending tend to occur in the same region in which the project's spending occurred. Similarly, increased disposable income from bill savings benefits the communities where ILSFA participants live. While the modeled increase in household income is derived from bill savings, the IMPLAN tool is used to assess where spending is likely to occur following any increase in disposable income for households in Illinois with an annual income between $0 and $70,000. Thus, this analysis could more broadly capture which sectors would benefit the most from additional spending from individuals with increased income through other project-related means, such as a higher salary following participation in the job training program.

Table 32 below presents induced household spending by category from first-year bill savings on all PY6 energized projects by modeling bill savings as additional household income. The model estimates housing and healthcare to be the largest single sectors for new induced activity following new household spending under ILSFA. Spending patterns from bill savings in PY6 are like those in PY5. These categories represent basic needs, which program participants are eager to address. Similarly, retail shopping, groceries, debt service, transportation, and other utilities make up the next-largest share of sectoral spending, focusing on lifestyle fundamentals. Insurance and non-cash savings also represent a choice option for which households can use this new discretionary income. The "Other" category captures a wide range of additional activities with small overall impacts, including business development, legal services, entertainment, and home investments. Notably, the total modeled induced impact from bill savings spending is slightly lower than it was in PY5.

We compared our modeled results of where participants are likely to spend the money saved on bills to the feedback we received in focus groups. While it is difficult to make exact comparisons between modeled and qualitative data, focus group participants echoed that they largely spent their bill savings on items like healthcare, groceries, and keeping up with other monthly expenses. Some participants also noted being able to spend money on things like investing in their retirement or spending money on things for their family that they were not previously able to afford. Additional feedback from participants on this can be found in the Process Evaluation section.

Table 32. Induced Spending from First-Year Bill Savings on **PY6 Energized** Projects

CATEGORY	INDUCED SPENDING
Housing	$230,000
Healthcare	$200,000
Other	$170,000
Retail Shopping	$160,000
Groceries and Dining	$110,000
Transportation	$100,000
Utilities	$90,000
Debt Service	$80,000
Insurance	$40,000
Non-Cash Savings and Investments	$40,000
Business Expenses	$10,000

While these results capture changes in economic activity following new household spending, measured in dollars, the real social benefits to households come in the form of what these dollars can provide. For instance, new spending in the healthcare, housing, and food sectors translates to improvements in health and housing stability, as well as nutritional benefits that are not as easily quantified. These improvements represent an additional value of program participation.

Another consideration of this analysis is what's known as the rebound effect, which has been observed around the world in households with solar panels.[17] Typically, when households have solar panels, we expect their demand for grid-supplied energy to decrease; however, researchers have found that when some households have access to solar energy, they may increase their overall energy consumption, or rebound, slightly. As households save money on energy, they may choose to spend those savings by using additional energy, such as running the air conditioning more often or setting the thermostat warmer in the winter, allowing households to live more comfortably. This can be especially important for low-income households that, prior to ILSFA, may have needed to keep their energy consumption lower than was comfortable. Discussions in focus groups did not show evidence of a significant rebound effect among ILSFA participants but did find that some households felt they were able to keep their home more comfortable overall.

[17] Aydin, E. (2023). The rebound effect of solar panel adoption: Evidence from Dutch households. *Energy Economics.* https://doi.org/10.1016/j.eneco.2023.106645

Social Impacts

This section presents findings from our social impacts analysis in program year six (PY6). The social impacts analysis assesses the intensity and value of the Illinois Solar for All (ILSFA) program's benefits to communities including how the program is tracking to the Climate and Equitable Jobs Act (CEJA) requirements. CEJA mandates that ILSFA reserve 25% of its incentive budget for Environmental Justice Communities (EJCs) and 25% for energy sovereignty projects. The evaluation team considers three aspects when assessing social impacts:

- We illustrate the distribution of projects across communities and assess underlying trends through geographical analysis.
- We assess how effectively the program is allocating the EJC and energy sovereignty carve outs, as well as the perception of energy sovereignty among stakeholders.
- We explore the current and potential community and participant social benefits.

These are our key findings from this analysis:

Key Findings

FINDING 1

As required, the program held 25% of each subprogram budget for projects in EJCs. The Non-Profit/Public Facilities (NP/PF) and Residential Solar (Small and Large) subprograms fully awarded their EJC budget carve out. The Community Solar (CS) subprogram did not fully award its EJC carve out, driven by the absence of approved projects in EJCs.

Program Recommendation:

- CS projects are more complex to develop. Various factors—including availability of open space or large rooftop area, grid capacity and grid upgrade costs, and the backlog for interconnection agreement—could impact availability of projects. ILSFA may consider studying the potential barriers for CS development in EJCs and the overlap with other CS programs in Illinois. This review might shed light on the lack of approved CS projects sited in EJCs and provide valuable insights for targeted strategies or alignment and consolidation on program offerings to foster CS project construction on EJCs.

FINDING 2

ILSFA awarded the full 25% carve out of incentives for energy sovereignty projects for the CS and NP/PF subprograms. However, it did not award the full 25% carve out of incentives for the Residential Solar (Small and Large) subprograms, with only 2% of projects qualifying as energy sovereignty projects. Interviews with various program actors revealed that participants had few incentives to pursue system ownership, particularly for Residential Solar (Small). Ownership offers similar benefits to non-energy sovereignty projects but with additional maintenance and management responsibilities.

There is still limited awareness and clarity about what energy sovereignty is and how it should be implemented in practice, leading to communication challenges. While some actors recognize its benefits, concerns persist regarding the risks associated with ownership for participants.

Program Recommendation:

- Develop clear and tailored guides on what energy sovereignty means in practice for all stakeholders and different participants across subprograms, including ownership responsibilities, risks, long-term benefits, and best practices for managing energy sovereignty projects.

FINDING 3

The benefits participants perceive from the program are twofold: utility affordability as an individual advantage and environmental improvements as a broader community benefit. Beyond bill savings, solar adoption has also sparked community interest, with neighbors inquiring about the program after seeing installations. Additionally, savings in energy bills have allowed NP/PF participants to expand services for their communities, amplifying the program's social impact and spillover benefits.

However, challenges, such as meeting near-term financial needs, often prevent individuals from prioritizing energy concerns, thus limiting awareness of and access to ILSFA. Since not all potential participants can easily transition to solar, strengthening partnerships with energy efficiency initiatives could serve as an effective way to prepare people for solar adoption and position ILSFA as a trusted and viable solution for income-eligible households. Once individuals are more ready to take the next step in their energy efficiency journey, streamlining the ILSFA process will be essential to reducing participation barriers.

Program Recommendations:

To further expand community and participant social benefits:

- Strengthen partnerships with well-known bill assistance and energy efficiency initiatives, such as the Low-Income Home Energy Assistance Program (LIHEAP) and weatherization programs, to position ILSFA as a trusted and viable option for income-eligible homes once they are ready to explore solar options.
- Collaborate with utilities, state agencies, and community organizations to develop a unified energy savings concierge position. This group of individuals would collect information from households and develop a personalized savings path, outlining potential benefits households can access from bill assistance programs, energy efficiency measures, and solar opportunities, including ILSFA. This position could build off existing work completed by grassroots educators.
- Streamline the ILSFA process and reduce barriers to entry (see the Process Evaluation section for more detailed recommendations in this realm) to make solar adoption through ILSFA more accessible.

FINDING 4

ILSFA benefits participants living in communities with high heat island effects and participants with a high energy burden. ILSFA participants in Chicago tended to live in areas with high urban heat island effects, and access to solar power in these homes is an important and potentially lifesaving resource for residents experiencing extreme temperatures.

Around 18% of CS subscribers in PY1 to PY3 are in areas with a high energy burden, and continued access to more community solar energy can create meaningful impacts on individuals and families living with a high energy burden.

Background

Key terms used to describe social impacts:

Disadvantaged Communities (DAC): General term used in this chapter to represent the myriad of designations for communities that have been (and may continue to be) marginalized.

Environmental Justice Community (EJC): Term used by the ILSFA program to describe areas that stand to benefit greatly from access to solar energy.

Energy Sovereignty: Eligible low-income household or community organization having or being on a defined path to majority or full ownership of the photovoltaic (PV) generating facility or, in the case of a cooperative or community ownership model, a share or membership in the entity that owns the PV generating facility. The goal of energy sovereignty is to promote community wealth through solar ownership.

The PY6 evaluation builds upon the PY5 evaluation by continuing to focus on understanding how subprograms reach EJCs and their presence across various service territories, assessing the number of energy sovereignty projects within each subprogram and providing an updated analysis of the participant demographics. In addition, the PY6 evaluation introduces new areas of analysis. We expanded the geographic analysis to better understand the distribution of subscribers in relation to EJCs and assess the program's reach within income-eligible communities. Finally, we incorporated insights from our conversations with participants and other stakeholders to include a deeper exploration of the ways participants are benefiting from the program.

This analysis covered four CS projects, 39 NP/PF projects, and 1,297 Residential Solar (Small and Large) projects approved in PY6. For this analysis, we grouped all Residential Solar (Small and Large) projects together as only one project received approval for the Residential Solar (Large) subprogram in PY6. Because of this, we refer to these two subprograms as Residential Solar throughout this section.

Table 33 summarizes the categories and the primary research questions that supported the PY6 social impacts analysis.

Table 33. Social Impacts Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Geographic Distribution	How are program participants distributed across ILSFA EJCs?
	How are program participants distributed across utility service territories?
	How are program participants distributed across income-eligible communities?
Community and Participant Benefits	How is the program supporting energy sovereignty? What are the barriers to supporting energy sovereignty?
	In what ways do participants report benefiting from the program? What are other benefits for participants and communities? How could the program reach more participants and communities to increase community-level benefits?
Demographics Analysis	How do the demographic characteristics of ILSFA participants compare to those of Illinois households overall?

Methods

Below, we summarize how we used program tracking data and insights from interviews and focus groups to answer the primary research questions.

Geographic Distribution: We analyzed the locations of PY6 approved projects among EJCs, service territories, and income-qualified census tracts, creating an interactive map to show the ILSFA EJCs, the distribution of ILSFA Residential Solar projects across Illinois, and the utilities service territories.

Community and Participant Benefits: We examined how participants and communities benefit from the program, including benefits specifically received by those who participated in the energy sovereignty portion of the program. Program requirements reserve 25% of funds for energy sovereignty projects with the aim of allowing participants to have increased control over their projects and gain additional benefits beyond bill savings.

Below, we outline the data collection activities that informed this section. Activities marked with a star (*) are the same ones that informed the Process Evaluation section.

- Energy Sovereignty:
    - Assessed the percentage of projects classified as energy sovereignty projects in PY6 in comparison to PY5.
    - Interviewed program administrators both in PY5 and PY6 regarding the changes made to the program and their experiences, including successes and areas in need of improvement.*
    - Interviewed program actors and participants:
        - GEs and nonparticipating stakeholders in PY5.*
        - Participants from the NP/PF subprogram in PY6.*
    - Interviewed and surveyed approved vendors (AVs) in PY6.*

- Community and Participant Social Benefits:
    - Interviewed program administrators both in PY5 and PY6 regarding the changes made to the program and their experiences, including successes and areas in need of improvement.*
    - Collected feedback from program actors and participants:
        - Interviewed grassroots educators and nonparticipating stakeholders in PY5.*
        - Interviewed and conducted focus groups with participants from all subprograms: CS, Residential (Small), Residential (Large), and NP/PF in PY6.
    - Reviewed the literature on the impacts of distributed photovoltaic (PV) generation on grid distribution costs.
    - Analyzed the presence of the program in communities with a high energy burden and high urban heat island effects.
- Demographics Analysis:
    - Analyzed participation demographics compared to the overall Illinois population.

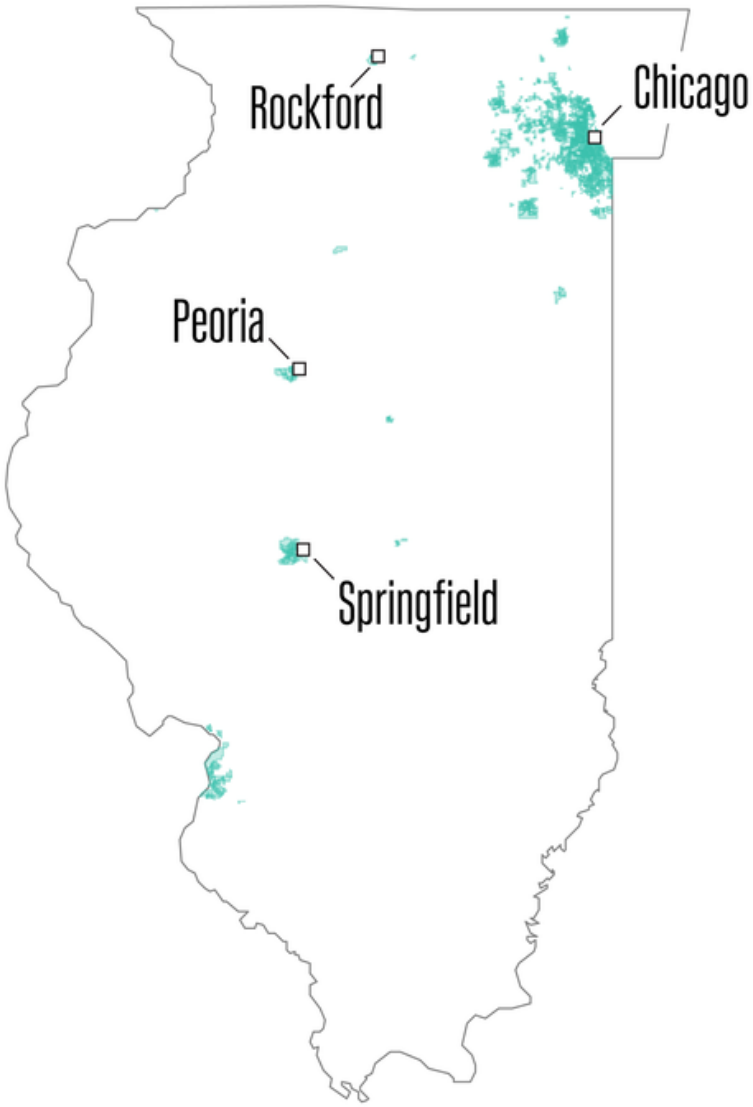
Geographic Distribution

The geographic analysis focuses on how the program reaches different communities. The evaluation team examined the geographic distribution of ILSFA projects to determine the proportion of projects and incentives located within EJCs, income-qualified census tracts, and the different service territories.

Environmental Justice Communities

EJCs are defined as areas that disproportionately bear the burden of environmental hazards that can cause long-term negative health effects. ILSFA identifies these areas using a scoring system that considers factors such as exposure indicators (pollution), environmental effects, sensitive populations (based on age or health), and socioeconomic factor indicators. This scoring system ranks block groups according to these factors and designates the 25% with the highest scores as EJCs. Communities can also apply to self-designate as EJCs by providing evidence that their communities still meet or approximate key criteria. For the PY6 evaluation, 2,475 block groups were considered EJCs through the ranking system and 149 block groups through self-designation. Figure 7, below, shows the distribution of these communities.

Figure 7. PY6 ILSFA EJCs



The ILSFA program has specific targets and requirements pertaining to EJCs. CEJA requires the program to hold 25% of each subprogram budget for projects within EJCs for the entire year. If the program does not distribute all the reserved funds in a given program year, unused funds roll over to the next program year's budget. The next year, the program's budget includes the remaining funds from the previous year. The 25% EJC carve out for the new program year is then calculated based on the total amount, which combines both the leftover funds and the new program year's budget. The program might not distribute all the carve out funds each year because it does not receive enough EJC submissions or, more rarely, the program is unable to approve an EJC submission because it does not meet other program requirements.

ILSFA also uses EJCs as part of the project selection process (e.g., projects sited in EJCs receive higher scores in the ranking for funding). ILSFA uses the project selection process to prioritize program funding when the number of projects submitted to the program exceeds the available incentive budget. In PY6, project selection was not implemented for any subprogram as none received enough submissions to fully allocate the budget during the initial submission window.

In PY6, each subprogram held 25% of the budget for EJCs, meeting the program requirements. However, the Residential Solar and the CS subprograms did not fully allocate the reserved budgets for EJCs. Table 34 shows the total PY6 budget by subprogram, the portion of the budget set aside for projects in EJCs, the incentives awarded to all approved projects, and the approved project incentives awarded to projects within EJCs. When the total budget of the subprogram is not allocated, a subprogram might distribute more than 25% of the awarded funds to EJCs and still not reach the carve out. Throughout the Social Impacts section, the evaluation team focuses on the percentage of all approved project incentives awarded to projects in EJCs to understand the portion of distributed funding impacting these communities.

Table 34. Subprogram Carve Outs and Incentives Awarded to **PY6 Approved** Projects Sited in EJCs

SUBPROGRAM	SUBPROGRAM BUDGET	25% BUDGET CARVE OUT FOR EJCS	TOTAL APPROVED PROJECT INCENTIVES AWARDED	APPROVED PROJECT INCENTIVES AWARDED TO PROJECTS IN EJCS	PERCENT OF APPROVED PROJECT INCENTIVES AWARDED TO EJCS
Residential Solar	$69,233,071	$17,308,268	$32,342,594	$10,855,589	34%
Non-Profit/Public Facilities	$14,141,893	$3,535,473	$13,889,309	$4,809,922	35%
Community Solar	$26,831,137	$6,707,784	$19,480,180	0	0%

In PY6, the percentage of projects sited in EJCs remained stable for the Residential Solar and the NP/PF subprograms, compared with PY5. The number of Residential Solar projects increased by eight percentage points, while the number of NP/PF projects increased by two percentage points. The CS program had no approved projects in EJCs during PY6, resulting in a 20-percentage-point decrease. Since the number of CS projects is small, slight changes in absolute numbers can lead to significant percentage shifts. Table 35 shows the distribution of approved projects sited in EJCs between PY4 and PY6.

Table 35. Percentage of **Approved** Projects in ILSFA EJCs

SUBPROGRAM	PY4	PY5	PY6	PY5-PY6 DIFFERENCE (PERCENTAGE POINTS)
Residential Solar	33%	30%	38%	+8
Non-Profit/Public Facilities	66%	36%	38%	+2
Community Solar	50%	20%	0%	-20

The evaluation team also analyzed the portion of approved project incentives awarded to EJCs across the three program years. All subprograms awarded 25% of approved project incentives to EJCs in PY4. Although ILSFA held 25% of each subprogram's budget for EJCs following program requirements, the CS subprogram did not award 25% of approved project funds to EJCs in PY5 and PY6. Table 36 illustrates the percentage of approved project incentives awarded to EJCs across subprograms from PY4 to PY6.

Table 36. Percentage of **Approved** Project Incentive Values Awarded in EJCs Over Total **Approved** Project Incentive Values

SUBPROGRAM	PY4	PY5	PY6	PY5-PY6 DIFFERENCE (PERCENTAGE POINTS)
Residential Solar	25%	26%	34%	+8
Non-Profit/Public Facilities	61%	43%	35%	-9
Community Solar	81%	15%	0%	-15

While the program in PY6 did not have any CS projects approved in EJCs, future analyses could examine whether the subscribers of these projects reside in EJCs even if the projects themselves are sited elsewhere. This difference is important because some impacts, such as job creation and economic benefits, are more likely to be felt where the project is sited, while other benefits, like bill savings, are experienced in the subscribers' location. The data for subscribers benefitting from CS projects is available once the projects are close to being energized.[18] From PY1 to PY6, 11 approved CS projects have been energized. Five of them (45%) were sited in EJCs, and 45% of the subscribers of those projects were also located in EJCs. Future analyses should continue to assess differences in the distribution of projects and subscribers, expanding the pool of energized CS projects to provide a more comprehensive understanding of the program's effects.

[18] Data for potential subscribers that passed the income validation process might be available earlier. In *Appendix C. Community Solar Subscribers Attrition*, we explore the number of potential subscribers that do not ultimately benefit from the program.

Utility Service Territories

In PY6, most ILSFA-approved projects were concentrated within ComEd's service area. However, the distribution of incentives was more balanced across the state. This trend is like PY4 and PY5 where the Residential Solar subprograms accounted for many projects within ComEd's service territory, and the CS and NP/PF subprograms had a more balanced distribution across the state. The CS and NP/PF subprograms typically involve larger project sizes, which result in higher incentive amounts awarded per project.

ComEd's service territory, which serves approximately 70% of Illinois's population, accounted for 93% of all approved projects in PY6, an increase from 78% in PY5. This disproportionate distribution, consistent with previous years, is due to the Residential Solar subprograms, where 95% of projects were concentrated in ComEd's service area. The notable increase is primarily attributed to a surge in PY6 in Residential Solar (Small) projects, traditionally more prevalent in ComEd's service territory.

In contrast, the CS and NP/PF subprograms had a smaller presence in the ComEd service territory with only 50% and 30% of their projects, respectively, located there. It is important to note that while the Residential Solar subprograms drive the highest number of projects, the CS and NP/PF subprograms tend to generate a higher magnitude of energy, billing, and environmental impacts at the subprogram level due to their larger average project size. At the household level, the average bill savings from CS projects tends to be smaller than it is for Residential Solar, a trend which was explored further in the Bill Impacts section in the PY5 and PY6 evaluations. Table 37 displays the approved projects within the ComEd service territory along with the percentage of incentives awarded to projects.

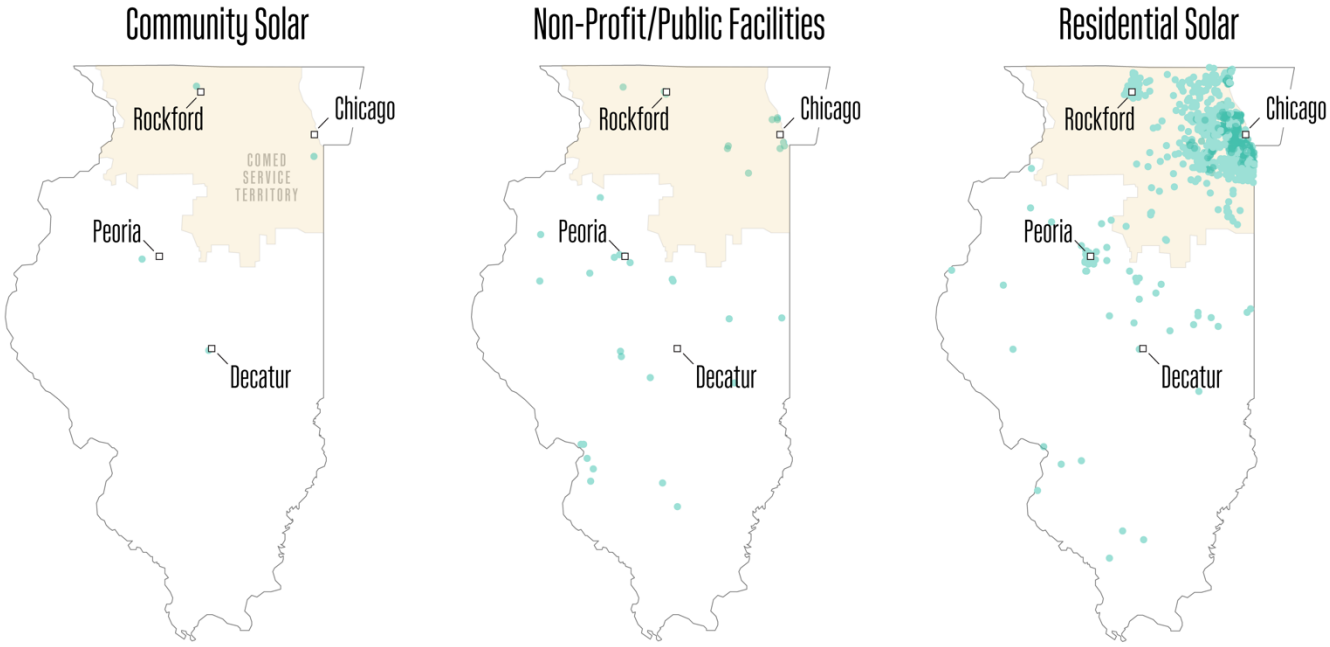
Table 37. Percentage of **Approved** Projects (Percentage of **Approved** Project Incentives Awarded) in the ComEd Service Territory

SUBPROGRAM	PY4	PY5	PY6	PY5-PY6 DIFFERENCE (PERCENTAGE POINTS)
Residential Solar*	97% (97%)	86% (80%)	95% (93%)	+9 (+13)
Non-Profit/Public Facilities*	61% (64%)	36% (40%)	30% (16%)	-6 (-24)
Community Solar*	50% (60%)	20% (28%)	50% (33%)	+30 (+5)
Total	88% (65%)	78% (38%)	93% (56%)	+15 (+18)

*Numbers in parenthesis represent the percentage of approved project incentives awarded to projects in EJCs.

Figure 8, below, illustrates the spatial distribution of projects across subprograms. The highlighted region denotes ComEd's service area, while the majority of the remaining state falls under Ameren's service territory. Dots on the map represent projects. Darker clusters of points represent areas of higher project density.

Figure 8. Distribution of PY6 Approved Projects Across Service Territories by Subprogram



Stakeholder interviews from both 2023 and 2024 highlighted similar concerns about the geographic coverage of ILSFA's projects: First, there were concerns that the program excessively concentrated on ComEd's service territory, especially within the Chicagoland region. The distribution of AVs follows population trends, with most Residential Solar AVs headquartered in the Northeast program region of Illinois. While these vendors are willing to travel, their ability to undertake projects may be constrained by available personnel and equipment or by their need to achieve sufficient project volume to justify project costs, particularly in areas with lower population density where multiple follow-up visits may be needed. Second, we heard anecdotal remarks from AVs on challenges working with downstate utilities on ILSFA projects. For example, vendors indicated the utility approved some projects but not others without explanation. Both nonparticipating stakeholders and grassroots educators also noted that the program cannot reach communities served by rural cooperatives or municipal power companies.

Income-Eligible Communities

The ILSFA program uses the location of communities to guide project selection. A specific stage in the selection process prioritizes projects in these communities by prioritizing 25% of the budget for these areas under each subprogram.[19] Income-Eligible Communities are defined as those where most households earn below 80% of the Area Median Gross Income (AMGI), adjusted for family size, and are revised every five years.

[19]Projects in Income-Eligible Communities are prioritized in the third prioritization stage but do not have a required carve out. Projects in EJCs and projects that support energy sovereignty projects prioritized in the first and second prioritization stages and have a mandatory carve out.

From PY4 to PY6, the program has effectively engaged these communities with more than 25% of incentives awarded to them in each subprogram each year. Table 38 presents the number of projects and the incentives awarded to those projects in Income-Eligible Communities from PY4 to PY6. Particularly noteworthy is the NP/PF subprogram, which has awarded over 85% of its projects and incentives to these communities across the three program years.

Table 38. **Approved** Projects (% of Approved Project Incentives Awarded) in Income-Eligible Communities

SUBPROGRAM	PY4	PY5	PY6
Residential Solar*	46% (50)	43% (36)	40% (36)
Non-Profit/Public Facilities*	93% (96)	85% (86)	90% (87)
Community Solar*	83% (94)	20% (28)	50% (34)

*Numbers in parenthesis represent the percentage of approved project incentives awarded.

Energy Sovereignty

Energy sovereignty means that eligible low-income households or community organizations either own or are on track to own most or all of a solar energy system. The program administrator explained that its intent is to promote community wealth through solar ownership. In cooperative or community ownership cases, it means having a share or membership in the group that owns the solar system. The transfer of ownership occurs over the long term as it can take several years to complete. Each year, 25% of the funding for every subprogram is reserved for projects that support energy sovereignty.

Residential Solar and NP/PF subprogram projects can achieve the energy sovereignty designation through a lease or power purchase agreement (PPA) with an early buyout seven years or earlier after energization. These projects must include the cost and timing of the transfer of ownership and other related details in the participant's contract. CS projects can qualify for energy sovereignty designation through ownership or a cooperative model. The ownership model includes a lease or PPA with a buyout clause that is triggered seven years or earlier after energization. The cooperative model allows for a co-op organization to sell low-cost subscriptions to participants/owners of the co-op.

Energy Sovereignty Carve Out

Starting in PY5 and for each subsequent program year, 25% of each subprogram's funding is reserved for energy sovereignty projects for an initial time window that varies by subprogram. After that period, unused funds can be awarded to any qualifying projects.

Program administrators shared that energy sovereignty projects in NP/PF and CS subprograms have shown initial success in meeting the carve out by using tax credits and preexisting models. However, Residential Solar, particularly Residential Solar (Small) projects, have struggled to align with energy sovereignty goals. In PY6, some questions remained unresolved, such as ensuring that Residential Solar (Small) participants fully benefit from ownership while being protected from associated risks.

As noted in the PY5 report, the ILSFA lease model provides Residential Solar (Small) participants with a no-up-front-cost option, whereas system ownership may come with additional responsibilities—such as maintenance and financial management—without offering extra economic benefits.

In PY6, each subprogram held 25% of the budget for energy sovereignty projects, meeting the program requirements. However, the Residential Solar subprograms did not fully allocate the reserved budgets. Table 39 shows the total PY6 budget by subprogram, the portion of the budget set aside for energy sovereignty projects, the incentives awarded to all approved projects, and the approved project incentives awarded to energy sovereignty projects. When the total budget of the subprogram is not allocated, a subprogram might distribute more than 25% of its funds to energy sovereignty projects and still not reach the carve out. Throughout the Social Impacts section, the evaluation team focuses on the percentage of all approved project incentives awarded to energy sovereignty projects to understand the portion of distributed funding advancing energy sovereignty objectives.

Table 39. Subprogram Carve Outs and Incentives Awarded to Energy Sovereignty **PY6 Approved** Projects

SUBPROGRAM	SUBPROGRAM BUDGET	25% BUDGET CARVE OUT FOR ENERGY SOVEREIGNTY	TOTAL APPROVED PROJECT INCENTIVES AWARDED	APPROVED PROJECT INCENTIVES AWARDED TO ENERGY SOVEREIGNTY	PERCENT OF APPROVED PROJECT INCENTIVES AWARDED ENERGY SOVEREIGNTY
Residential Solar	$69,233,071	$17,308,268	$32,342,594	$1,368,485	4%
Non-Profit/Public Facilities	$14,141,893	$3,535,473	$13,889,309	$9,464,631	68%
Community Solar	$26,831,137	$6,707,784	$19,480,180	$11,330,770	58%

Similarly to PY5, the program awarded 25% of the total approved project funds distributed within the CS and NP/PF subprograms but did not reach this threshold for Residential Solar. Table 40 shows the percentage of energy sovereignty projects by subprogram and the corresponding portion of approved project incentives awarded to each. Notably, the CS program increased the incentive allocation by 30 percentage points in PY6 compared to PY5.

Table 40. Percentage of Energy Sovereignty **Approved** Projects (% of Approved Project Incentives Awarded)

SUBPROGRAM	PY5	PY6	DIFFERENCE (PERCENTAGE POINTS)
Residential Solar*	2% (2%)	2% (4%)	0 (+2)
Non-Profit/Public Facilities*	58% (62%)	62% (68%)	+4 (+6)
Community Solar*	20% (28%)	25% (58%)	+5 (+30)

*Numbers in parenthesis represent the percentage of approved project incentives awarded.

The vague legislative language and the complexities of implementing ownership models have increased the difficulty of meeting the carve out for Residential Solar projects. The program administrator explained that the lack of clear definition or guidance on structuring energy sovereignty projects has made compliance particularly difficult for this subprogram. Moreover, most AVs have struggled to offer widely available and affordable purchase options for Residential Solar projects. Others participating in this subprogram have opted not to offer energy sovereignty at all and instead provide a zero-cost lease model, allowing low-income customers to access solar energy without up-front costs but without any option to transfer ownership later.

We don't [include the Energy Sovereignty option in our projects], and I'm not sure we will. — AV working in Residential Solar (Small) projects

Interviews with nonparticipating stakeholders and grassroots educators in PY5 also revealed that achieving energy sovereignty participation in the Residential Solar subprogram is challenging due to insufficient incentives for participants. While receiving the same benefits, participants would assume the risks of ownership and bear greater long-term responsibilities such as making decisions about operations and maintenance, finance and revenues, and other management tasks. Additionally, these stakeholders note that many clients might need to focus on addressing immediate needs, leaving them with little capacity to think about long-term decisions.

In [Residential Solar (Small)], they don't need to own it. It's free. —Grassroots Educator

Clients are so focused on whether they can eat, they are not thinking that far in the future. We struggle to get them involved in savings/budgeting. — Nonparticipating Stakeholder

Energy Sovereignty Awareness

Some ILSFA stakeholders find the concept and implementation of energy sovereignty unclear, indicating an opportunity to improve guidance related to this portion of the ILSFA program. Among the program actors the evaluation team collected feedback from—nonparticipating stakeholders, grassroots educators, and AVs—those familiar with energy sovereignty understood its definition and intended purpose.

However, some expressed uncertainty about how energy sovereignty should be implemented in practice. The one grassroots educator who was aware of energy sovereignty said they rarely discussed it with participants.

AVs who spoke about energy sovereignty with participants reported varied approaches to explaining it. One AV said they described energy sovereignty as the donation of federal incentives to support non-profit organizations or environmental initiatives, allowing these entities to benefit directly from solar investment. In contrast, another AV explained that they do not explicitly discuss energy sovereignty with participants but instead highlight multiple ways to structure lease proposals, such as a six-year timeline for ownership transfer. Further guidance on how best to explain energy sovereignty may be beneficial to ensure consistent messaging across AVs.

Energy Sovereignty Implementation

The implementation of energy sovereignty requirements has also presented challenges from the program administrator's perspective. In PY5, Elevate staff noted that the introduction of energy sovereignty brought unexpected complexities to program operations. The staff was surprised by the significant influx of applications. Staff members described how implementation of energy sovereignty required contract updates, backend adjustments in Salesforce, and recalculations. Despite these efforts, there were still questions about whether the incentives for energy sovereignty projects were sufficient. In PY6, the focus remained on refining implementation and translating energy sovereignty requirements into practice. Despite these challenges, the program was able to award more than the 25% carve out of energy sovereignty funds for both the NP/PF and CS subprograms, meeting and exceeding the program's targets. The Residential Solar subprograms faced more challenges due to some of the complexities of ownership for this customer segment and were only able to award 4% of approved project funds to energy sovereignty projects.

Figuring out energy sovereignty was pretty new to everybody. — Elevate Staff Member

While there are some mechanisms in place for measuring energy sovereignty, there are still other details that are yet to be sorted out. Program administrators mentioned that energy sovereignty projects are tracked through various metrics, including contract start and end dates and the anticipated date of ownership transfer. Future ownership transfers are monitored in Salesforce through fields like the anticipated transfer date. However, Elevate noted it is still working to determine what would happen if, for example, participants move, as they have not seen that happen yet. These processes are still evolving.

Benefits and Risks of Energy Sovereignty

Five out of seven AV respondents indicated that their ILSFA projects included an option for energy sovereignty. Four out of the five participate in more than one ILSFA subprogram.

There is an incentive for us as AVs because of the higher [Renewable Energy Credit] REC incentives, but it is also peace of mind for the customer knowing that they will own the project later on. Financially it has not changed anything for them, but the idea that they own it is attractive. — AV

However, three AVs expressed concerns about the energy sovereignty requirements. These worries included the risk that a new homeowner might remove the system if the house were sold. A few (two of the seven) mentioned they did not include energy sovereignty as an option for their customers.

The evaluation team heard mixed opinions from NP/PF subprogram participants that enrolled in an energy sovereignty project. While a few said that they were happy with their decision to enroll in energy sovereignty and receive its advantages, some others reported they were not offered an alternative way to participate in the program. Additionally, some reported concerns about the risks associated with ownership, including maintenance, repairs, future costs, and what happens when the panels reach the end of their useful life.

In 25 years, what kind of degradation will you have on those panels? More than likely, my roof will need to be replaced. — ILSFA NP/PF Participant

Warranty wears out after 15 years; there's going to be an expense. We've done the math on that; you're always taking some risk. — ILSFA NP/PF Participant

Community and Participant Social Benefits

Access to solar energy offers numerous benefits at both the individual and community levels, including expanded access to clean energy, increased grid reliability, reduced energy burden, cost savings, lower carbon emissions, job creation, and other long-term environmental benefits. The research in this report highlights key impacts—energy, bill savings, environmental, workforce, and economic—as discussed in previous sections. In this section, we focus on the benefits and considerations reported by program participants whose experiences offer insight into how these impacts play out at the community level. We highlight participant-reported benefits and how they could be further expanded.

Participant-Reported Benefits

One of ILSFA's key objectives is to make solar installations more affordable for income-eligible residents, helping them save on their energy bills. This aligns with the main benefits reported by participants and emphasized by grassroots educators and nonparticipating stakeholders: bill savings as an individual advantage and environmental improvements as a broader community benefit.

Bill savings for participants were associated with improvements in their quality of life as participants were able to use these savings for other essential expenses. For those in the Residential Solar (Small) and CS subprograms, these comprised their natural gas bill, groceries, medical bills, and contributing to their retirement. NP/PF participants noted they were able to create broader community benefits by expanding services they can offer to their communities thanks to bill savings resulting from participation (see the Process Evaluation section for more details).

In addition to bill and environmental benefits, Residential Solar (Small) and NP/PF participants noted that neighbors and community members often inquire about the program after seeing installed solar panels and express interest in getting solar themselves, which allows additional community members to realize the benefits of ILSFA.

Understanding the spillover effects of the program, particularly how it influences more community members to adopt solar energy through or outside of ILSFA—on their own or through Illinois Shines—could be considered an area for further research.

Grid Distribution Costs

Through our economic impacts research, our team also examined possible impacts that could accrue at the electrical system level that may benefit communities throughout the state.

Distributed Generation subprograms, including the Residential Solar and NP/PF subprograms, may have additional impacts on grid distribution costs. Because Distributed Generation program participants purchase less energy from the electric grid (instead generating this energy on-site), there have been concerns that, as fewer people use the grid, it will become more expensive to maintain. While the impact of Distributed Generation programs on grid distribution costs varies widely by region of the country, academic literature generally agrees that increased adoption of Distributed Generation programs will not severely impact the distribution costs of grid energy. In some cases, the implementation of Distributed Generation programs can decrease distribution costs, as was the case in California where distributed PV generation reduced hourly mean grid electricity prices by 8-9% and lower wholesale prices reduced utilities' energy procurement costs in the day-ahead market by up to $650-730 million (2015$) from 2014 to 2015.[20] Additionally, a Department of Energy study, which modeled the impacts of distributed PV generation on a northeastern utility company, found that the utility company was able to reduce costs by 3% due to reduced costs of purchased power.[21] Distributed Generation projects provide multidirectional effects including bill savings and possible rebound effects for participating households and cost savings for utility companies.

Heat and Energy Burden Impacts

The team investigated other possible community benefits, such as reduction of ambient heat exposure and the associated energy burden (high costs on household energy bills), which may be affected by ILSFA participation. While the program does not have explicitly defined goals around generation of these benefits, stakeholder-defined evaluation metrics ask the evaluation team to examine the social benefits created. The literature suggests that reduced energy burden and exposure to heat island effects due to access to distributed solar energy generation may be unmeasured impacts of the ILSFA program. The Bill Impacts section provides estimates of the program's impact on bills overall, and the following section provides a summary of the current energy burden and heat island effects for ILSFA projects and program participants by subprogram. For this section, we report Residential Solar (Small) and Residential (Large) subprogram results separately.

[20] Craig, M et al. (2018). A Retrospective Analysis of the Market Price Response to Distributed Photovoltaic Generation in California. *Energy Policy*. https://doi.org/10.1016/j.enpol.2018.05.061

[21] Satchwell, A., Cappers, P., Goldman, C. (2017). Financial Impacts of a Combined Energy Efficiency and Net-Metered PV Portfolio on a Prototypical Northeast Utility. *Lawrence Berkeley National Laboratory.* https://escholarship.org/uc/item/6k4729sf

To further contextualize the bill savings of ILSFA participants within the economic and environmental energy landscape of Illinois, we examined the energy burden and heat island effects in areas with ILSFA projects and/or participants. ILSFA project data for PY1 to PY6 and CS subscriber data from PY1 to PY3 was geocoded and mapped alongside data describing the energy burden and heat island effect by census tract in the state. Energy burden data was sourced from National Renewable Energy Laboratory's (NREL) State and Local Planning for Energy (SLOPE) tool, which includes data for energy burden (represented as the percentage of a household's income spent on energy bills) for every census tract.[22] Heat island effect data was sourced from Climate Central's Urban Heat Hot Spots project, which tracks the urban heat island (UHI) index by census tract for the city of Chicago.[23] The UHI measures how many degrees hotter urban areas are as compared to nearby rural areas.

Using the geospatial analysis software ArcGIS Pro, we overlayed the locations of ILSFA projects and subscribers with their corresponding census tracts and the energy burden and heat island effects experienced in that census tract. Following protocols described in the SLOPE tool, census tracts with an energy burden greater than 6% are categorized as having a high energy burden. Using this threshold, we analyzed how many PY1 to PY6 energized ILSFA projects and participants are in areas with a high energy burden. In total, 17 out of 237, or 7%, of ILSFA projects are in areas with a high energy burden, and 195 out of 1,536, or 13%, of ILSFA CS subscribers are in areas with a high energy burden.

While residential energy burden does not directly correlate to the financial burden of NP/PF organizations located in the area, 18% of NP/PF ILSFA projects are in areas with high energy burden and may be able to provide more services to these communities. To optimize ILSFA's impact on bill savings in future years, a focus on areas with high energy burdens could be an area of growth for the program.

Table 41. ILSFA **Energized** Projects and Subscribers Located in High Energy Burden Areas

PROJECT TYPE	TOTAL PROJECTS	PROJECTS IN HIGH ENERGY BURDEN AREA	PERCENTAGE OF PROJECTS IN HIGH ENERGY BURDEN AREA
Residential Solar (Small)	134	3	2%
Residential Solar (Large)	3	0	0%
Non-Profit/Public Facilities	89	12	13%
Community Solar	11	2	18%
Statewide Total	237	17	7%
	TOTAL SUBSCRIBERS	SUBSCRIBERS IN AREAS WITH HIGH ENERGY BURDEN	PERCENTAGE OF SUBSCRIBERS IN AREAS WITH HIGH ENERGY BURDEN
Community Solar Subscribers	1,536	195	13%

[22] National Renewable Energy Laboratory (NREL). Household Energy and Transportation Burden, *State and Local Planning for Energy*. Available at https://maps.nrel.gov/slope/data-viewer?filters=%5B%5D&layer=eej.household-energy-burden&year=2020&res=county.

[23] Climate Central. 2023. Urban Heat Hot Spots. Available at https://www.climatecentral.org/climate-matters/urban-heat-islands-2023.

Chicago is an area with significant heat island impacts. On average, the city experiences a UHI of 8.31 degrees, meaning the city feels over 8°F hotter, on average, than nearby rural areas. Our analysis of Chicago heat island effects in relation to ILSFA projects and participants demonstrates that across the program, ILSFA projects appear to be benefiting areas with heat island impacts. ILSFA bill savings can allow households to cool their homes more without worrying about increasing their energy bill and can assist households in living healthily and comfortably. The long-term emissions reduction benefits from the program may also mitigate the severity of long-term heat island impacts.

Table 42 Average Heat Island Effect for Chicago-Based Projects

PROJECT TYPE	PROJECTS IN CHICAGO	AVERAGE HEAT ISLAND EFFECT IN CHICAGO TRACTS WITH PROJECTS (°F)
Residential Solar (Small)	64	8.1
Residential Solar (Large)	1	8
Non-Profit/Public Facilities	19	7.9
Community Solar	0	N/A
Chicago Total	84	8.1
	SUBSCRIBERS IN CHICAGO	AVERAGE HEAT ISLAND EFFECT IN CHICAGO TRACTS WITH SUBSCRIBERS
Community Solar Subscribers (PY1-PY3 only)	357	8.1

Opportunities to Expand Social Benefits

To expand the number of communities receiving benefits from ILSFA, the Illinois Power Agency (IPA) could focus on: 1) expanding access to the program generally or 2) expanding access to the program amongst certain communities or groups. The broader challenge for ILSFA in doing this is one that the clean energy industry faces in serving income-eligible customers: Some customers and communities are unable to prioritize energy efficiency or solar benefits due to these groups needing to prioritize more immediate needs.

Going green is a nice idea, but people [are] primarily concerned about putting food on the table. — Nonparticipating Stakeholder

Given that energy may not be a top priority for many potential ILSFA participants, addressing their basic energy needs first could be an effective way to prepare them for solar adoption. When asked about their experiences with their household energy use more broadly, participants cited high bills as top-of-mind concerns, feeling like they had limited control over utility bill costs, and concerns that their bill may not accurately reflect their consumption. Many participants the evaluation team talked to were already familiar and engaged with LIHEAP, which was the most mentioned utility assistance program.

Some participants reported engagement with other energy-related initiatives, such as weatherization or receiving free energy-efficient items like thermostats and lightbulbs, to help manage their energy use and costs.

One way to meet participants where they are is by strengthening partnerships with well-established bill assistance and energy efficiency initiatives that directly address immediate energy concerns. This increases the likelihood that participants will hear about ILSFA and view it as a reliable source of assistance even if they are not immediately ready to participate. ILSFA has already pursued some of these partnerships through the engagement of Community Action Agencies (CAAs) as grassroots educators and through the Department of Energy Clean Energy Connector tool. The program may also consider strengthening relationships with existing energy efficiency programs to better serve customers, which is included as one of the core objectives of the ILSFA program. By forming these partnerships, ILSFA increases the likelihood that it will reach those potential participants looking for solutions to manage their home's energy use and the capacity to pursue those solutions. The program can also realize potential synergies that exist between these programs, such lowering the costs of a home's solar array by weatherizing the home first and thus lowering its expected energy consumption or by braiding funds for health and safety upgrades needed to make the home ready for both weatherization and solar upgrades.

For those households that do begin the ILSFA participation process, streamlining enrollment steps and minimizing barriers to participation can help make solar adoption through ILSFA more accessible. For example, interviews and focus groups with participants highlighted some key areas for improvement, such as continuing in preparing homes for solar through structural and wiring checks as well as repairs and providing more follow-up after installation to ensure participants feel supported even after the panels are in place (see the Process Evaluation section for more details).

Demographics Analysis

The evaluation team analyzed data from Customer Certification Forms for Residential Solar (Small) projects approved between PY1 and PY6. This analysis describes participant demographic characteristics. This analysis should be interpreted with the following caveats in mind:

- ILSFA has not set specific objectives for the demographics of participants in the program, so our analysis aims to describe the characteristics of existing participants.
- Insights derived from race and ethnicity data for Residential Solar (Small) participants should be interpreted cautiously. While 65% of participants provided race/ethnicity information, a significant portion of Residential Solar (Small) participants (35%) did not respond to this question. Of these non-responses, 41% (representing 14% of the total participants) explicitly declined to answer, while the remaining 59% (representing 21% of the total participants) had no recorded response. Some of these missing recorded responses may reflect implicit refusals to answer.

- Demographic characteristics of participants are compared to the demographic characteristics of the overall Illinois population. The overall Illinois population includes households of all income brackets and, therefore, may not reflect the demographic characteristics of the income-eligible population, which the program aims to serve.

Table 43 describes the demographic characteristics of Illinois compared to those who participate in each ILSFA subprogram. Bolded values indicate instances where the subprogram is reaching diverse populations at higher rates than the general Illinois population.

Table 43. Demographic Characteristics of Residential Solar (Small) Participants (PY1 to PY6 **Approved** Projects)

DEMOGRAPHIC CATEGORY	ILLINOIS POPULATION* (%)	RESIDENTIAL SOLAR (SMALL) (%)
Households with Seniors	31	**37**
Households with Children Under 6	5	**18**
Rent	33	3
RACE/ETHNICITY		
Black/African American	14	**27**
Hispanic or Latino	18	17
Asian	6	6
Native American/Native Hawaiian†	0.1	**1.2**

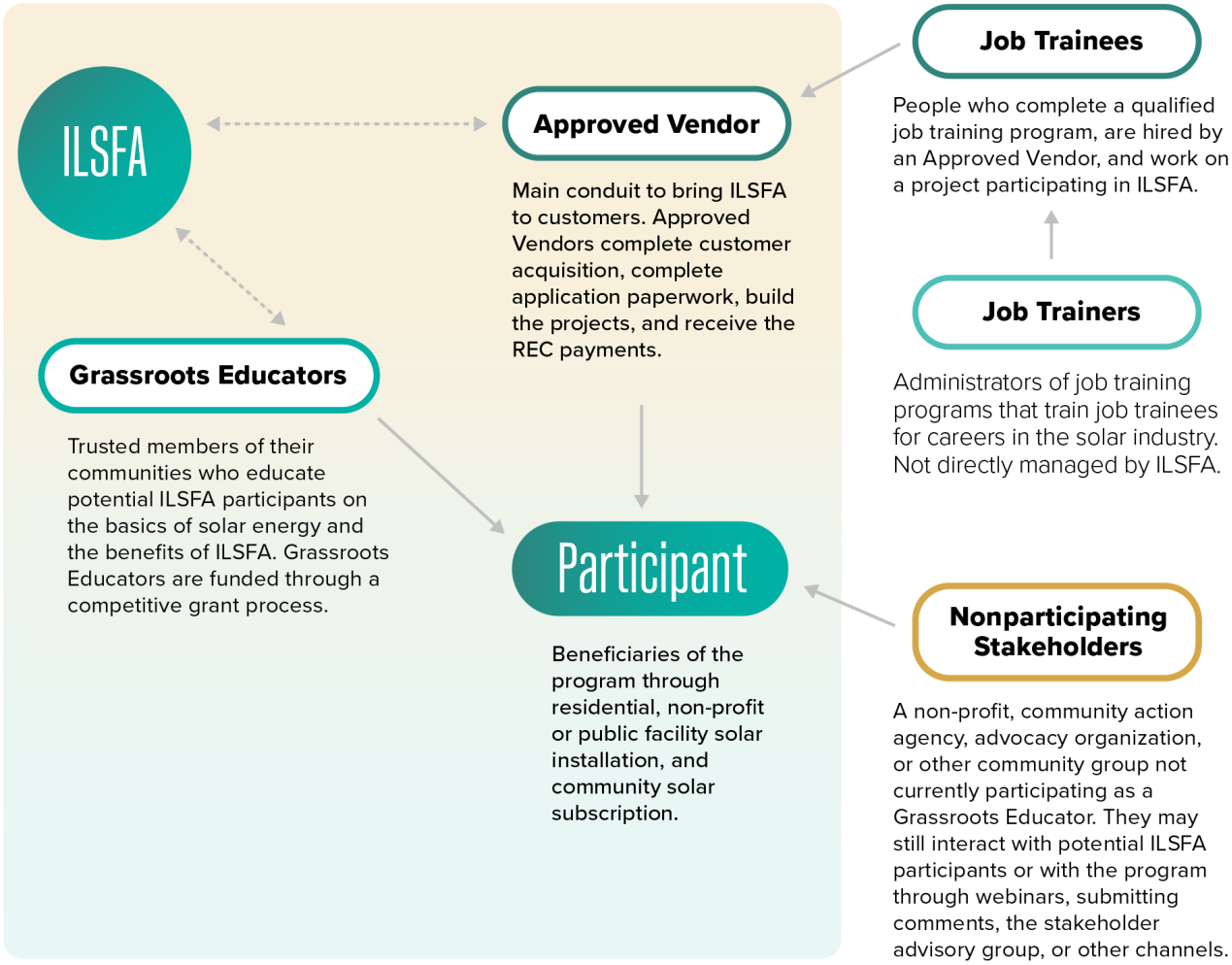
*Census Data, 2023: ACS 1-Year Estimates.
† Includes American Indian and Alaska Native, Native Hawaiian, and Other Pacific Islander.

Demographic data is unavailable for Residential Solar (Large) projects because Customer Certification forms are only required for income verification in the Residential Solar (Small) program. Income verification for this subprogram is mainly conducted using Affordable Housing documentation (HUD) or Rent Rolls. ILSFA might consider gathering this data to better understand how the program reaches diverse populations in all subprograms. The evaluation team did not provide data for CS subscribers since updated data was not available for PY6 at the time of the evaluation. The PY5 evaluation report offers a PY1 to PY5 overview for CS subscribers.

Process Evaluation

The process evaluation assesses the performance of Elevate as the program administrator and the experience of various parties who help implement or receive benefits from the Illinois Solar for All (ILSFA) program. ILSFA is a complex program that involves several different program actors and stakeholders, as shown in Figure 9, below. The arrows show how program actors interact with the program and each other.

Figure 9. Program Actors in the ILSFA Program



Data collection for program year five (PY5) and program year six (PY6) evaluations provides insights from all stakeholders who engage with, participate in, or benefit from the program. This section presents findings from PY6 primary data collection activities while also integrating relevant insights from PY5 in the key findings section.

The PY6 process evaluation draws on the following primary data collection activities:

- Interviews with:
  - IPA staff
  - Elevate staff
- Approved Vendors (AV) survey and interviews
- Participant research, including five focus groups and 16 in-depth interviews
- A review of the program tracking database

This section begins with a summary of PY6 program changes and progress toward goals. We then present key findings on program performance, delivery, and implementation in PY6. We synthesize the key findings and recommendations across evaluation activities, followed by detailed findings from each PY6 data collection effort.

Program Changes in PY6

Since the start of the program in PY1, ILSFA has undergone annual program updates driven by new legislation, revisions to the Long-Term Renewable Resources Procurement Plan, and stakeholder feedback. These updates aim to enhance program effectiveness and provide clarification. Input from key stakeholders, program progress, and evaluation findings inform ILSFA's program improvements. IPA communicates annual program changes before each program year begins.

The changes in PY6 included modifications to subprograms, energy sovereignty, programming processes, and requirements. Other notable changes in PY6 included major updates to the ILSFA website and marketing strategy, along with the introduction of two new pilot initiatives. Finally, the program also experienced some changes in its implementation partners. We describe these changes in more detail below.

Program Requirements and Processes

Changes to program requirements and processes in PY6 included updates to renewable energy credit (REC) prices, a new prevailing wage requirement for Community Solar (CS) and Non-Profit/Public Facilities (NP/PF) projects, and several modifications to the list of Critical Service Providers for NP/PF. The subprogram removed the public schools and carceral institutions (police stations, jails, prisons, and immigration detention centers) from the list of Critical Service Providers.[24]

Additional notable program changes in PY6 include:

- The program updated the Environmental Justice Community (EJC) and Income-Eligibility Community maps based on the 2020 Census and introduced an updated IRS form for income verification.
- The program extended the job trainee eligibility by an additional 12 months and established a new requirement for single-project AVs, ensuring that qualified job trainees perform at least 10% of all hours worked on a project.
- The program added clarifying language about energy sovereignty budget carve outs and additional information on documenting ownership transfer. Additionally, the program added energy sovereignty as a second prioritization category in the project selection protocol.
- The program updates its disclosure forms each program year. In PY6, ILSFA introduced new disclosure form explanations—called Disclosure Form Deep Dives—to provide participants with a better context about the form they sign.
- The CS subprogram added new subscriber management and waitlist procedures and stopped requiring an executed interconnection agreement at Part I of the application.
- Elevate reported a shift in its engagement strategy with AVs, leading to improved communication. It introduced office hours, training sessions, and a shared invoicing schedule, which it said were successful.

[24] The creation of a dedicated funding stream for schools under the Climate and Equitable Jobs Act (CEJA) and public comments submitted to the IPA prompted these changes to the list of Critical Service Providers.

Additionally, during PY6, the IPA supported Illinois's participation in the U.S. Department of Energy's Low-Income Clean Energy Connector, which aims to connect income-eligible Low-Income Home Energy Assistance Program (LIHEAP) recipients with CS opportunities that offer strong consumer protections and significant savings.[25]

Program Implementation—Indicators and Procedures

PY6 saw a focused effort to develop and revise Standard Operating Procedures (SOPs) and Key Performance Indicators (KPIs), with particular emphasis on diversity, equity, and inclusion (DEI). In addition to hiring subcontractors for website updates and marketing, Elevate introduced two new implementation partners: Primera and Encolor. Primera assumed responsibility for inspections as well as project application reviews to support the AV management team and expedite the application review process. Primera also initiated creating ILSFA's SOPs.

Encolor joined the program implementation team to support developing KPIs for outreach and equitable program implementation.

New ILSFA Website and Updated Marketing Strategy

Toward the end of PY6, ILSFA launched a new website with input from grassroots educators that was designed to provide a targeted user experience for both participants and solar companies. The marketing strategy began by creating three target personas—city renter, Latinx family, and rural household—to guide a more intentional outreach approach.[26] The PACO collective, part of the program implementation team, led the marketing and website design and development efforts.

Bright Neighborhoods and Home Repairs and Upgrades Initiatives

During PY5 and PY6, the IPA and Elevate prioritized supporting the Residential Solar (Small) subprogram to meet participation targets and fully utilize its budget. In response, the program administrator implemented the most significant change in PY6 by launching two pilot initiatives: Bright Neighborhoods and Home Repairs and Upgrades.

The Bright Neighborhoods initiative shifted initial participant engagement and public outreach responsibilities from the AV to Elevate for three targeted Illinois communities.[27] This new approach sought to make it easier for communities to adopt solar by having a single point of contact throughout the process.

Meanwhile, the Home Repairs and Upgrades initiative aimed to address common barriers to ILSFA participation by connecting participants with available funding opportunities for necessary maintenance or upgrades, such as roof repairs or electrical improvements, to make their homes suitable for solar installations.

[25] In Illinois, key considerations included getting more involved with other state agencies, securing developer participation, coordinating with LIHEAP agencies and aligning with their annual enrollment cycles, as well as ensuring it does not get ahead of the capacity that's available.

[26] Social media advertising in PY6 initially focused on Facebook and Google; however, due to limited success, the focus shifted to Reddit, primarily to promote the Bright Neighborhoods initiative

[27] West Garfield Park in Chicago, the City of Waukegan, and the Carbondale-Marion Micropolitan Area; including Jackson, Williamson, and Johnson counties.

To support these pilot initiatives, Elevate created a new staff position, ensuring that each initiative had a dedicated manager instead of one person overseeing both. Elevate described this structural change as a beneficial move.

The IPA noted that pilots serve to test strategies for overcoming identified barriers and to gather insights from these initiatives.

Program Challenges in PY6

Elevate's capacity and staffing turnover challenges affected program delivery in PY5 and PY6. In PY5, Elevate faced substantial staff turnover, which disrupted program continuity into PY6. New team members struggled to keep pace with ongoing program changes, and a lack of institutional knowledge further compounded the challenge. As a result, many employees were still in a learning phase throughout PY6, affecting the program's delivery and efficacy.

Findings from our primary data collection with grassroots educators and AVs highlight the impact of the Elevate team's capacity for communication and review timelines. Some AVs reported communication issues with Elevate including delays, lack of proactive outreach, and unanswered questions. They also expressed frustration over inconsistent or vague guidance, particularly during information requests and explanations of handbook regulations. The Elevate team acknowledged its challenges in being responsive, including extended invoicing timelines and deficiencies in providing timely guidance and instructions.

Staff turnover also disrupted engagement and relationship management with grassroots educators at the beginning of PY6. Grassroots educators described this transition as especially challenging during their onboarding and training, which delayed their initial outreach efforts. Additionally, grassroots educators had trouble getting their questions answered throughout PY6.

Now in PY7, Elevate believes they have reached a stable staffing level. They have also developed and defined roles for implementation partners to support specific tasks to help ensure a more consistent and effective program delivery. During program interviews, IPA staff acknowledged the necessity of this growth in Elevate's team but recognized that transition and the onboarding of new staff continued to limit program administrator's capacity in PY6.

Program Goals

In the interview with IPA staff, they shared that the main way they quantitatively measured program success was whether the program allocated its annual subprograms budget. In PY6, the NP/PF subprogram awarded nearly its full budget, while the CS subprogram allocated 73% of its incentive budget to submitted projects (see Table 43).

The Residential Solar subprogram budget consists of both the Small and Large project categories. Overall, 46% of the Residential Solar budget was allocated in PY6 with the most significant progress being made in the Residential Solar (Small) subprogram, which awarded 92% of the budget to projects.

Throughout ILSFA's first six years of implementation, the Residential Solar subprograms have struggled to generate sufficient project volume and meet budget targets.

Table 44. PY6 Subprogram Budget and Allocated Incentives

SUBPROGRAM	PY6 TOTAL BUDGET	PY6 INCENTIVE VALUE OF APPROVED PROJECTS	% BUDGET ALLOCATED TO INCENTIVES
Residential Solar (Small)	$ 34,616,535	$31,992,496	92%
Residential Solar (Large)	$ 34,616,535	$350,099	1%
Non-Profit/Public Facilities	$14,141,893	$13,889,309	98%
Community Solar	$26,831,137	$19,480,180	73%

Source: Illinoissfa.com- *Illinois Solar for All Sub-Program Budgets for 2023-2024 Announced.* Accessed 2/19/2025 and PY6 program data tracking reports received from Elevate in 2024.

In PY6, the program experienced significant growth, with the total number of projects increasing from 261 in PY5 to 1,340 in PY6 (see Table 44, below). This surge was primarily driven by a backlog of Residential Solar (Small) projects from a single AV, which were not submitted to the program until PY5 and PY6. Additional details can be found in the Electricity Impacts section above.

Although the total number of AVs in the program declined slightly in PY6, the number of Minority/Women-owned Business Enterprise (MWBE) vendors increased. In PY6, one of the program implementation team's subcontractors worked one-on-one with Small and Medium Enterprise (SME) AVs—defined by the Climate and Equitable Jobs Act (CEJA)—to support their participation. These efforts included ongoing training events to facilitate engagement with the program.

Table 45. Projects and Approved Vendors by Program Year

PROGRAM YEAR	ALL PROJECTS (RESIDENTIAL)	APPROVED VENDORS (MWBE)
Program Year 1	11 (0)	8
Program Year 2	38 (10)	49 (6)
Program Year 3	84 (62)	58 (10)
Program Year 4	209 (162) [a]	86 (12)
Program Year 5	261 (223)	70 (10)[b]
Program Year 6	1340 (1298)	63 (14)[b]

[a] Note that project counts in the PY4 Annual Summary differ from evaluated project counts due to two projects being ineligible or withdrawn between PY4 and the evaluation.
[b] The PY5 and PY6 active AV numbers are based on a report that the Elevate team provided to the evaluation team on 2/25.

Table 45 shows the number of AVs who submitted projects to the program and the number of AVs with approved projects from PY1 to PY6. The PY6 program tracking data files included projects approved by the program but did not include information on projects submitted for Part I consideration on the AV Portal that were ineligible or not approved. Like in PY5, three AVs submitted nearly all the Residential Solar projects, both Small and Large (1,290 out of 1,298).

Table 46. Number of AVs with Approved Projects PY1-PY6

PROGRAM YEAR	UNIQUE NUMBER OF APPROVED VENDORS WITH APPROVED PROJECTS (TOTAL NUMBER OF UNIQUE APPROVED VENDORS WITH SUBMITTED PROJECTS)		
	RESIDENTIAL SOLAR - LARGE AND SMALL	NON-PROFIT/PUBLIC FACILITIES	COMMUNITY SOLAR
Program Year 1	0 (1)	3 (7)	3 (14 [b])
Program Year 2	2 (2)	10 (14)	6 (14 [b])
Program Year 3	3 (12)	6 (16)	2 (14 [b])
Program Year 4	4 (6)	10 (12)	5 (9)
Program Year 5	3 (8)	6 (8)	2 (5)
Program Year 6 [a]	6	5	3

[a]PY6 program tracking data linked to AVs only included approved projects. We did not have information on projects that were not eligible.

[b]Seventeen CS projects and 11 associated vendors submitted projects that are tracked over two or three program years. Consequently, this number includes carried-over projects and associated AVs from one program year to another.

The Key Findings and Recommendations section below provides further context on the program's challenges and barriers.

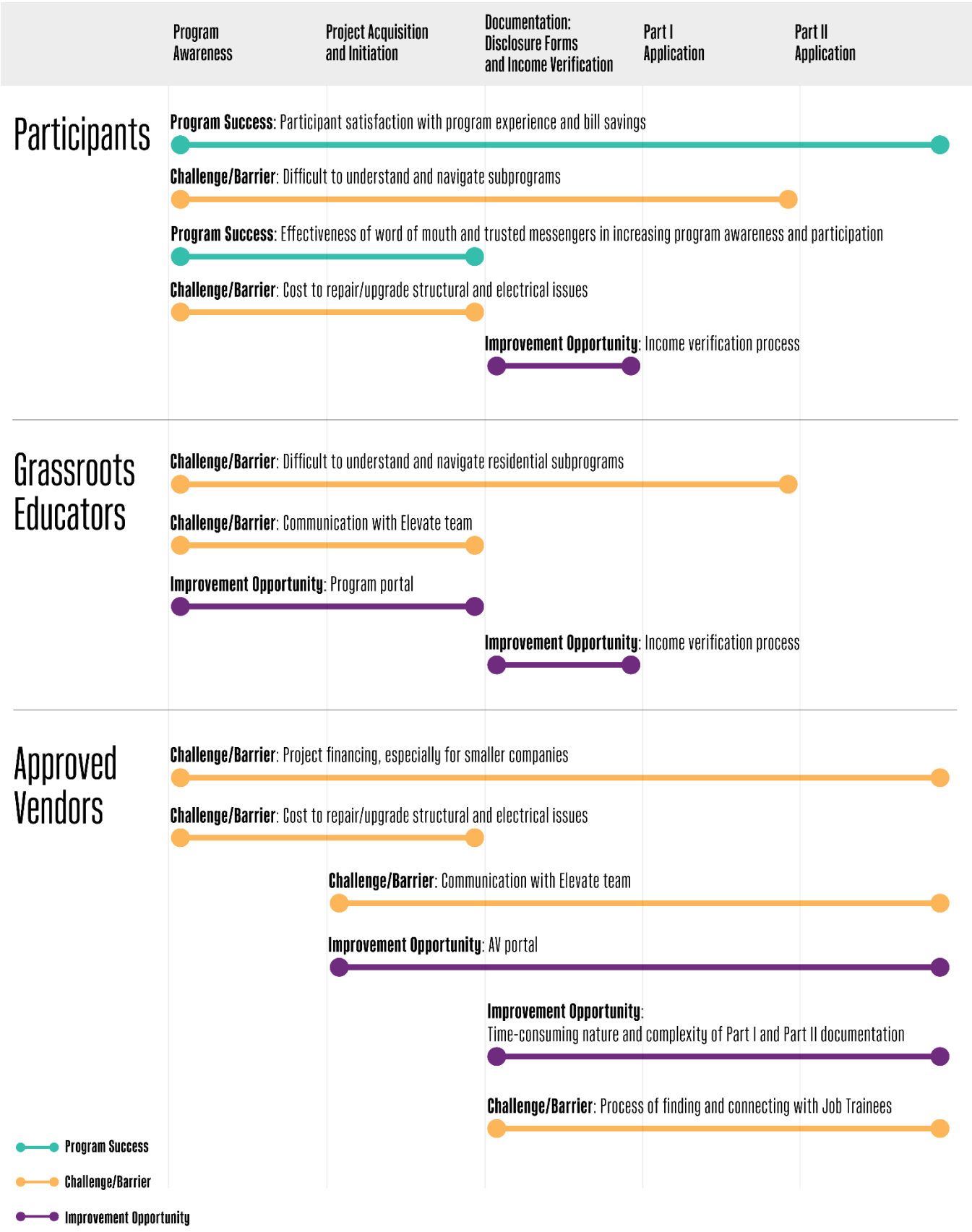
Key Findings and Recommendations

This section provides context on the program's successes, challenges, barriers, and opportunities for improvement. While the key findings are primarily informed by AV surveys, participant focus groups, and interviews with IPA and Elevate staff, we have also incorporated findings from our PY5 evaluation primary data collection. This includes interviews with nonparticipating stakeholders, grassroots educators and job trainers, as well as a survey of job trainees. Cross-cutting findings highlight key insights across key actors involved in the ILSFA program.

Figure 10, below, maps the high-level view of the key findings, focusing on which program actors the findings impact and at what stage of the project lifecycle they impact these actors. For ease of understanding, findings are categorized as:

- Program Success: Areas where the program is achieving its intended goals.
- Improvement Opportunity: Areas where the program has made improvements, but there are still opportunities for additional enhancement.
- Challenges: Issues that hinder participation and achievement of program goals, requiring more concerted effort or collaboration to address.

Figure 10. Key Findings Map



Participant Experiences:

FINDING 1

GE | PARTICIPANT | STAKEHOLDER

Overall, participants in all subprograms report they are satisfied with their experience and believe the program provides benefits including electricity bill savings.

Overall, participants are highly satisfied with the program and suggest that it should be promoted more widely. Participants agree that both community solar and rooftop solar contribute to savings on their electricity bills. Many customers report using those savings for other essentials, such as groceries, gasoline, or family expenses.

Nonparticipating stakeholders (interviewed as part of PY5 data collection) also report that their community members were excited about the bill savings from the CS subprogram and those that participated in the CS subprogram had positive experiences.

Participants in the NP/PF subprogram report that they can better serve their communities with the bill savings they are experiencing. This included:

- Doubling the number of families served by a food pantry.
- Hiring an additional staff member.
- Building an additional home per year.

Participants also see the program as beneficial for the environment. Grassroots educator interviews support this finding. Grassroots educators noted that when discussing the program, they focus on the personal benefits (bill savings) and the broader community benefits (environmental impacts).

FINDING 2

PARTICIPANT | GE

Participants in the CS and Residential Solar (Small) subprograms have similar motivations. Many CS subprogram participants are initially interested in getting rooftop solar but look to community solar as an option when they are not able to install rooftop solar.

CS and Residential Solar (Small) subprogram participants were both interested in participating because they wanted to lower their bills and contribute to renewable, green energy. The CS and Residential Solar (Small) subprograms are marketed to residential customers through direct outreach by AVs, grassroots educators, and the ILSFA website.

CS subscribers were often looking to install solar on their own homes but were unable to for various reasons. While some were worried about the up-front cost of solar panels, others were not eligible because their home was not suitable for solar (i.e., they lived in a mobile home, too much shading), they were renters, or their property owner would not allow it. They felt that community solar was a great alternative to still contribute to renewable energy without having solar rooftop installed.

Program Recommendation:

- Advertise the CS and Residential Solar (Small) subprograms together. Participants were excited about both the CS subprogram and rooftop solar for similar reasons. There was also interest in rooftop solar from CS subscribers, and since the channels for marketing and outreach are similar for both subprograms, this could increase awareness and participation in both subprograms.

FINDING 3

PARTICIPANT | GE | AV

Word of mouth and trusted messengers, including community organizations, grassroots educators, and community members, are the most effective methods to increase program awareness and participation.

Word of mouth is a powerful source of program marketing, and learning about others' experiences in the programs helped many to trust their decision to apply and install solar panels or enroll in the CS subprogram. Similarly, community organizations, including grassroots educators are trusted messengers and play a pivotal role in raising awareness of the ILSFA program and supporting customers through the application/enrollment process.

We heard across all subprograms that many participants originally heard about the program through word of mouth. Many in the Residential Solar (Small) subprogram saw friends, family, and neighbors with solar and were interested in learning more. Multiple NP/PF subprogram respondents said they originally heard about the program from another non-profit or decided to trust the program after talking to another non-profit about their experience with it. They also felt confident when they had an installer either that they knew because they were local or that another non-profit had used. Additionally, NP/PF subprogram participants shared that their communities were excited when their organizations installed solar panels, inspiring some members to explore solar energy for themselves.

Grassroots educators further emphasized the role they play as trusted community partners who help overcome skepticism surrounding solar offerings. They noted that tools like building and relying on long-term relationships with community members as well as using tailored methods of outreach were essential to connect with their communities and educate them about ILSFA.

Similarly, other community organizations also helped skeptical customers who think the program is a scam. For the CS subprogram, in particular, many participants reported first learning of it through their local Community Action Agency (CAA). Four of those reported learning about the program from either a current or past grassroots educator. Sharing customer stories and testimonials from successful participants in the program or connecting customers to current subscribers may help to build this trust.

AVs also recognized the significant role that grassroots educators and word of mouth play in encouraging customers to sign up for ILSFA. AVs reported these two as the most common ways participants learn about the program, just after direct outreach and alongside online resources. Similarly, AVs emphasized the importance of trust-building efforts by grassroots educators in generating interest.

Program Recommendations:

- Continue to leverage community organizations, including grassroots educators, to spread awareness of ILSFA.
- Use case studies of successful projects to improve program awareness and understanding.
- Consider partnering with NP/PF subprogram participants, who are trusted members of their communities, to promote ILSFA, particularly the Residential Solar (Small) and CS subprograms. This could include hosting informational sessions to share the benefits of the on-site solar array, distributing marketing materials, and sharing testimonials to encourage greater participation.
- Explore other experience-based program marketing awareness strategies. Examples include:
    - Pilot a referral program with incentives (e.g., a gift card) for successful referrals.
    - Explore opportunities to recruit community-based organizations and install solar panels on community-centric facilities, such as places of worship, food pantries, and community centers.
    - Develop ILSFA participation and program recognition, such as yard signs with messages noting the house is powered by solar energy through ILSFA participation with a QR code to learn more.

FINDING 4

PARTICIPANT | GE | AV

The Residential Solar (Small and Large) subprograms are complex and difficult to navigate. Participants noted that several parts of the process were complicated, and they wanted more support throughout the process of applying for and participating in ILSFA.

Overall, most participants wanted more information and handholding throughout the process of participating. Participants were frustrated because they felt the participation process was confusing.

For those in the Residential Solar (Small) subprogram, most respondents reported wanting more support in understanding what the next steps were and in finding an AV. Some Residential Solar (Small) participants also shared they would have liked more support and

information after their panels had been installed. Residential Solar (Small) participants wanted more support with:

- Finding an AV and knowing what questions to ask.
- Understanding what their responsibilities were at each step throughout the process.
- Gaining more information about the inspection and interconnection process ahead of time to understand the timescale of the process since many participants experienced delays at this stage in the program.
- Managing installation or post-installation issues with their AV.

CS subprogram subscribers wanted more information about what to expect at each stage in the enrollment process, including how long it would take for them to see the credits on their bill after enrolling. We explore bill comprehension in the next finding.

AV surveys and interviews echoed this feedback about the complexity of the program. AVs noted that the program is complex and about half of the AVs we talked to reported that the program was either "somewhat difficult" or "very difficult" to explain to potential participants.

Similarly, grassroots educators mentioned that the Residential Solar (Small) subprogram processes are time-consuming and can have a lengthy timeline. They noted that even though they worked to support community members through the participation process, community members still faced challenges enrolling in ILSFA.

Program information currently presented on the ILSFA website offers a high-level graphic illustration of how the program, works and the Frequently Asked Questions section includes information that could help interested customers decide to participate.[28] Similarly, the program brochure on the Consumer Education and Resources page provides helpful information to support decision-making. However, the webpage does not have sufficient information about what to expect or an easily accessible, step-by-step overview of what happens after a customer completes the income verification process. It is also unclear the extent to which participants are aware of or using these resources.

Program Recommendations:

- Identify more effective channels for the available existing participant resources to be made more accessible. Possibilities could include printing materials to be distributed by AVs or grassroots educators. The AVs or grassroots educators could alternatively share a QR code with participants directing them to this section of the websites.
- Develop a buyer's guide for CS subscribers and Residential Solar (Small) customers and distribute this using the methods described above. This guide could be printed for vendors to share as a resource for customers. Alternatively, vendors could share a handout with a QR code, directing people to the online consumer education resources.

[28] https://www.illinoissfa.com/residential-solar/, https://www.illinoissfa.com/community-solar/, and https://www.illinoissfa.com/non-profit-public-facilities/- Accessed 3/13/2025

Additional information in a new buyer's guide could include:
    - A breakdown of what each step/phase of applying/participation in the program could look like, including who is involved and what to expect.
    - Expected timelines for each phase of the process.
    - A list of questions to ask your AV.
    - Who to contact for questions at each phase.
    - Who to contact if your AV is not responsive post-installation.
    - Billing information, including how to read your new bills with solar incorporated.
- Consider adding more information to the "Find an Approved Vendor" section on the ILSFA website to help participants make informed decisions about which vendor to select:
    - Implement a customer review and rating system for AVs, allowing participants to see feedback from others.
    - Provide key information about participating AVs, including the number of completed projects, participant ratings, and performance feedback. Highlight success stories from the program.
    - Ensure easy access to existing AV performance reports by linking them directly to AV listings.
    - Encourage AVs to answer the suggested "list of questions to ask your AV," and offer functionality for participants to filter and compare AVs based on these responses.
- Improve customer support services including the ILSFA call center. Assess the call center's knowledge of common participants' questions and areas in which participants most frequently need support.

FINDING 5

PARTICIPANT | GE

Participants reported being confused about how to read their electric utility bills, particularly after installing solar, and wanted more support. CS subprogram participants who received two bills noted additional challenges.

Program participants across all three subprograms also reported they were confused about the billing process and wished they had a better understanding of how this process would work with solar. They also wanted more resources to understand their current bills. Grassroots educators have described this as a pain point for participants, as well.

Residential Solar (Small) and NP/PF subprogram participants both wanted more information about how to read and understand their bill with the solar credits. CS subscribers noted challenges with the two-bill system, including:

- Not knowing in advance of signing up for the CS subprogram that they would receive two bills instead of one.

- A delay in CS credits showing up on their utility bill, which meant that participants received the bill discount in a different month than they paid for solar. This sometimes resulted in participants not seeing CS on their bill in certain months, then seeing multiple credits in other months. This delay was stressful for some participants who said their bill was higher than expected as a result, although others described it as not a big concern.
- Confusion around the change in the number of credits participants received for solar in each month. Delays in credits showing up on bills further added to this confusion.

As of PY6, the program requires consolidated billing for the CS projects approved in PY6 and beyond, meaning all new participants in the subprogram must use a single-bill net crediting approach. Under this system, both the subscription fee and bill credit appear on a subscriber's utility bill, reducing confusion and streamlining payments.

Program Recommendations:

- Include resources on interpreting electric utility bills with and without solar on the website and other educational materials. Since CS participants who subscribe to projects approved prior to PY6 may still receive multiple bills, include information on what to expect with a two-bill system.

FINDING 6

GE | AV | PARTICIPANT

Structural and electrical issues and costs for repairs and upgrades are barriers to participation in the Residential Solar (Small) subprogram.

While most installations went well, Residential Solar (Small) subprogram participants experienced some issues with their roofs and/or electrical panels during the installation process. For most participants we talked to, their AV, their insurance company, or their utility were able to help them fix these problems, but one participant reported they had to pay for the upgrades themselves to install the solar panels. Grassroots educators also noted that some interested households are not able to participate in the Residential Solar (Small) subprogram because of structural or electrical issues in their homes.

AVs shared similar sentiments noting that many homes that are eligible for ILSFA require critical repairs, particularly to their roofing and electrical systems; AVs emphasized the need for a capital advance mechanism or dedicated funding to address preexisting home conditions. Without such resources, AVs struggle to cover these costs, which in turn limits their ability to participate in the program or scale their operations in it. AVs report that homes not being “solar ready” poses an additional financing burden on AVs who need to float the project costs up-front. This adds to the financing challenges described in Finding 11, below.

Program Recommendation:

- Continue to explore funding sources and grants that can pay for home repairs. Build on lessons learned from the Home Repairs and Upgrades pilot and explore

opportunities to braid funding for home repairs as part of collaboration with other programs through partnerships with CAAs, utilities, or other state agencies. This support is critical for homes that are not ready for solar panels but have interested and qualified homeowners.

FINDING 7

PARTICIPANT | AV

The income verification process is not reported as a significant barrier by successful program participants, though some grassroots educators and AVs note this as a step in the participation process where people drop out.

Participants in both the CS and Residential Solar (Small) subprograms reported that income verification was not overly burdensome. NP/PF participants said the eligibility verification process was simple and straightforward, and their AV took care of most of it. Most CS subscribers we spoke to reported that the third-party enrollment option for income verification was smooth and easy. However, it is important to caveat this finding with the reminder that the participants we spoke to are ones that successfully completed participation.

While we do not currently have insights into those for whom the income verification process may have prevented them from applying, AVs and grassroots educators provided additional perspectives on the ease of income verification. A few AVs reported that the income verification process has prevented some participants from going through with the program because they are unwilling to provide information or have more pressing priorities. In PY5, we heard from grassroots educators that customers may drop out at the income verification stage primarily due to long wait times and the burden of providing documentation. While some grassroots educators said this process had gotten easier over time, others said this step still resulted in a significant loss of potential participants[29].

Program Recommendation:

- To better understand the experience of customers going through the income verification process, future qualitative research should include partial participants that expressed interest but did not make it past the income verification stage. Grassroots educators could be a good resource to find and connect with these customers.

[29] One of the goals of the DOE Low-income Clean Energy Connector tool is to streamline the income verification process. Since all households added to the Connector will be LIHEAP approved, no additional documentation is required, simplifying the process for both the participant and the AVs.

Approved Vendor Experiences:

FINDING 8

GE | AV

There were challenges with the communication and responsiveness of Elevate. Vendors wished they had more support from Elevate, and the most frequent issue they highlighted was communication.

AVs feedback regarding Elevate was mixed. AVs acknowledged Elevate's efforts to improve processes and foster collaboration but said they still found it challenging to work with it due to persistent gaps in preparation, knowledge, and communication among its staff. Many AVs highlighted communication issues, such as delays, unresponsiveness, insufficient proactive outreach, and unanswered questions, primarily regarding program requirements and the AV Portal. They also expressed frustration with inconsistent, contradictory, or vague guidance and requests, particularly with the AV Portal training.

Grassroots educators also noted challenges with the Elevate team's slow response times and unclear communication, as noted in the PY5 report.

The Elevate team experienced staffing changes and capacity challenges in PY5 and PY6. In PY6, Elevate added new staff to the program; expanded the support scope of vendors by improving communication, giving office hours and trainings more visibility and releasing the invoicing schedule; and initiated the process of developing SOPs to address some of the team capacity and responsiveness challenges.

Program Recommendations:

- Improve communication between Elevate and grassroots educators or AVs, including:
  - Provide timely responses and a more predictable project approval timeline.
  - Identify and reduce inconsistencies in guidance, leveraging tools such as SOPs and other program documentation.
  - Expand resources AVs have access to navigate the program more effectively, like the ones Illinois Shines has; examples are guides, webinars, standardized procedures, and legal guidance over some of the most complex requirements.

FINDING 9

AV

Submitting project documentation is challenging for most AVs, particularly due to the complexity and time-consuming nature of Part I and Part II applications.

Nine of the 10 AVs that provided feedback reported that it was somewhat or very difficult to submit project documentation. They described it as particularly challenging for companies that just joined ILSFA.

Nine respondents cited filling out Part I documentation as difficult due to its complexity and time-consuming nature, and five indicated the same for the Part II applications. The second most common challenge AVs reported was design and usability issues with the AV Portal for both Part I and II of documentation.

Four AVs provided specific feedback on how the program compares to Illinois Shines and noted that Illinois Shines has simpler documentation requirements, less stringent compliance, a more streamlined system, and fewer administrative burdens, leading to more predictable timelines and fewer workflow delays.

We summarized AVs' feedback on the AV Portal in the next finding.

Program Recommendations:

- Adopt best practices from Illinois Shines to streamline processes and reduce bottlenecks for Part I and Part II applications, including:
  - Simplify process requirements and use templated and web-based forms and automation instead of manual inputs and uploads.
  - Minimize redundancies (e.g., combine income and homeownership verifications during initial screenings).
  - Consider providing more flexible reporting structures (e.g., quarterly, or biannual reporting) as part of future updates to the Long-Term Renewable Resources Procurement Plan and contracts.
  - Consider offering different requirements or a fast-track queue for established AVs who consistently submit high-quality project documentation. [30]
  - Ensure similar processing times across AVs. Also, communicate with AVs how the quality of submissions impacts review timelines. Some AVs perceived that certain organizations were being given priority in PY5 and PY6 and that other AVs' applications were being processed sooner.
  - Expedite the review process—for example, by optimizing the transition from Part I approval to Illinois Commerce Commission (ICC) submission—and accelerate incentive payments.
  - Strengthen application support and AV management team communication.

FINDING 10

GE | AV

Overall, usability of the AV Portal received mixed feedback with significant opportunities for improvement identified. While some AVs find it manageable over time, others described it as redundant, confusing, and prone to crashes.

[30] The program has updated vendor requirements for the 2025-2026 program year so vendors who have more than 75 Part II approved projects will have a lower percentage of projects randomly selected and reviewed by the program.

Common challenges included navigation issues and difficulties with specific sections like project creation, disclosures, and vendor reports. AVs particularly struggled with inconsistent document requirements and duplicated tasks. Additionally, they noted the AV Portal's lack of flexibility for diverse project types and contract structures—such as energy sovereignty options, soft purchases, and third-party lending agreements—as a significant limitation.

The AV Portal home page and dashboard individually received more positive ratings than the portal as a whole, with both being described as somewhat or moderately helpful.

Recommendation:

- Enhance the usability, design, and regular updates of the AV Portal:
  - Increase document upload limits.
  - Reintroduce CSV file submissions or templates for disclosures to minimize errors and avoid having to manually input them.
  - Enable easier sorting and filtering of projects.
  - Include tool tips across the portal that explain its sections and fields.
  - Ensure the information is updated regularly, including project stages.
  - Add visual tools like pie charts, while consolidating layouts and prioritizing active projects to reduce the portal's complexity and improve its usability.
  - Provide visibility into the invoicing timeline and project status to improve project tracking.
- Strengthen training and support for AVs to address knowledge gaps in the AV Portal and improve the feedback and inquiry process by introducing additional tools such as the following:
  - Create a centralized FAQ section within the AV Portal where vendors can quickly find answers to frequently asked questions.
  - Develop a structured AV Portal training session/guide or training modules program designed especially for new AVs and staff members, providing step-by-step guidance on using the portal at different project stages.
  - Include a feedback feature or form where AVs can report issues or suggest improvements to the portal.
  - Consider adding a chatbot feature for real-time assistance (longer-term solution).

FINDING 11 AV

Financing remains one of the biggest challenges for AVs, especially for smaller companies, due to high up-front costs, delayed payments, and limited financing options for smaller projects.

AVs typically finance ILSFA projects through self-financing and loans, and most of them described the process of financing projects while they are being built as "very difficult" or "somewhat difficult."

AVs face several specific challenges in financing ILSFA projects. High up-front costs combined with delayed payouts force AVs to finance operations over extended periods, creating significant financial strain and cash flow difficulties. Securing funding for smaller projects is particularly challenging for AVs reliant on third-party financing, especially in the NP/PF and Residential Solar (Small) subprograms. Additionally, accessing capital remains a significant barrier for smaller businesses as lending institutions are often hesitant to finance projects from newer or smaller businesses.

Recommendation:

- Provide greater clarity and faster processing to alleviate AVs' financial strain and cash flow challenges while projects are being built.
    - Shorten the REC payment process by expediting Part II reviews to reduce payment delays and explore options for percentage payouts or partial payments at project milestones.
- Provide information and guidance on available financing programs like the Climate Bank, as well as expanded access to low- or no-interest loans, grants, bridge loans, or alternative funding sources, such as private equity or DCEO grants. Create partnerships with other organizations to offer funding or lending resources specifically compatible with ILSFA projects.

FINDING 12

AV | JOB TRAINER

AVs reported the ILSFA job training requirements were challenging primarily due to the difficulty of finding and connecting with job trainees. They also noted training gaps in technical and hands-on experience.

All AVs reported challenges in meeting ILSFA job training requirements, with the most common difficulty being finding or connecting with trainees, followed by:

- Insufficient trainee availability.
- Limited eligibility period for trainees.
- Lack of job training programs near project sites.
- Confusion around job trainee hour requirements .
- Insufficient communication from job trainers with AVs.

When assessing trainee preparedness, most AVs found trainees to be only "somewhat prepared" or "moderately prepared," citing a lack of technical and hands-on experience. To address these deficiencies, AVs frequently implemented supplementary measures such as

providing their own training, creating on-the-job learning opportunities, or modifying project roles to better match trainees' capabilities.

These findings align with our previous research from job trainee surveys and job training program interviews detailed in the PY5 report. Our investigation of job training providers revealed that qualified programs offer both in-person and online formats. All seven training programs we interviewed for the PY5 evaluation teach foundational electrical skills and a range of transferable competencies including tool handling, solar site design, sales techniques, job site safety, resume building, and people skills. Despite comprehensive technical instruction on solar system installation and maintenance, these programs lack sufficient opportunities for on-site, hands-on experience—a deficiency consistently highlighted by AVs.

Recommendations:

- Help AVs connect with job training providers or job trainees. Strategies could include:
    - Identifying successful partnerships and employment pathways in recruiting job trainees and sharing them with participating job training programs and AVs. In interviews with job trainers, we learned that some organizations cultivated relationships with ILSFA vendors and other solar installers to place trainees on job sites after the completion of their training. Two trainers said they relied on personal connections within the solar industry to help trainees find jobs.
    - Providing job trainees with opportunities and resources to help them identify and connect potential AVs, such as:
        - A current list of AVs and installers working with the program or inform them.
        - Annual job fairs for job training programs, AVs, and job trainees.
    - Exploring opportunities to engage grassroots educators in connecting their communities to job training programs and AVs.

Program Actor Feedback (Detailed Findings)

Approved Vendor Survey and Interviews

The evaluation team gathered feedback from 10 AVs between September 5 to November 15, 2024. Six AVs participated in an online survey, and we collected responses to survey questions from four AVs through phone interviews. The sample included AVs who worked in PY5 and PY6. All respondents reported having started as ILSFA AVs in PY5 or earlier, with half identifying as micro-enterprises (having one to nine employees). Among them, six AVs had worked across more than two subprograms, while four had participated in only one. The majority reported experience in the

NP/PF subprogram (n=8); the next most frequently cited subprogram was Residential Solar (Small) (n=6).

Additionally, during the first weeks of January 2025, the evaluation team conducted four follow-up interviews with vendors involved in both ILSFA and Illinois Shines. These interviews explored opportunities for better alignment between the ILSFA and Illinois Shines programs.

We also spoke to a former AV in the program whose contact was on the list of PY5-PY6 AVs but was no longer with the named AV. While the respondent did not answer all the survey questions, they shared their experiences with the program in general. We incorporated this AV's feedback in this section, as well.

Below, we summarize the feedback collected through surveys, interviews, and follow-up conversations. We outline AVs' experiences with ILSFA, including their reasons for participation; the challenges they face with the program, its portal, requirements, and processes; and their perspectives on ILSFA compared to Illinois Shines.

Participation Drivers

One of the questions included in the survey and interviews was a closed-ended, multiple-response question asking AVs to select all applicable reasons for their firm's participation in the ILSFA program. Nine out of 10 AVs reported that they participate in ILSFA because of the opportunity to help their local community. The second most common reason was that ILSFA projects fit well into their business model (n=6).

Less common reasons cited were as follows: (1) the economic attractiveness of the REC incentive values (n=5) or of the REC payment terms (n=5), (2) ILSFA-qualified projects comprise a substantial portion of their overall revenue (n=3), and (3) the vendor-led program approach (n=3).

It fits into a bigger picture of making solar a viable source in the state. We are not doing it for the money we get back. Community engagement is the main driver. — AV

It is mostly the community benefits. But also, if RECs were lower, the community benefits would not be possible. — AV

Project Documentation

Nine of the 10 AVs reported that submitting project documentation was either "somewhat difficult" or "very difficult." Some even described the process as so cumbersome that they could not involve team members who were not versed in the ILSFA program in managing projects' documentation. The program documentation complexity makes it particularly challenging for companies that are new to the program.

It was a learning curve. The first year being an AV was sort of like being in a tornado, to be quite honest. — AV

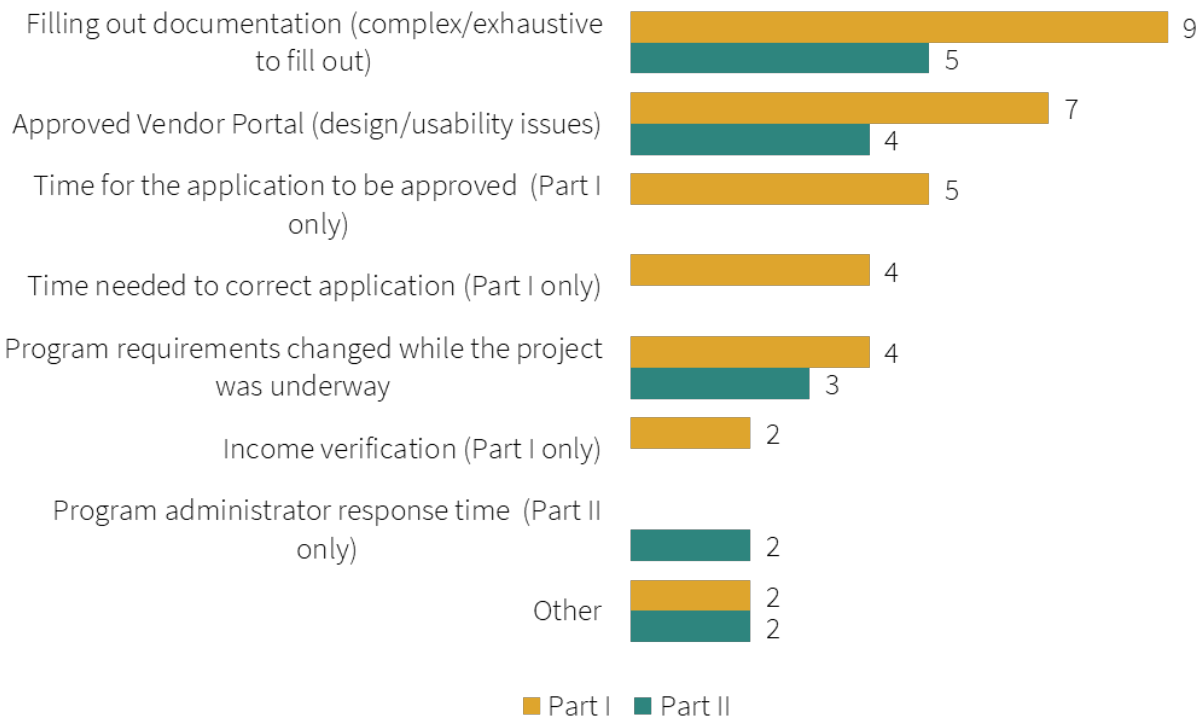
Training people to the higher standard of ILSFA requirements was difficult and time consuming. I have been doing this for [three] years and I haven't been able to bring other team members in to help because of the difficulty of training someone. — AV

Nine respondents cited filling out Part I documentation as difficult due to its complexity and time-consuming nature, and five indicated the same being true for Part II. The second most common challenge AVs reported was design and usability issues with the AV Portal for both Part I and II of documentation.

We got into a rhythm when we were doing consistent applications when we knew all the requirements, but every year something changes. It was really frustrating. It's just a lot to keep track of. — AV

Figure 11 displays the number of AVs who reported difficulties with each element of Part I and Part II project documentation.

Figure 11. Elements of the Process that Posed Difficulties in Part I and Part II Project Documentation (n=10)



One AV noted as a challenge that projects over 25kW require a fully executed interconnection agreement with the utility to qualify for ILSFA. They explained that utilities often demand agreement and payment for grid upgrades within tight timelines, leaving AVs uncertain about how or unable to cover costs without ILSFA approval. Additionally, they argued that long utility processing times—sometimes requiring two to four months or more—can lead to further delays and add uncertainty.

The utility expects us to pay them immediately. This is a problem because we don't know if we will get the project into the ILSFA, so we don't know if we will be able to pay the utility for that project. We are in limbo there. — AV

There are a lot of moving parts that do not talk to each other. — AV

Participant Acquisition

Vendors outlined that participants tend to learn about the program through their direct outreach (n=6), followed by referrals from grassroots educators (n=3), word of mouth (n=3), online resources (n=3), and prior connections to Elevate (n=3). AVs emphasized the importance of trust-building efforts, such as workshops and webinars, in generating interest.

We engaged with CBOs initially [grassroots educators] and others that already had links with community. They would do workshops and Zoom webinars. That was pivotal in building trust and then benefiting from word of mouth. — AV

There is nothing like the direct approach to customers. Most of the projects (around 30% to 40%) are referrals from previous customers. — AV

Explaining the program varies in difficulty. Four out of seven AVs who responded to this section found it "somewhat difficult" or "very difficult," while others noted that even if the explanation is straightforward, gaining participants' trust and collecting income documentation remain challenging.

It is easy to explain it, but hard to get them to accept it and believe it because there are many components. Their home is their most valuable resource. — AV

It's somewhat easy, even if some people think it is too good to be true. To collect all the income documents is even more complex. — AV

Income Verification

Three of the six responding AVs reported that the income verification process has prevented participants from going through with the project because they were unwilling to provide personal information (n=2) or because they had greater priorities that outweighed income verification (n=1).

There needs to be more sensitivity. Some mixed-status families will be more apprehensive [to sharing personal information] for a lot of valid reasons. The threshold needs to be worked out and be more nuanced. — Former AV in the program

AV Portal

Overall usability of the AV Portal received mixed feedback with some AVs finding it manageable over time and others describing it as redundant, confusing, and prone to crashes. Most respondents rated the AV Portal as being overall "neither easy nor difficult to use" (four out of six); three respondents thought it is "somewhat easy to use," while two considered it to be "very difficult."

It's more annoying than challenging. — AV

Once you get used to [the] ILSFA Portal, it becomes easy if you are in the rhythm of it. — AV

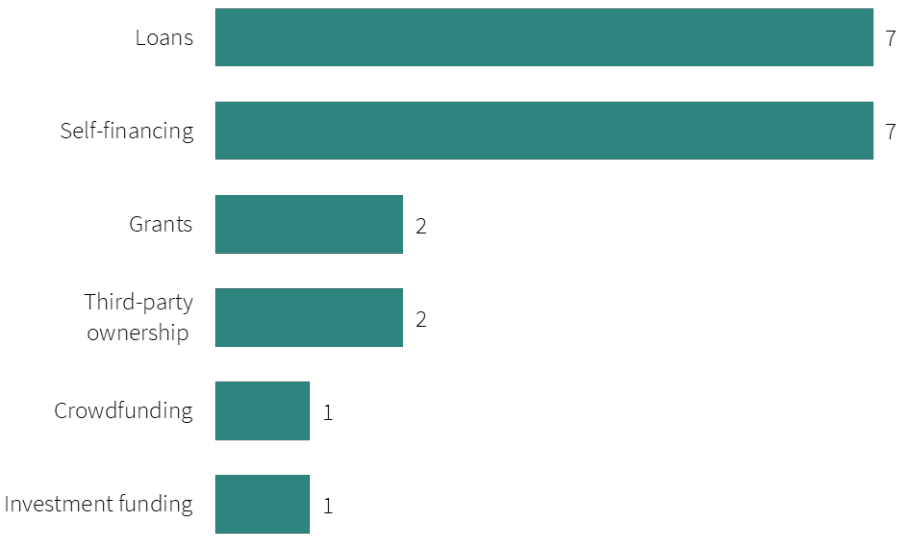
Among the six AVs who reported having problems with the portal, the most common challenges included navigation issues and portal crashes. The specific sections in which AVs mentioned experiencing difficulties were project creation, disclosures, and vendor reports. In contrast, the AV Portal home page and dashboard received more positive ratings than the AV Portal itself, with both generally being described as "somewhat helpful" or "moderately helpful." Some AVs mention they particularly struggled with inconsistent document requirements and duplicative tasks.

Project Financing

AVs typically finance ILSFA projects through self-financing and loans (see Figure 12), and almost all of them (n=9) described the process of financing projects while they are being built as "very difficult" or "somewhat difficult."

The financing was very difficult. We were in survival mode, especially in the first year. We had a small budget. The acquisition cost was a killer, but we were looking at the long-term goals. — AV

Figure 12. AVs Financing Sources (n=10)



AVs face several specific challenges in financing ILSFA projects, including high up-front costs combined, delayed payouts, and cash flow difficulties. Securing funding for smaller projects is particularly challenging for AVs reliant on third-party financing, especially in the NP/PF subprogram, where participants often lack the capacity to take out loans, and in the Residential Solar (Small) subprogram, given the unpredictable REC payment schedules. Also, smaller businesses struggle to access capital as lenders are often hesitant to finance projects from newer or smaller AVs.

[Residential Solar (Small)] is the most complicated, when we cannot predict when we will get the money back. — AV

While we've taken significant steps to present viable solutions, it's disappointing that our efforts were not enough to satisfy financial institutions' requirements. — AV

Job Training Requirements

All AVs reported challenges in meeting ILSFA job training requirements (Figure 13), with the most common issue being difficulty finding or connecting with trainees (n=7). They noted that larger companies often absorb recent graduates, driven by Renewable Portfolio Standard (RPS) incentives, leaving fewer candidates for smaller or local developers. Additionally, most AVs connect with job trainees through qualified training programs (n=7), though one vendor pointed out that only a few workforce development organizations maintain effective communication with AVs.

Figure 13. AV Challenges to Meeting Program Job Training Requirements (n=9)

Most AVs found trainees to be only "somewhat prepared" or "moderately prepared," citing a lack of technical and hands-on experience. AVs often addressed this gap by providing their own training or providing on-the-job experience or instead adjusting project roles to align with trainees' skill levels. However, some vendors mentioned that many trainees from these programs ultimately take roles within their companies that are not related to ILSFA projects.

Some of them did not know anything. Some it was a mix. Some were developing them to be entrepreneurs and workers. Some were just there to fill in hours. — AV

They have basic solar knowledge, that's really it. They require significant on-the-job training. —AV

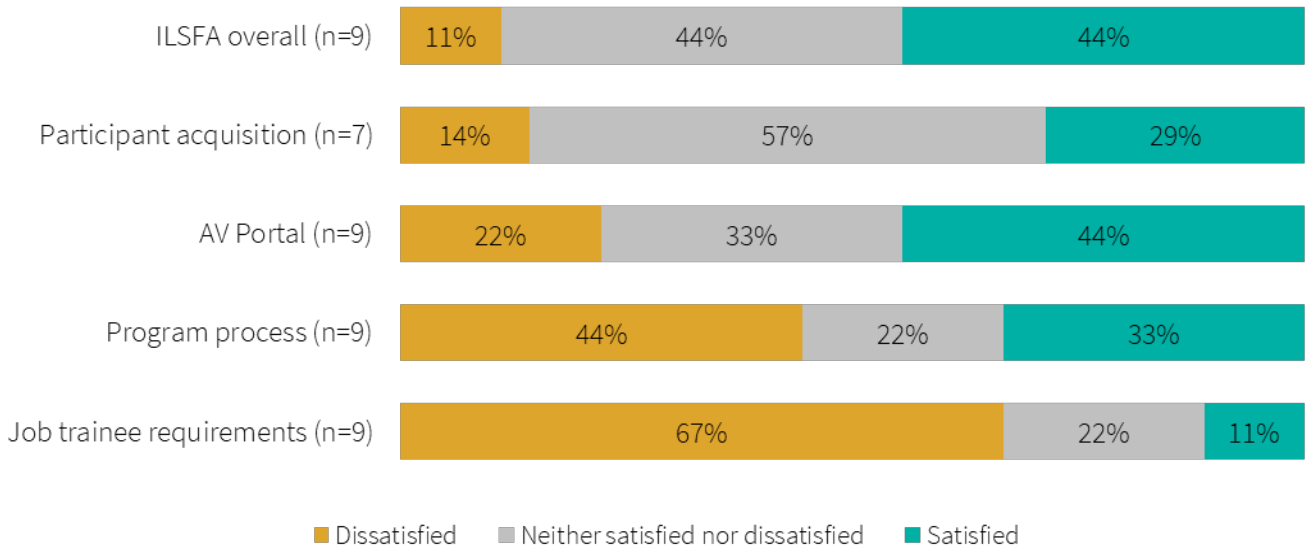
Program Satisfaction

The overall ILSFA program is moderately well-reviewed by AVs. However, they indicated there was room for improvement with some program elements and with their overall experience with Elevate.

Four respondents reported being "very satisfied" or "somewhat satisfied," four reported feeling neutral, and only one reported being "very dissatisfied" with the program.

On individual program components, vendors rated the participant acquisition process and the AV Portal better than the program process (documentation/application) and job trainee requirements. Figure 14, below, shows the levels of AV satisfaction by program element.

Figure 14. AV Satisfaction by Program Element



AV feedback regarding Elevate was mixed. AVs acknowledged Elevate's efforts to improve processes and foster collaboration but said they still found it challenging to work with them due to its staff's persistent gaps in preparation, knowledge, and communication. Many AVs highlighted communication issues, such as delays, a lack of proactive outreach, and unanswered questions. They also expressed frustration with inconsistent, contradictory, or vague guidance and requests, particularly with the ILSFA portal training.

We understand the ever-changing landscape of the industry along with these programs. We have attempted to come to multiple discussions with empathy and a desire to connect and understand the ILSFA Program better. That being said, we have left multiple meetings disappointed. — AV

The employees at Elevate are friendly, but they do not seem to be properly prepared, trained, or knowledgeable about the task at hand. — AV

Opportunities for Improvement Based on Illinois Shines

Of the four AVs that the evaluation team talked to in the follow-up interviews, two submitted more Illinois Shines projects and two submitted more ILSFA projects. However, three reported they have adjusted their participation over time based on what they could scale effectively at different moments. Table 46 shows what vendors mentioned as the biggest benefits for prioritizing each program.

Table 47. ILSFA and Illinois Shines Benefits Comparison

ILSFA	ILLINOIS SHINES
• Targeted strategy and financial incentives, particularly high REC prices and up-front cost payout structures • More accessible pathway for residential participation • More personalized process due to the lower volume of projects • Shorter payment timelines • Opportunity to serve customers who would not be able to access solar through Illinois Shines	• Simpler process, fewer requirements, and more user-friendly portal, which reduces administrative burdens • Easier financing and revenue forecasting with clearer revenue projections and lower financial risk • Lower up-front costs • No challenges with income verification • Reliable support and responsiveness from program administrators • Flexible application windows

One of the main differences between the programs is that, compared to Illinois Shines, ILSFA has more robust customer protections and transparency built into its requirements. Vendors noted that they do not see customer protections as a hurdle for ILSFA; instead, they generally supported their inclusion and mentioned that many practices are a common procedure for them. However, three of the four found some ILSFA program processes more burdensome or less efficient. They cited redundant documentation, unclear communication channels, limited responsiveness from the program implementer, and a less user-friendly portal as key obstacles.

I think a lot of the things required in ILSFA we were doing as best practices anyway. I appreciate those requirements but having to have that all in and documented and submitted before you know you are going to get funding makes it hard to go ahead with the project. With Illinois Shines we might still do all those steps, but we know we have the contract. — AV Working in Both ILSFA and Illinois Shines

I don't think the regulations of ILSFA are its biggest issue; it doesn't have the process or streamlined efficiency to meet those higher standards. — AV Working in Both ILSFA and Illinois Shines

Despite their complaints, AVs expressed they appreciate and value both programs. They believe that some of the challenges they see in ILSFA can be solved by adopting some of Illinois Shines' elements or best practices. Key alignment opportunities include streamlining processes with automation, improving portal functionality, increasing flexibility in deadlines and reporting, strengthening communication, and expanding AV resources —such as guides, webinars, and standardized procedures.

Both are great programs. I feel very strongly about Illinois because of these programs. There are roadblocks and growing pains where they could work even better and be even more of a showcase. — AV Working in Both ILSFA and Illinois Shines

The [Adjustable Block Program] and [ILSFA] are the best programs that we have worked with, as far as government programs. Of course there are always things to improve. If you are new to solar, it can be overwhelming, but with experience it goes out. — AV Working in Both ILSFA and Illinois Shines

Participant Research

This section contains detailed findings from participant research across all four subprograms. It starts with an overview of the participant research and is followed by detailed findings by subprogram.

Research Process

The evaluation team conducted participant research with participants in all four subprograms.[31] We conducted both focus groups and in-depth interviews with a total of 39 participants across the four subprograms. Table 47 below summarizes research activities and respondent counts.

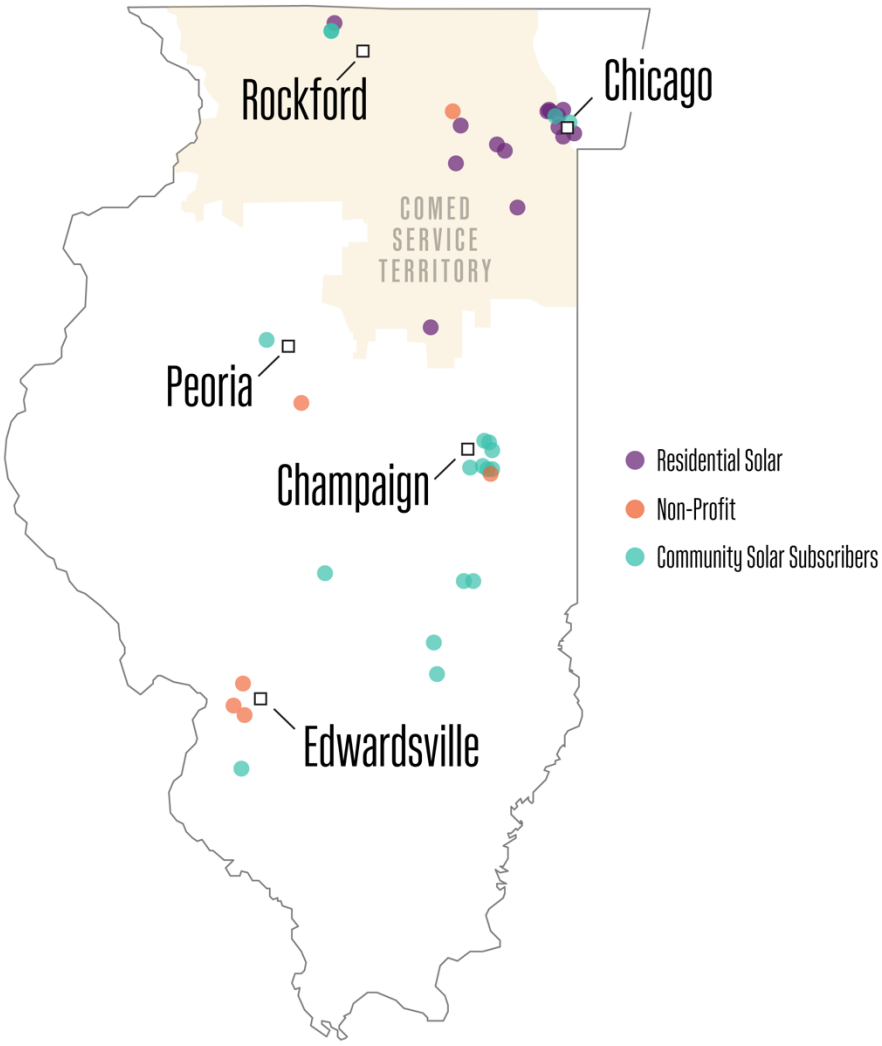
Table 48: Participant Research Summary

SUBPROGRAM	POPULATION SIZE	FOCUS GROUPS	IN-DEPTH INTERVIEWS	TOTAL RESPONDENTS
Residential Solar (Small)	184	1 group	9	14
Community Solar	961	3 groups	n/a	18
Residential Solar (Large)	2	n/a	1	1
Non-Profit/Public Facilities	45	n/a	6	6
TOTAL				39

While our original goal was to conduct focus groups with all subprograms, we decided to pivot to in-depth interviews for Residential Solar (Small), NP/PF, and Residential Solar (Large) due to smaller population sizes and a lower-than-expected initial response from participants. Respondents represented a wide geographic area. The map below, Figure 15, shows this distribution.

[31] Evaluation team used a list of PY1-PY6 program participants we received from Elevate. We used participants for the project energized after July 1, 2022, in our sample.

Figure 15: Map of Participant Respondent Locations



Note: To protect the anonymity of respondents, we aggregated respondents' location to zip code. We also combined both Residential Solar (Small) and Residential Solare (Large) into one category here due to low respondent numbers.

The following sections summarize findings from participant focus groups and in-depth interviews.

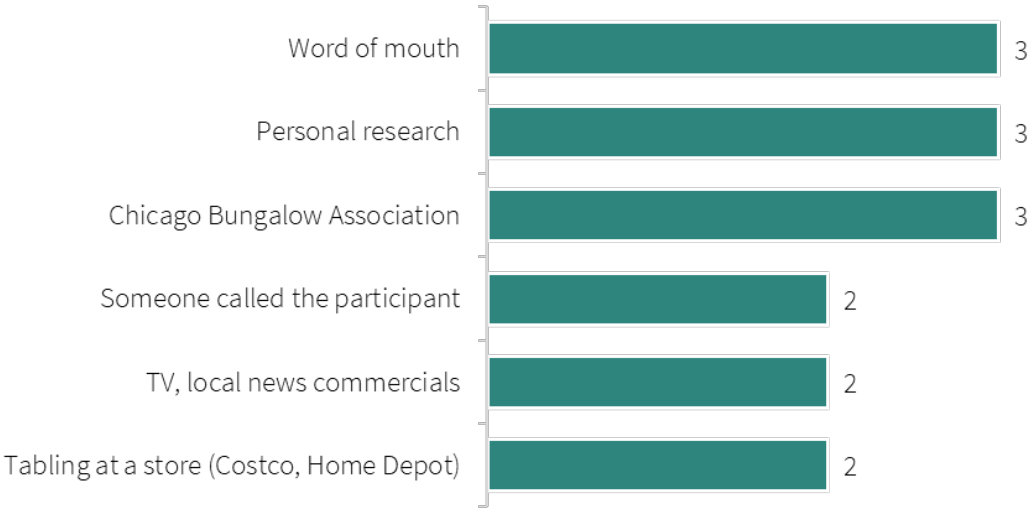
Residential Solar (Small) Focus Groups and Interviews

The evaluation team conducted both focus groups and in-depth interviews with Residential Solar (Small) participants. We conducted one focus group and eight in-depth interviews for a total of 14 respondents. This section summarizes detailed findings from this research task.

ILSFA Awareness and Initial Impressions

Residential Solar (Small) participants initially heard about ILSFA through a variety of means. There was no one common path to participation, and many had an initial interest in solar before learning about the program. Some had been in the process of doing their own research on how they could install solar panels when they found the program (n=3), and some heard about it through word of mouth (n=3). A few had heard about ILSFA through a webinar hosted by the Chicago Bungalow Association (n=3). Some participants heard about the program from a few places and could not remember the exact source. Figure 16, below, summarizes all sources of awareness.

Figure 16: Residential Solar (Small) Participant Sources of Awareness (n=14)



When participants were first considering solar panels for their home, most were initially excited about saving money on their bills. However, many reported they were equally excited to have solar panels and contribute to renewable energy. One person who owned an electric vehicle (EV) was excited about the idea of charging their EV with solar power. Some participants had lived other places where solar was more present (e.g., Arizona, California, and Europe), and they were excited to have the opportunity to have solar where they currently live. And lastly, because so many participants had been interested in solar panels before they learned about the program, they were very excited that the panels would be installed at no cost to them. They were aware of how expensive installing solar panels on their home could be, and it was very appealing that they did not have to pay anything out of pocket. The quote below is from a respondent who was excited that solar panels were available to those in their income range.

When the [Chicago] Bungalow Association brought on Sunrun [to the webinar] and they talked about Solar for All, it was like, ok, solar is available to people that don't make $150,000 a year. —ILSFA Residential Solar (Small) Participant

Questions, Concerns, and Resources

After initially learning about ILSFA, participants expressed several questions and concerns, primarily around what they were supposed to do next. Some shared that there was no follow-up after they initially contacted the program and felt there was no clarity on next steps.

Those who did their own research and did not have any previous guidance from someone from the program seemed to face the most trouble in figuring out the actions they needed to take to move things forward. The quotes below highlight some of these frustrations.

It was like "ok what do I do next". I didn't know. There weren't any steps. But I was really adamant, and I really wanted to know, so I just kept going and wanted to follow-up. —ILSFA Residential Solar (Small) Participant

It felt like I was on a treasure hunt trying to find answers to the questions I had. A little more guidance would have been helpful. —ILSFA Residential Solar (Small) Participant

Outside of not being sure about what the next steps were, other participants described concerns surrounding the installation process, including how long it would take and if their roof would be damaged in the process. The quote below is from one participant worried about their roof.

My roof was only 3-4 years old, so I wanted to make sure they didn't damage my new roof. —ILSFA Residential Solar (Small) Participant

Some respondents wanted to know more about the basics of solar panels. These participants were worried about what would happen if the solar panels did not work or if they would have electricity if it was not sunny outside. Others who had a little more knowledge about solar systems were curious to know which technical system they would receive, who would be providing maintenance, and if the solar panels would cover the electricity they used in their home. Some also wanted a better understanding of the timeline that it was going to take for their solar system to be installed.

Residential Solar (Small) participants used a variety of resources to try to find answers to their questions. Overall, many were disappointed with the support they received and reported they had to be very persistent in finding the information they were looking for. Some respondents said they had called the program for more information but were disappointed with what they were able to learn. They would like to see better information available over the phone and on the website to potential participants. The Chicago Bungalow Association webinar was very helpful for those who had heard about it from the association (n=3). Some described it as the "selling point" for them.

Many respondents relied on their AV to provide insight into their questions. Respondents highlighted a few AVs as being particularly helpful during this process. A couple of respondents reported they had to do their own digging and used Google to find answers to their questions. The quotes below highlight some of the difficulties respondents faced.

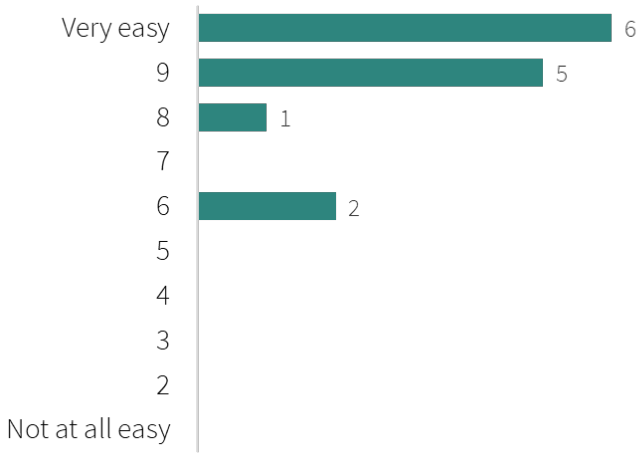
I was all on my own. It was a very difficult process, even for me. But they should really help people because it's hard for seniors and IQ people. The AV was more supportive than ILSFA. —ILSFA Residential Solar (Small) Participant

More than just an 800 number would be good. Maybe someone a bit more knowledgeable; it was just left up to me to call the vendors and ask questions. —ILSFA Residential Solar (Small) Participant

Installation Process

Income Verification: Most participants ranked the income verification process as a nine or 10 on a scale from one to 10, where one meant "not at all easy" and 10 meant "very easy." Most participants reported they completed their income verification through their AV and had no issues with this process. The average response on this scale was 8.9. Figure 17, below, summarizes all responses.

Figure 17: Ease of Income Verification for Residential Solar (Small) Participants (n=14)



There were just a couple of issues with income verification participants reported. One participant was in the middle of applying for retirement and struggled to figure out how to report their income. Another participant discussed how they did not have the information the AV was asking for initially and had to go back and forth a few times with them.

Finding an AV: Overall, most participants said they would have liked to have more support finding an AV and understanding what questions to ask. Some discussed how much work it was to contact multiple AVs and find one that was willing to work on their home, and just two respondents said they had the support they needed. Finding an AV also took a long time for some participants. One respondent said it took them about a year to find an AV that could work on their home because they had a steeply sloped roof. They were about to give up when they found the AV they ended up working with. Others dealt with non-responsive AVs that they did not hear back from after sending initial emails or making phone calls. The quotes below are from respondents who had a challenging time with this process.

If you don't like doing research, you won't make it through the process. —ILSFA Residential Solar (Small) Participant

I did my due diligence and searched. But the process of going through it took a year and it was with a bunch of hurdles. —ILSFA Residential Solar (Small) Participant

For someone that knows nothing about this, now I'm left to go through all these vendors, and I don't understand what questions to ask. —ILSFA Residential Solar (Small) Participant

Many found their AV through their own research by using Google to search. Just a few used the list provided to them by ILSFA. Some respondents who used the list expressed that it seemed out of date, they never heard back from an AV they contacted, or it took a long time to hear back from some AVs. The quotes below highlight some of these concerns.

I called three different companies. Not one of them would return a phone call. —ILSFA Residential Solar (Small) Participant

I went through several people. It took me about eight tries. No one had even heard of it. I just typed in "local solar installers" [to Google]. —ILSFA Residential Solar (Small) Participant

A handful of people reached out to only one of the large AVs in the program because they had either attended the Chicago Bungalow Association webinar where that AV had presented or they had heard of them through word of mouth or at a tabling event. Those who just called the one large AV reported no issues with this process. One respondent said they had no idea there were multiple AVs. They had just contacted one and, in retrospect, wished they had known there were other AVs they could have talked to.

Installation Experiences: Most installations for Residential Solar (Small) participants went well, but they often took a long time, or participants experienced communication issues with their contractors. Multiple participants reported their AV did not show up to their home when they were scheduled to. This was particularly disruptive for participants who had taken time off work or who were helping their relative participate in the program and had driven to their house for the installation. The quotes below are from two participants that this happened to:

I didn't like the fact that they said they were coming, and they didn't show up. I don't live here so I have to plan for it. —ILSFA Residential Solar (Small) Participant

It went smoothly, with one glitch. We set a date for the installation, and I took the day off work, and they didn't show up. —ILSFA Residential Solar (Small) Participant

Many respondents reported they would have liked more support with resolving structural or electrical issues. A few respondents reported they had structural issues (e.g., roof, electrical) that needed repair before they could go through with the installation. This delayed the installation, but only one of these respondents said they had to pay for the upgrade themselves. One person had an older home and didn't feel like the initial contractor who came to look at their house was fully aware of all the issues that it was going to have.

This also led to delays. Another needed a new roof due to hail damage but was not sure if their roof replacement would be covered by insurance and almost gave up on participating.

One participant reported having a poor experience with the installation overall. Issues they encountered included an install date that got pushed out months, their AV needing to come back after the installation was finished to re-do wiring, and roof damage the AV did not resolve.

Other minor issues that respondents encountered included:

- An **electrical inspection failed twice,** and it was very inconvenient for them since the city inspector could only come during certain times.
- A ticket from the **AV leaving trash/debris** in their yard.
- Issues with their **wiring and roof leaks**.
- One of the decorative panels installed on the front of their house **was scratched.** They asked their AV to come replace it, but they never came.

One person suggested that ILSFA provide support to get roofs ready for solar panels. They said that many people in their income bracket need help with structural repairs and felt that if ILSFA was reaching out to income-qualified customers, they should be prepared to help with roof repair.

Post-Installation and Bill Savings

Most participants we collected feedback from have had their solar installed for a couple years, though there were three participants who had them installed about six to eight months prior to this research effort. Most reported their solar panels lived up to their expectations, and they saw large bill savings. One person said they had gotten an EV and charging it had raised their bill, but they were still seeing savings overall. Just one respondent reported they were *not* saving money on their bills, and they were disappointed with their experience overall. This was the same respondent who reported a poor experience with the vendor during installation, as described in the previous section.

Those who reported they were saving money on their electric bill (93%) said they were using the savings for their natural gas bill, groceries, and medical bills, as well as contributing to their retirement. Some discussed being able to spend money on things for their family when they were not able to before. The quotes below highlight some of the sentiments expressed around this bill savings.

From $200 to $6, oh wow, it's like we won the lottery! —ILSFA Residential Solar (Small) Participant

I don't need to worry about other things like ordering pictures of my kid's sports teams at school. I couldn't afford that before. —ILSFA Residential Solar (Small) Participant

I was able to pay my bill before, but our income was low and there were a lot of things to pay, especially in the winter. Now, the solar panels help me to free my mind. —ILSFA Residential Solar (Small) Participant

Most respondents said they have not had any issues with their solar panels since the installation, but a few shared some minor issues. While one person suggested a quality control process *during* the installation, two respondents suggested there should be more follow-up from the IPA/ILSFA after the installation to help customers triage any issues.

One person in the focus group discussed having leaks that the AV came out to fix, and another focus group participant said they were having connection issues. Two people discussed issues with their roof that did not get repaired. One participant said their AV is no longer in business, and they do not know who to call for support.[32] They did not think their panels were working and were disappointed with the support they had received.

Everyone said they would make the same decision to install panels through the program again, but one person said they would have waited longer to see if ILSFA could "work out the kinks" with the program. All but one said they recommend it to their family and friends. The quotes below highlight how satisfied most customers were with their solar panels.

Getting the solar panels is one of the best decisions I have made. I wish I could have gotten them sooner. —ILSFA Residential Solar (Small) Participant

It's the best decision I have made in the past 10 years. —ILSFA Residential Solar (Small) Participant

The one person who tells their family and friends that the program is not worth it says this because they have not seen bill savings. We heard from GEs that bad experiences like this can spread very quickly in a community through word of mouth.

When discussing the benefits of solar panels, all participants agreed that solar panels are good for the environment and help to lower electric bills. However, opinions were mixed on whether solar panels made their homes more comfortable. Respondents discussed how they would try to keep the temperature in their home the same, regardless of having solar panels, but some shared that the bill savings they saw helped them keep their heat or air conditioning on at higher levels. Respondents also were mixed on whether the solar panels added value to their homes, and some brought up the fact that not everyone may want solar panels.

When asked what they would say to someone considering getting solar panels through ILSFA, respondents said they would give advice on choosing a vendor or would warn them that it would take a while and that you need to be patient. A couple of people said that others think the program is a scam until they show them their electricity bill. The quote below is from one participant who discusses their solar panels regularly with their neighbors.

You wouldn't believe how many of my neighbors come over here to ask me questions, and I tell them all it's worth it. Be patient. If you're on a fixed income, it's worth it. —ILSFA Residential Solar (Small) Participant

Community Solar Focus Groups and Interviews

The evaluation team conducted three focus groups with CS subscribers. The team hosted one of these focus groups in person in Champaign, Illinois, and conducted the rest (virtually) on Microsoft Teams. Each focus group had between four and seven participants for a total of 18 CS subscribers. This section contains detailed findings from those focus groups.

[32] While the participant believed this AV is no longer in business, this AV was acquired by another solar company. The new parent company decided to exit the residential solar market in IL.

ILSFA Awareness and Initial Impressions

Over one-third of participants (39%) heard about the CS subprogram from their local CAA or a local non-profit. These community organizations included:

- Past grassroots educators (n=2)
- Current grassroots educators (n=2)
- Other CAAs (n=2)

The remaining participants primarily heard about CS from marketing materials like emails, newspapers, or social media posts (n=5) or from doing their own research (n=4). Those who did their own research were looking for ways to switch utilities or were trying to get rooftop solar power but found that CS worked better for them. Some participants shared that they felt the program could be publicized more, and they often try to share the benefits of the program with their friends and family. One participant said that word of mouth is very important to them, and they often tend to trust things that their friends and family tell them about. A quote from this participant is below.

People believe other people. When it's something new, people are wary of trying it. —ILSFA CS Subscriber

Many respondents were excited about the idea of getting solar without the installation or equipment. They were looking for ways to participate in renewable energy and reduce their carbon footprint. Respondents were equally interested in reducing their bills and lowering the costs, and they discussed this as being a benefit, especially for those on fixed incomes. A few subscribers shared that they received a gift card from the subscription management company for subscribing, as well. The quotes below summarize some of the initial impressions respondents had when they learned about community solar.

It's nice to have lower bills, but I also wanted to support the solar industry. —ILSFA CS Subscriber

It's cool that there is an option for people who cannot get the panels. —ILSFA CS Subscriber

Questions, Concerns, and Resources

The most common concern among respondents was that the CS subprogram was a scam; many were worried about the legitimacy of the bill savings. For those who heard about the program from a local organization, they felt they were able to more quickly trust that the program was legitimate because they trusted their local organization. Other respondents had questions about how solar panels worked and how long it would take them to start seeing savings. A few were curious if they could take their subscription with them if they were to move.

Six participants across focus groups reported being initially interested in on-site solar, but they could not install them because they were worried about the upfront costs, were renters, or had homes that were not ideal for solar panels; one person lived in a mobile home and was not able to install solar panels. Another respondent was in the process of installing solar panels and enrolled in the CS subprogram while they were waiting. The quote below is from a subscriber who had initially wanted rooftop solar.

I wanted rooftop solar but realized it was not going to work. —ILSFA Community Solar Subscriber

Most subscribers reported that more information on how to read and understand their bill would have been helpful. They felt that the two-bill system and the way their bills describe the credits are confusing. One focus group participant said they spent a lot of time trying to align the two bills and did not feel like they made sense.

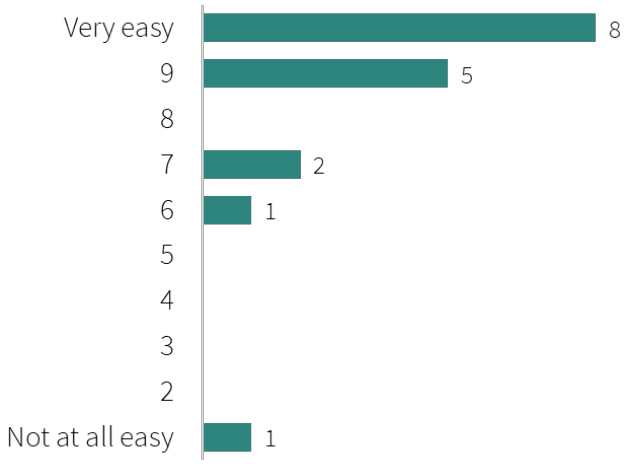
Others discussed not knowing they would be receiving a separate bill or that they would have a separate account. Some were frustrated that they had to pay two bills when they were not expecting to do so. Most were okay with the system but wished they had known more about it up front. PY6 program changes require that AVs use consolidated billing and provide CS subscribers with one electric bill that incorporates CS credits.

One participant that is also on LIHEAP expressed disappointment that they could not pay for their CS subscription using LIHEAP dollars.[33] Some shared they would have liked to be more informed about the overall "why and how" of the CS subprogram. They wanted to understand how it worked.

Enrollment Process

Focus group participants discussed a variety of enrollment experiences. Those who had support from a community organization during the enrollment process reported that it was very easy to enroll. A small number of respondents said they struggled to gather all the paperwork or complete the online application. Figure 18, below, summarizes how easily respondents ranked the enrollment process on a scale from one to ten.

Figure 18: Ease of Enrollment for CS Subscribers (n=17)



Contract: The CS subprogram includes both a contract and a disclosure form, providing participants with information on consumer rights, the terms of the solar offer, the warranty, financial terms, and projected energy production and savings. Subscribers must sign both items to participate in the subprogram. Most respondents did not have a strong recollection of this part of

[33] Federal law now allow LIHEAP funds to be used for Community Solar subscriptions. IPA has also partnered with the DOE Clean Energy Connector tool to help connect LIHEAP subscribers with these community solar subscriptions, meaning that future participants in the program may have a clearer path to these benefits.

the enrollment process. The only topics related to contracts that participants discussed included the process of unsubscribing or moving. One person shared that they have been trying to unsubscribe since getting community solar, but it has been a difficult process. Another mentioned wanting to change their utility away from Ameren but were afraid to do so because they were uncertain if it would change their eligibility for the CS subprogram.

Income Verification: Most CS subprogram focus group participants did not feel as though the income verification process was difficult. There were no reported issues with this process, and most respondents felt neutral about needing to provide their income. Participants discussed how they often must provide proof of income for other programs they participate in and were used to going through the verification steps. The quotes below summarize these sentiments.

It wasn't easy, and it wasn't hard. It's a process you're constantly having to go through, if you're like me. —ILSFA Community Solar Subscriber

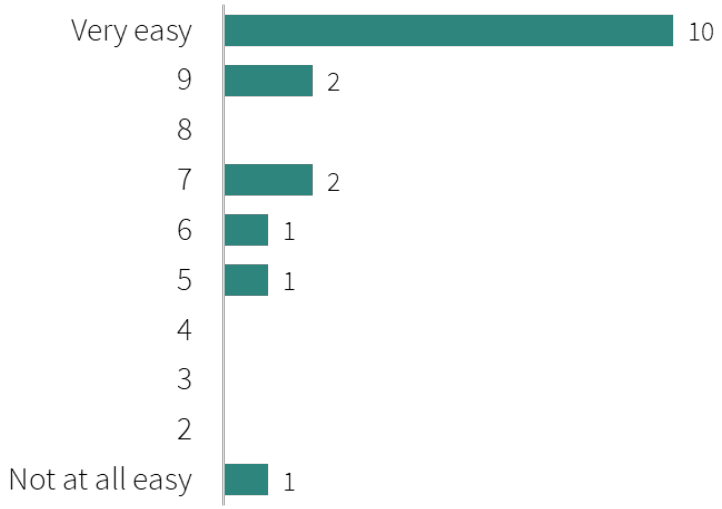
I did it on my phone. It was that easy. —ILSFA Community Solar Subscriber

For me, I'm on SNAP and Medicaid so I'm used to the verification things. —ILSFA Community Solar Subscriber

It was easy to qualify as I was already enrolled in LINK and LIHEAP. —ILSFA Community Solar Subscriber

Figure 19, below, summarizes how easy CS subscribers ranked the income verification process on a scale from one to 10. Though participants did not think this process was overly burdensome, it is important to note that these are customers who made it through this process, and we do not have insight into customers who were interested in the CS and Residential Solar (Small) subprograms but did not make it through the income verification process. Future research could seek to understand the experience of these customers more.

Figure 19: Ease of Income Verification for CS Subscribers (n=17)



Post Enrollment and CS Benefits

Most focus group participants had been enrolled in the CS subprogram for over a year, and some had been enrolled for three years. All respondents said that the CS subprogram has lived up to their expectations, and they would all make the same choice to enroll again. One respondent noted that it seemed like the savings were higher at first but have since tapered off. They acknowledged that this might be due to seasonal changes but would have liked a better understanding of these fluctuations.

Most respondents reported that it initially took a few months to see the bill credits but mentioned they were fine with the wait. Some shared that they knew things like this can take time and were not concerned. Others mentioned that having someone communicate with them from the beginning the amount of time it would take was helpful to set expectations; knowing seemed to make the wait easier. The quotes below are from respondents discussing this wait.

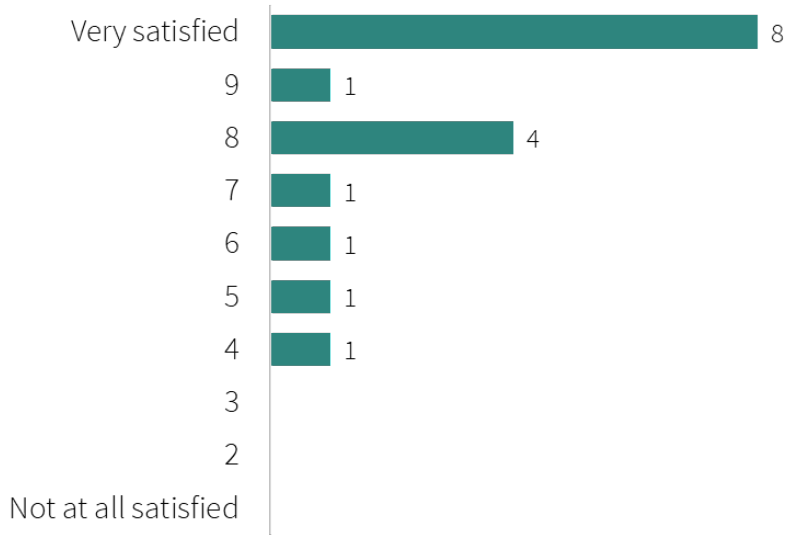
I was satisfied. It took some months, but I did not mind. —ILSFA CS Subscriber

They were up front, they communicated it from the beginning. I knew what to expect. —ILSFA CS Subscriber

Seemed like there was a processing delay between sign-up and going into practice. Then I did see the credits a few months later. —ILSFA Community Solar Subscriber

Figure 20, below, summaries participant satisfaction ratings with how long it took to see CS credits on their bill.

Figure 20: CS Subscriber Satisfaction with the Time It Took to See Bill Credits (n=17)



Most participants did not describe having any billing issues. However, some shared that the two-bill system was confusing, and they had a hard time understanding how to compare their bills properly. A few participants shared that there were some months when they did not receive the credits but were reimbursed in the following months.

This sometimes resulted in participants not seeing CS on their bill in certain months, then seeing multiple credits in other months. This delay was stressful for some participants who said their bill was higher than expected as a result, although others described it as not a big concern. Overall, most CS subscribers reported they preferred to have everything on one bill, instead of two.

One participant was also interested in having more information about how much solar is produced compared to how much electricity they use; they were looking for more granular information. A quote from this participant is below.

It fluctuates and we see the fluctuation on our bill, but we don't know why. I bet some people would like to see that. —ILSFA CS Subscriber

Focus group participants overwhelmingly reported saving money on their bills. Many reported that having a CS subscription has reduced their overall stress around paying bills, as well. Participants report they have been able to put the money they have saved through the CS subprogram toward groceries, gasoline, and spending money on improving their family's quality of life. The quotes below summarize participant sentiments.

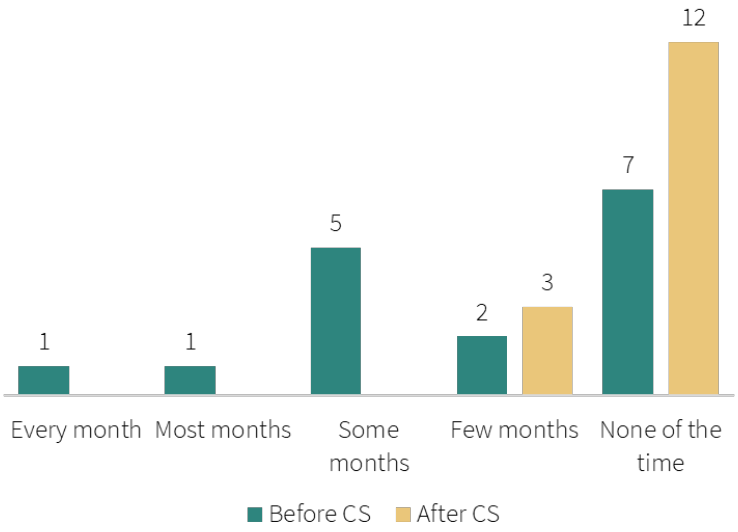
[Community Solar] is definitely a stress reliever for me. —ILSFA CS Subscriber

[The money I have saved] goes to keeping up with my other bills. There's no savings when you're living on a fixed income. Anything you can save on helps with stress level[s] and keeping up with other things in your life. —ILSFA CS Subscriber

When your kid comes to you asking for $20 and you have to say no, [that feels terrible.] I want to be able to give it to them, and now I can. They deserve $20. —ILSFA CS Subscriber

We asked focus group participants to share how often they were able to pay their electric bills each month both before being part of the CS subprogram and afterward. Most participants reported a significant increase in the frequency with which they have been able to pay their bills, as Figure 21, below, shows.

Figure 21: Frequency of CS Subscribers Having Trouble Paying Electric Bills (n=16)



The following quotes highlight the large impact that the CS subprogram has had on subscribers' bills.

Before I got solar, I was having problems paying bills. Since I joined the program, I have a credit on my bill. It's a blessing. —ILSFA CS Subscriber

Before, we had trouble a lot. Now, we only do sometimes. —ILSFA CS Subscriber

I did not expect such a great reduction in my bill. —ILSFA CS Subscriber

Yes, on average, 50% of what we used to pay. [Our home is] all electric. —ILSFA CS Subscriber

While less of a primary benefit for subscribers, many also discussed the environmental impact of solar and liked that they were part of something that they felt was making a positive difference. Like the Residential Solar (Small) subprogram participants, there was some disagreement about whether the CS subprogram allowed them to keep their homes more comfortable. However, after one participant in the in-person focus group shared that they have used the money they have saved with the CS subprogram to keep their home more comfortable, other participants agreed. A small portion of focus group participants said they would keep the temperature in their home the same regardless.

Non-Profit/Public Facilities Interviews

The evaluation team interviewed six different NP/PF subprogram participants. Interview respondents consisted of four non-profits and two public facilities, including two churches, a school district, a library, and two non-profits.[34]

ILSFA Awareness and Initial Impressions

Overall, most non-profits had been interested in solar prior to learning about the program, and about half learned about the program through their own research trying to determine if solar could work for them. All respondents reported learning about ILSFA through different means:

- The school district initially heard about the program from their **architect of record**.
- One non-profit found the program through their **own research** while trying to find a solar installer.
- One church said an **AV cold-called** and told them they might qualify based on their address.
- One non-profit said **another non-profit** had called them and told them to investigate it.
- One church said **another non-profit** they were working with on an energy audit told them about the program.
- The library said their **AV told them** about the program after they had called interested in solar panels.

Overall, NP/PF participants expressed they were very excited when they learned about the program, though about half of respondents initially felt it was too good to be true. One respondent initially felt overwhelmed when they first investigated the program because they felt it was a very

[34] At the time of this school district's participation, schools were allowed to participate in the Non-Profit/Public Facilities Program. Due to changes in PY6, schools are no longer part of ILSFA.

complicated process, and they were worried they would not be able to figure it out. The quotes below are from NP/PF participants describing their initial reactions to the program.

This gave us the opportunity to enter into the solar world without up-front cost. —ILSFA NP/PF Participant

We thought it might free up our finances to do other things more ministry-related as opposed to paying for utilities. —ILSFA NP/PF Participant

We all thought it was too good to be true so we did some more digging. —ILSFA NP/PF Participant

Apart from saving money on their bills, NP/PF participants were also interested in getting away from the instability of the electric market, being environmental or sustainable, and being able to better serve their community by putting money saved back into community services. The quote below from a participant summarizes how most respondents felt about the program.

First, it's going to save us money, and as an added benefit it was good for the kids, environment, and the community. —ILSFA NP/PF Participant

Concerns and Decision-Making

NP/PF participants were primarily concerned about the installation itself. Respondents discussed being concerned about how the installation would fit on their roof, what interruption to their electric service would look like, how the solar panels would look, and what their responsibilities around maintenance would be. Just one NP/PF participant expressed concerns about the financing; most participants shared that they had received a grant and were able to cover all the costs.

Almost all NP/PF participants went to their installer with any questions they had about the program or the installation. Some discussed asking members of their community for their input on the program or on installing solar panels more generally. Two respondents reported using the ILSFA website, but one shared they only accessed it in the initial stages of their research on the program and then went to their installer for any subsequent questions. Two respondents discussed talking over their decision with other non-profits that had gotten solar installed through the program, as well. This helped them feel confident in their decision.

Overall, NP/PF participants carefully considered their participation in ILSFA and spent a lot of time—sometimes months—deciding if it was the right choice for their organization. The NP/PF participants we interviewed did not involve their community members in their decision to install solar. They primarily involved the necessary decision-makers, like their board and those in leadership positions. All but one NP/PF participant owned their building. The one respondent who did not own their building reported that their property manager was supportive of their decision to pursue solar.

Some NP/PF participants had their AV come present to their boards, as well, to allow them an opportunity to ask questions and hear more details about the program and the installation process. Some of the NP/PF respondents reported they decided to trust the process because the AV they worked with was local and/or they had previously worked with them on other projects. Multiple respondents described how they decided to move forward with ILSFA because they were able to speak with another NP/PF participant and hear about their experience in the program.

Just one respondent said they would have made their decision differently if they had known more information. A quote from this participant is below.

We felt good enough to make the final decision, but in hindsight I would have asked different questions. —ILSFA NP/PF Participant

Some respondents discussed wishing they had known more about the financing and billing process before making their decision, including how the solar credits work with their utility. One respondent shared they almost decided not to go through with the program when they learned more about the leasing portion of their contract. A quote from this respondent is below.

When we figured out there were big investors up north by Chicago that were going to charge us for six years, and then it's ours, [we almost did not go through with the program]. I would have liked a better understanding of that early on. What is the real monthly benefit of this? —ILSFA NP/PF Participant

One NP/PF participant described how they did not understand the billing process and were confused when they received two bills. The quote below is from this respondent.

The one thing that wasn't clear to us [was that] we thought billing would be all combined. From Ameren and for the lease on the solar panels, we thought we would get one bill. —ILSFA NP/PF Participant

Installation Process

Eligibility Verification: Most respondents did not remember much from the eligibility verification process. A few remembered that their address played a role in their eligibility for the program but did not remember details. Most said their installer or solar company took care of this process for them. A couple of respondents said they had letters signed from community organizations supporting and affirming the work they do in the community. The school district we spoke to shared that it had had solar installed on multiple schools within the district but that some schools were not eligible. The district felt that this did not make sense when it was serving children from all over the community. The quote below is from this respondent.

What gets missed is that the K12 district serves kids from all over. Is it about the physical location of the buildings, or where the kids live? Not all of our buildings qualify. We thought that they would be well-defined, but it seems a bit arbitrary. That was frustrating. —ILSFA NP/PF Participant

Finding an AV: Respondents found their AV through a variety of means. One NP/PF participant said they had called a few options from the ILSFA AV list and chose one after a few initial conversations with two AVs. Another NP/PF participant said that they had worked with their installer on other projects before and discovered they installed solar, as well, when they talked to another local organization about the solar being installed on their building. Two NP/PF participants reported their AV cold-called them and told them about the program.

None of the NP/PF participants we interviewed said they had any trouble finding an AV, and about half of the respondents chose their AV either because they were local and/or because they had a prior relationship with them and trusted local contractors more than others. The quotes below are from NP/PF respondents discussing how they chose their AV.

[AV] was more local and with a lot of knowledge. —ILSFA NP/PF Participant

When you have a relationship with a company, you feel better about it. —ILSFA NP/PF Participant

Installation Process: Most NP/PF participants reported the installation process went smoothly, and all respondents shared how the installation crews they had on their properties were clean, respectful, and responsible. The quotes below are from NP/PF participants who had high praise for their installers.

They were very responsive in terms of time and making sure they were there at times when it would not impact our neighbor's business. —ILSFA NP/PF Participant

They were a great group of people; they were very pleasant and respectful, and conducted themselves very well around the property. That part was a good experience. —ILSFA NP/PF Participant

Installation timelines varied widely, with some NP/PF participants reporting their installation took only a couple of weeks and others sharing it took several months. One respondent discussed how there was a trade embargo on the country that their installer imported inverters from, so they had to wait six to seven months before that was lifted and their installer could get the inverters.

Respondents primarily reported minor issues with their solar panel installations. Some had minor issues with electrical upgrades and delays with their utility to energize the project. One respondent discussed how their installer caused minor roof damage but immediately took responsibility and repaired it. One respondent shared that they had an electrical shut-off that lasted much longer than the AV said it would, and they were frustrated with how it impacted their workday and the ability of their staff to work. The quote below is from that respondent.

It was supposed to be done by 10 a.m. or 11 a.m. at the latest, but it didn't come back on until 4 p.m., which also impacted our neighbors. We had to go on a hectic apology tour. The power had also shut off our server so no one could remote in [to work]. —ILSFA NP/PF Participant

No one reported any issues with permitting and all said that their AV primarily took care of setting up the interconnection with their utility.

Post-Installation and Bill Savings

Community Involvement: While none of the NP/PF subprogram participants involved their communities in the decision to install solar, most kept their communities informed throughout the process. Most reported that their communities were excited about solar, and some NP/PF participants said they had many members of their community pursue installing solar on their homes after seeing the organization install solar.

However, no NP/PF participants were sure if their community members went through ILSFA or another program. The quote below is from one of those NP/PF participants.

Some people got solar too on their homes. We had a board member that did it after he saw how good our savings were. —ILSFA NP/PF Participant

The school and the library said they often used solar for educational purposes, and both shared they have a TV screen that displays solar data from the panels. The school district shared that teachers have been using them for educational purposes, and the library said it has done programming around the solar panels, like hosting a children's story time. The quote below is from the school district.

Every solar building has a dedicated screen that tells kids about the savings and how the system works. Teachers are leading that education. We have gotten nothing but positive feedback. —ILSFA NP/PF Participant

Bill Savings: Most NP/PF participants reported large savings on their electric bills, and all but one said that having solar panels lived up to their expectations; a few said that it surpassed them. Two respondents shared they have not seen the bill impacts they were expecting to. One of these NP/PF participants said they were experiencing billing issues with their private energy provider and were in the process of breaking their contract. Another NP/PF participant that did not feel like they were saving enough reported they have been working with their installer to figure out if their panels are operating properly. A quote from this respondent is below.

I'm not saying we haven't saved, the bills have been lower, but not what I thought it would be. — ILSFA NP/PF Participant

Community Impacts: Overall, most NP/PF subprogram participants reported they have been able to better serve their community and meet their organizational goals because of the bill savings they have experienced. Many respondents said that it has helped them more efficiently deliver services to their community. Notable impacts include:

- One NP/PF participant said that they have doubled the number of families they have served in their food pantry.
- One housing non-profit reported it hoped it would be able to build an additional home per year with the bill savings.
- One respondent reported that they have been able to run more children's programming than they normally would.
- Another respondent said they are planning to hire another staff member with the money saved.

The quotes below highlight some of the impacts respondents described.

They have surpassed our expectations. I was on the fence on whether we could get 100% offset. We are near 100%. Our power bill is in the $20 range, and we were in the $1,400 range before. —ILSFA NP/PF Participant

We are using those resources for that kind of good in our community. —ILSFA NP/PF Participant

There was one respondent who said they had been saving money, but they thought it would be much more. They reported they were actively working with their AV to ensure their panels were working properly. While they still said they would make the same decision again, they were a little disappointed with the savings they were currently seeing. The quote below is from this respondent.

I just really thought the bills would be quite a bit less than they are. Maybe I had bigger expectations than I should have. We have not seen what was expected. I'm not saying don't do it, but you have to take those things into consideration. You might want to ask more questions. —ILSFA NP/PF Participant

Most NP/PF respondents were happy with their experience with the program but highlighted that the participation process was complex. They noted they would tell others interested in the NP/PF subprogram to be willing to ask a lot of questions or find a partner that can help with questions and concerns. The quotes below are suggestions from an NP/PF participant around increasing support for participants navigating the process.

There are a lot of moving pieces, and you should make sure you have some support for a non-profit of our size. It was a lot. —ILSFA NP/PF Participant

It would be nice if you could make it a little less intense. We had good assistance, but there are a lot of agencies that won't do that if it's tough. —ILSFA NP/PF Participant

Residential Solar (Large) Interviews

The evaluation team was able to conduct one interview with a Residential Solar (Large) subprogram participant out of the two in our sample. Because of this low respondent count, we are unable to draw any strong conclusions from this data collection effort. We summarize the findings from this interview in *Appendix D. Residential Solar (Large) Feedback*, but these should be interpreted with caution.

Future Research and Evaluation Recommendations

The following summarizes recommendations for future research to better understand and streamline the participant and vendor experience with the program.

- Consider partial participant and nonparticipant research to understand the experience of customers who were interested but were not able to complete the income verification process or fully go through the process.
- Create a participant journey for the Residential Solar (Small) subprogram to help identify the points in the process where participants and nonparticipants experience challenges.

- Create a participant journey for the CS subscription experience and identify opportunities for improvement in participants' experiences.
- Use the Program Theory and Logic Model to map barriers, interventions to address these barriers, and short-term and long-term outcomes for each intervention.
- The ILSFA program is complex, involving multiple key stakeholders, and has been continuously evolving each program year. Given this complexity and ongoing changes, consider implementing an embedded real-time evaluation approach rather than relying solely on retrospective, static assessments. This approach would allow for more adaptive and responsive program improvements.

Appendices

Appendix A. Methodologies

Primary Data Collection

The following section describes additional details on the primary data collection activities conducted for the Illinois Solar for All (ILSFA) program year 6 (PY6) program evaluation.

Program Material Review

The evaluation team reviewed many of ILSFA's program materials for the purpose of understanding the ILSFA program goals, design, and any recent changes made to the program that would impact our research activities. In total, our team reviewed 79 materials for the ILSFA program. These materials cover several aspects of ILSFA, such as:

- Program design (e.g., the Approved Vendor (AV) manual, the Long-Term Renewable Resources Procurement Plan (LTRRPP))
- Vendor resources (e.g., the overview of the Vendor Portal)
- Marketing materials (e.g., newsletters, announcements, brochures, webinars)
- Previous reports or evaluations (e.g., quarterly, and annual summaries)
- ILSFA website announcements
- Pilot initiative program year reports

The team made extensive notes from their materials review that answer the questions summarized in Table 48, below.

Table 49. Program Materials Review Questions

CATEGORY	REVIEW QUESTIONS
Program Design	What are the goals or objectives of the ILSFA program?
	How is the ILSFA program designed to meet those objectives?
	Who are the key actors in program implementation, and what are their roles?
	How is the ILSFA program funded?
	How does the ILSFA program define the communities that it is meant to assist with these programs?
	How does the ILSFA program verify income for participants?
	What does ILSFA program success look like?
	How do pilot initiatives support the program overall?
Program Participation Processes and Barriers	What does project selection look like?
	What does participation look like from the perspective of an AV? What barriers might prevent vendors from participating?

CATEGORY	REVIEW QUESTIONS
	What does participation look like from the perspective of a job trainer? What barriers might prevent job trainers from participating?
	What does participation look like from the perspective of a job trainee? What barriers might prevent job trainees from participating?
	What does participation look like from the perspective of a grassroots educator? What barriers might prevent grassroots educators from participating?
	What does participation look like from the perspective of a participant? What barriers might prevent these customers from participating?
	What barriers have stakeholders raised?
Program History and Status	What is the history of the ILSFA program?
	What changes were made to ILSFA in PY23-24?
	What changes are in the pipeline for ILSFA, if any?
	Did the ILSFA program meet its goals?
	What has been successful in the ILSFA program? What has been challenging?
	Are there specific end users, program actors, geographies, building types, etc. that seem to be underserved by the ILSFA program?
Program Marketing	Through what channels does program marketing and outreach occur?
	Who does the marketing and outreach target?

Program Tracking Data

The evaluation team requested and reviewed tracking data for PY1–PY6. The team reviewed the tracking data to assess whether the information necessary to complete the evaluation was available, as well as for completeness and accuracy. Tracking data was a fundamental input for both the impact and process analyses for this evaluation. The ILSFA program administrator, Elevate, maintains a Salesforce database that houses the ILSFA program tracking data for all projects across subprograms. The database provided the following key elements necessary for the energy, environmental, bill, jobs, economic, and social impacts analyses:

- **Project information** such as application program year, project stage (including the date of the last project stage update), project specifications (installation type, system size, azimuth, tilt, etc.), and project financials (project costs, incentive values, total projected Renewable Energy Credits (RECs), etc.). This data was used to assess program metrics required by statute and key performance indicators (KPIs) and to develop estimates of PV system energy production.
- **Location details** including whether the project is in an Environmental Justice Community (EJC) or in an Income-Eligible Community. This data allowed us to evaluate if programs are being developed in more distressed areas and if the program is meeting its goals.

- **Projects classified as Energy Sovereignty.** This data was used to evaluate if the program is allocating energy sovereignty carve outs and the number of projects that are advancing energy sovereignty goals.
- **Utility territory of the project, buyer information, and contract information** (e.g., length and contract type). This information was used to segment and analyze the data by specific subcategories.
- **Approved Vendor Data,** including information on the approved vendors that participated in each subprogram.

Program Administrator Interviews

ILLUME conducted three interviews with the IPA and the Elevate program teams via Microsoft Teams, an online video conferencing software, in January and February of 2025. The primary purpose of these interviews was to understand program design, delivery, and implementation successes and challenges during the PY6 program year.

For this data collection effort, the evaluation team developed a semi-structured interview guide to ensure we captured the key themes of interest while allowing room for the interviews to explore unexpected (yet pertinent) details associated with ILSFA's implementation. We provided each interview guide to the IPA project manager for review and comment prior to commencing any of the data collection. The evaluation team conducted and took notes on all interviews. The evaluation team incorporated interview findings into both evaluation planning and the PY6 evaluation report.

Interview topics included those summarized in Table 49, below.

Table 50. Program Administrator Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Roles and Responsibilities	What are the roles and responsibilities of IPA and Elevate staff? How do program teams and staffing change in PY6?
Program Design and Delivery	Who was part of the PY6 program implementation, and what were their roles? What were the program changes in PY6? How did these changes impact the program?
Program Goals and Performance	What are ILSFA goals or Key Performance Indicators (KPIs)? What were the goals of the ILSFA program in PY6? Were there any PY6 goals related to societal benefits or impacts? What goals are IPA or Elevate required to hit? Did the ILSFA program meet its goals in PY6? Which aspects of implementation went well, and where did the ILSFA program run into challenges? What are the participation barriers from the program administrator's perspective?

CATEGORY	PRIMARY RESEARCH QUESTIONS
Marketing and Outreach	Are there specific KPI or guidelines for marketing and outreach? What channels does the ILSFA program use for outreach? What works well with program outreach, and where is the ILSFA program facing challenges?
Evaluation Needs	What are the evaluation priorities and needs for PY6? What are the evaluation and ILSFA program data needs across the three-year evaluation cycle?

Program administrator interviews provided important context and informed findings and recommendations in the PY6 process evaluation report chapter.

Approved Vendor Survey and Interviews

The evaluation team gathered feedback from ten Approved Vendors (AVs) between September 5th to November 15th, 2024. Six AVs participated in an online survey, and we collected responses to survey questions from four AVs through interviews. The purpose of these efforts was to understand vendor experiences with the ILSFA process, satisfaction with the program, and key barriers to program participation and the application process. Interview topics included those summarized in Table 50, below.

Table 51. Approved Vendor Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Approved Vendor participation drivers	How do AVs get involved with the program? Why do they participate?
Program process	What is the AV experience with ILSFA program documentation? What is the AV experience with the ILSFA review process? What is the AV experience with the ILSFA timeline (application thru project completion?) What challenges do AVs experience when program changes occur (e.g., revising forms, responding to requirement changes)?
Participant acquisition	What is the role of AVs in participant acquisition? What are the challenges AVs face when promoting ILSFA to potential participants? What resources are needed to better facilitate acquisition?
Project financing	How are AVs currently financing ILSFA projects? What challenges arise? How can IPA or Elevate address those challenges?
AV Portal	What is the AV experience with the Approved Vendor Portal? What is the usability of the Approved Vendor Portal?
Job training requirements	How do AVs navigate job trainee requirements? Are there any pain points with job trainee requirements (e.g., number years requirement, training program availability/location)? How prepared are the trainees that the job training programs provide?

CATEGORY	PRIMARY RESEARCH QUESTIONS
Program satisfaction	How satisfied are AVs with Elevate? How satisfied are AVs with ILSFA (by programmatic element)? Do AVs have any suggestions for improvement?
Opportunities for improvement	How does ILSFA compare to Illinois Shines? What are AVs recommendations to improve ILSFA?
Firmographics	Where are firms located? Are they Small, Medium, or Large Businesses?

Approved Vendors' input informed findings summarized in the Process Section of this report.

Participant Focus Groups and Interviews

The evaluation team conducted participant research with participants across all four subprograms. To generate a sample for recruitment, the evaluation team used a list of PY1-PY6 program participants we received from Elevate and limited the sample to projects that were energized after July 1, 2022. The purpose of this research was to gain insight into the participant experience including program awareness, questions or concerns participants had, the installation or enrollment process, and post installation or enrollment benefits and experiences.

The original goal of this research was to conduct in-person focus groups within each subprogram, but smaller than expected sample sizes and a lower than expected initial response from participants resulted in a shift to virtual in-depth interviews for most subprograms. The table below summarizes population size, and how many focus groups and in-depth interviews we completed for each subprogram.

Table 52. Participant Research Summary

SUBPROGRAM	POPULATION SIZE	FOCUS GROUPS	IN-DEPTH INTERVIEWS	TOTAL RESPONDENTS
Residential Solar (Small)	184	1 group	9	14
Community Solar	961	4 groups	n/a	18
Residential Solar (Large)	2	n/a	1	1
Non-Profit/Public Facilities	45	n/a	6	6
TOTAL				39

The research questions for these focus groups and interviews are below in Table 52.

Table 53. Participant Research Questions

PRIMARY RESEARCH QUESTIONS	RESIDENTIAL SOLAR(SMALL)	COMMUNITY SOLAR	RESIDENTIAL SOLAR (LARGE)	NON-PROFIT/PUBLIC FACILITIES
How did participants hear about the Illinois Solar for All program? What sources of information did they use to learn about the program?	X	X	X	X
What questions or concerns did participants have about Illinois Solar for All and how were these addressed?	X	X	X	X
How did people find an approved vendor/installer and would they have liked more support in that process?	X	X	X	X
What were participant experiences with the income verification process?	X	X	X	X
What was the installation/enrollment process like? Were there any pain points or challenges?	X	X	X	X
What has the post-installation/enrollment experience been like? • How has the solar system/being enrolled in community solar impacted people's household spending/financial stress?	X	X		
• What information have you shared with tenants? What has feedback been like?			X	
• How has the solar system impacted community engagement or your ability to effectively serve your community? • Have you shared any information about your solar system with community members or any other parties?				X
Do people perceive or think about any other benefits?	X	X	X	X

Recruitment for these focus groups and interviews was challenging, with our number of completes being below our target number of completes for some subprograms. Each PY6 participant received a total of 3-4 emails and 1-2 phone calls.

The evaluation team explored the possibility of working with grassroots educators to recruit participants to focus groups and to host focus groups, so that participants would hear about research efforts from a trusted messenger affiliated with the program. However, this was not feasible during this evaluation cycle, based on language in grassroots educator contracts that barred them receiving compensation for supporting evaluation activities. The IPA is updating grassroots educator contracts for PY8 to better facilitate grassroots educators supporting the evaluation in this way. Our team recommends working with grassroots educators to support research with participants and communities in future evaluation cycles.

Residential Solar (Small)

For this subprogram, the evaluation team conducted one focus group and nine in-depth interviews, all held (virtually) on Microsoft Teams between November and December 2024. The focus group had six participants, and it was an hour and a half long. Participants received a $200 gift card for participating. We conducted nine in-depth interviews that were one hour long, and participants received a $100 gift card for completing an interview.

Community Solar

The evaluation team conducted three focus groups with participants enrolled in Community Solar in October 2024. One of these was held in-person in Champaign, IL, and the remaining two were conducted (virtually) on Microsoft Teams. Each focus group was an hour and a half long. Participants in the in-person focus group received a $200 gift card for participating and we additionally provided a meal and a travel stipend of $50. Participants in the virtual focus groups were provided with a $200 gift card for participating.

Residential Solar (Large)

Due to a small sample size, the evaluation team was able to complete one in-depth interview with a Residential Solar (Large) participant in January 2025. This interview was conducted on Microsoft Teams and was 45 minutes long. The participant received a $100 gift card for completing the interview.

Non-Profit/Public Facilities

For this subprogram, the evaluation team conducted six in-depth interviews on Microsoft Teams in January 2025. These interviews were between 45 and 60 minutes, and participants received a $100 gift card for completing an interview, if they chose to receive one.

Process Evaluation

The process evaluation assesses the performance of Elevate as the program administrator and examines the experiences of various stakeholders involved in implementing or benefiting from the ILSFA program. The PY6 process evaluation draws on primary data collection activities, including interviews with IPA and Elevate staff, AV survey and interviews and participant interview and focus groups.

The process evaluation incorporates findings from interviews with nonparticipating stakeholders, grassroots educators, and job training program administrators ("job trainers") as well as insights from a survey of job training program participants ("job trainees") and the review of the PY6 program data tracking. Table 53 below summarizes the process evaluation research questions.

Table 54. Process Evaluation Research Questions

RESEARCH THEMES	PRIMARY RESEARCH QUESTIONS
Program Design and Delivery	What are the roles and responsibilities of program administrator, IPA, and other key players? What is the participation for each of the subprograms for end users, AVs, and grassroots educators? What changes have been made to ILSFA since PY6? Are there any parts of ILSFA processes that may be inefficient or confusing for participants?
Program Goals	What were the goals of the ILSFA program in PY6? What are program goals or KPIs? What strategies or interventions did ILSFA use to achieve these goals and KPIs?
Program Performance	Did the ILSFA program meet its goals in PY6? Which aspects of implementation went well, and where did ILSFA run into challenges? What barriers might prevent participation or success? How can PY6 process results be used to contextualize PY6 impact findings?
Marketing and Outreach	Are there specific KPIs or guidelines for marketing and outreach? What channels does the ILSFA program use for outreach? What is working well with program outreach, and where is the ILSFA program facing challenges?
Program Experience	What was the program experience from participants, AVs, and grassroots educator perspective? What are the opportunities to improve program experience and performance?

Energy Impact Analysis

The evaluation team estimated the energy savings and coincident demand savings of PY6 approved projects and energized projects. Approved PY6 projects are projects that applied for the ILSFA program in PY6 and advanced at least as far as the Part I approval stage between June 1, 2023, and May 31, 2024. Energized projects are projects that applied for the ILSFA program in PY1 through PY6 and received Part II approval by May 31, 2024. The table below (Table 54) outlines the research questions addressed by the energy impact analysis.

Table 55. Energy Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Project Summary	What is the total number of approved and energized projects? What is the total capacity (kW_{AC}) of approved and energized projects? What is the average system cost per kW_{AC} of project capacity (approved and energized)?
Energy Savings	How much energy would be produced in a typical meteorological year from approved and energized projects?
Demand Savings	How much peak load would be reduced by the energy generated by approved and energized projects?

Project Summary

The evaluation team reviewed ILSFA program tracking data and summarized program participation. We quantified the total number of approved and energized projects, the total capacity (kW_{AC}) of projects, and the average capacity per project. For energized projects, we also quantified the average cost per kW_{AC} of project capacity.

Energy Savings

The evaluation team produced hourly simulations to generate independently verified estimates of energy savings. We collected PV system configuration information (e.g., size, tilt, and azimuth) from the ILSFA program tracking data. We developed simulated PV production using the National Renewable Energy Laboratory (NREL) PVWatts Calculator Application Programming Interface (API) (version 8).[35] PVWatts estimates electricity production of grid-connected PV systems based on several inputs. The API requires the following inputs to simulate hour-by-hour output over a period of one year for any PV system: nameplate capacity (DC), tilt, azimuth, latitude and longitude, system losses, array type (fixed – open rack, fixed – roof mounted, 1-axis, 1-axis backtracking, or 2-axis), desired climate dataset, and module type (standard, premium, or thin film). PVWatts also allows for several optional inputs, including the Direct Current (DC) to Alternating Current (AC) ratio, the ground cover ratio, and the inverter efficiency at rated power.

We took most of these inputs directly from ILSFA program tracking data. PVWatts uses the system's location to choose the appropriate weather data from the selected climate dataset; for this study, we used the typical meteorological year (TMY) weather from the NREL National Solar Radiation Database (NSRDB).[36] We modeled all PV systems as standard modules.

Some projects in the tracking database contained panels with different specifications (e.g., tilt or azimuth). For this reason, we simulated each panel individually with PVWatts and calculated the hourly generation for a given project as the sum of the output of all panels.

[35] https://developer.nrel.gov/docs/solar/pvwatts/v8/
[36] https://nsrdb.nrel.gov/

The Energy Savings section also includes estimates of capacity factor. Capacity factor is a metric of system utilization and is defined as the amount of energy generated during a given period divided by the maximum possible amount of energy that could have been generated during that period. Annual capacity factors are useful when comparing utilization across technology types or project sizes. The annual capacity factor was calculated as the annual PV generation during all 8,760 hours of a typical year divided by the product of the project's capacity and 8,760.

Demand Savings

Estimated coincident peak demand impacts are the generation from ILSFA systems during hours of grid-system peak demands. The largest annual grid-system peak hour provides a brief snapshot of program coincident demand impacts. However, analyzing peak demand over the top 100 peak hours can provide a greater insight into how ILSFA impacts the grid during hours of highest load.

By coincidentally generating during system peak hours, the ILSFA program's projects allow the electric utility to avoid the purchase of high-cost wholesale energy. At the same time, the electric utility reduces its transmission and distribution losses during hours of high system congestion. It should be noted, however, that these hours are not necessarily when program systems have their highest output (i.e., during the middle of the day when irradiance peaks).

To estimate coincident peak demand savings, we simulated the energy generated by ILSFA PV systems during hours of grid-system peak demands. First, the TMY simulated PV generation values were filtered to retain data only for the same month (August) and same hour of day (4:00 to 5:00 p.m. (PJM-ComEd) or 6:00 to 7:00 p.m. (MISO-Illinois-Zone 4)) as the actual 2024 system peaks. The medians of the remaining values were used to estimate impacts. The purpose of using medians is to exclude PV generation values that correspond to cloudy days in the TMY dataset

PJM and MISO are the independent system operators in Illinois. Table 55 presents the hours and magnitudes of PJM-ComEd and MISO-Illinois-Zone 4 peak demands in 2024.

Table 56. PJM-ComEd and MISO-Illinois-Zone 4 2024 Peak Hours and Demands (MW)

ISO REGION	PEAK DEMAND (MW)	DATE	HOUR BEGINNING (LOCAL TIME)
PJM-COMED	21,560	2024-08-27	4:00 P.M.
MISO-ILLINOIS-ZONE 4	9,123	2024-08-27	6:00 P.M.

We used the estimated hourly PV production results to calculate demand impacts during hours of MISO and PJM peak demands. We analyzed peak demand over the top hour of highest demand and the top 100 hours of highest demand to provide insight into how ILSFA projects impact the grid during the hours of highest load. We obtained the top hours in 2024 from publicly available hourly historical load data from the PJM and the MISO websites.[37,38] We used PJM load data specific to the ComEd load zone. For MISO, we used the load data specific to Illinois (Load Resource Zone 4).

[37] https://dataminer2.pjm.com/feed/hrl_load_metered
[38] https://www.misoenergy.org/markets-and-operations/real-time--market-data/market-reports

Analyzing the top 100 peak hours results in a more robust measure of impacts during PJM-ComEd and MISO-Illinois-Zone 4 peak grid loads. Representing just 1.1% of all the hours in a year, the top 100 peak hours capture the steepest part of load distribution curves.

Bill Impact Analysis

The bill impact analysis provided an estimate of participant savings as the difference between bill savings and the participant's costs to acquire solar PV (e.g., system costs, debt service payment, lease/PPA payments). We completed this analysis for all energized projects. The research questions addressed by the bill impact analysis are listed in Table 56, below.

Table 57. Bill Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Bill Impacts	How much bill savings can participants expect due to the energy produced by ILSFA projects? How do bill reductions compare to the participant's cost to acquire solar?

First-Year Bill Savings

The evaluation team calculated bill savings by estimating the difference between participant bills with and without PV benefits. The analysis assumes there is no increase in electrical consumption after PV installation. Three key inputs were necessary to calculate participant bills: 1) hourly PV system generation, 2) hourly participant load shapes, and 3) utility rate selection. We calculated bills using the hourly estimated PV production from the energy savings analysis (described above).

The evaluation team leveraged the statewide load profiles available from NREL's database of end use load profiles to approximate participant's load.[39] These datasets provide an estimate of the total statewide energy usage from specific building types at 15-minute intervals for an entire year. The datasets also include information on the number of units modeled in the state. Therefore, an average load profile can be calculated by dividing the total energy usage by the number of units modeled. Note that this method provides a smoothed load profile and does not account for individual peaks and valleys that are typically present in an individual's load profile. We used the single-family detached, multi-family (5+ units) load profiles for the Residential Solar (Small) and Residential Solar (Large) project types, respectively. We used the non-residential small office load profile for the Non-Profit/Public Facilities (NP/PF) projects. We also leveraged the single-family detached load profiles for the CS projects. We then adjusted the load profiles so that they were sized appropriately for each participant in the ILSFA program.

Adjustment factors used to scale the NREL load shapes were calculated using a sample of electric bills issued prior to PV installation.[40] The specific treatment varied by project type, as summarized below.

[39] https://www.nrel.gov/buildings/end-use-load-profiles.html

[40] Sample of electric bills was received during PY5 evaluation

- **Residential Solar (Small):** For a random sample of 37 projects, participant bills and estimated first-year PV generation were used to calculate PV Sizing Factors. The mean of these PV Sizing Factors (107%) was used in the calculation of bills for all Residential Solar (Smal) projects.
- **NP/PF:** For a random sample of 46 projects, participant bills and estimated first-year PV generation were used to calculate PV Sizing Factors. The mean of these PV Sizing Factors (77%) was used in the calculation of bills for all NP/PF projects.
- **Residential Solar (Large) and CS**: A PV Sizing Factor of 100% was assumed. (The availability of participant electric bills did not support calculation of PV Sizing Factors.)

In the case of CS projects, the evaluation team adjusted the PV estimates to match the annual load for a single-family detached home to approximate the bill savings for an individual participant subscribed to CS.

Historical rate selection information was not readily available for all projects. Therefore, results of the evaluation team's review of a sample of bills guided assumptions with respect to participant rates. Table 57, below, presents the rate assumptions used to model participant bill savings. Note that we modeled the two MidAmerican projects using Ameren Illinois bill assumptions. The evaluation team assumed that participants were not using hourly-based versions of these rates.

Table 58. Participant Rate Selection Assumptions

UTILITY SERVICE AREA	PROJECT TYPE	NUMBER OF PROJECTS	ASSUMED PARTICIPANT RATE SELECTION
ComEd	Residential Solar (Small)	131	BES
	Residential Solar (Large)	3	BES
	Non-Profit/Public Facilities	38	BES
	Community Solar	4	BES
Ameren Illinois	Residential Solar (Small)	2	DS1 – Residential Delivery Service
	Non-Profit/Public Facilities		DS2 – General Delivery Service
	Small Participant <150 kW	46	DS3 – General Delivery Service
	Large Participant >150 kW	4	
	Community Solar	7	DS1 – Residential Delivery Service
MidAmerican	Residential Solar (Small)	1	[Ameren Illinois DS1
	Non-Profit/Public Facilities	1	Ameren Illinois DS2]*

*Due to the limited number of energized MidAmerican projects (2 projects), the evaluation team estimated bill savings for these projects using Ameren rates.

The evaluation team calculated monthly bills under two scenarios: pre-solar installation, and post-solar installation. The monthly bills were calculated based on energy (kWh) delivered and the energy (kWh) received (i.e., solar generation). The fixed rates, delivery charges, fees, and taxes were sourced from the ComEd and Ameren Illinois online rate definitions, as well as from the Illinois Commerce Commission archive of all tariff filings and compliance filings.[41, 42] The supply costs (including the purchased electricity adjustment, electricity supply charge, and transmission services charge) vary throughout the year, and the historical values from June 2023 through May 2024 were used, per data available from Plug In Illinois.[43]

Lifetime Bill Savings Compared to Cost

The evaluation team estimated the lifetime bill savings over 20 years. We made several assumptions regarding how bill calculation inputs would change over time. We estimated bill savings assuming two different annual PV degradation rates: 1.36% and 0.5%. In the main body of this report, results are presented using the 0.5% annual PV degradation rate, this rate is used by IPA for program planning purposes. In other studies, the evaluation team has found that a 1.36% annual degradation rate is a realistic assumption of real-world PV degradation, results using this rate can be found in Appendix E. PY4, PY5, PY6 Results Overview.[44]

We did not assume that the participant's load would change over the lifetime of the system. Finally, we assumed retail rates will increase by 4% annually based on our review of ComEd and Ameren rates from 2017 through 2023. ComEd rates increased by an average of 3% per year and Ameren rates increased by an average of 8%. Based on each utility territory's proportional representation in energized projects, we used the weighted average annual rate increase of 4% (nominal).[45]

We also estimated the lifetime costs associated with the project. Cost assumptions were taken from ILSFA tracking data where information was available about purchase terms, including: the ownership type (purchase, lease, or PPA), the number of years of the contract terms, and the payment (per month, or per kWh for PPA terms). Fifty-one percent of systems (121 projects) had no payments (i.e., payments of $0). We present results as the net present value (NPV) of bill savings and participants' costs. We calculated the NPV using a 2.5% inflation rate and 3% (real) discount rate.[46]

Environmental Impact Analysis

The environmental impact analysis evaluated the avoided emissions of approved PY6 projects and energized projects. Approved PY6 projects are projects that applied for the ILSFA program in PY6 and received Part I approval between June 1, 2023 and May 31, 2024 (including all subsequent project stages). Energized projects applied for the ILSFA program in PY1 through PY6 and received Part II approval by May 31, 2024. Table 58, below, lists the research questions addressed by the environmental impact analysis.

[41] ComEd Rate Definitions: https://www.comed.com/my-account/my-dashboard/rates-tariffs/current-rates-tariffs.
[42] Ameren Illinois Rate Definitions: https://www.ameren.com/illinois/residential/rates/electric-rates.
[43] https://plugin.illinois.gov/understanding-the-price-to-compare/price-to-compare-comed.html.
[44] Itron and Verdant's 2020 California Solar Initiative Final Impact Evaluation Report (https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/csi-progress-reports/csi-2/csi_evaluation-report.pdf)
[45] These data were obtained from: https://plugin.illinois.gov/understanding-the-price-to-compare/price-to-compare-comed.html.
[46] The 3% (real) discount rate was used for consistency with past evaluations.

Table 59. Environmental Impact Analysis Research Questions

CATEGORY	PRIMARY RESEARCH QUESTIONS
Environmental Impacts	What are the first-year and lifetime emissions reductions associated with approved and energized ILSFA projects?

Environmental impacts from solar PV generation are a result of reduced utility power plant operation. We estimated avoided CO_2e emissions using data from the U.S. Environmental Protection Agency's AVoided Emissions and geneRation Tool (AVERT) and NREL's Cambium datasets, which are annually released sets of simulated hourly emission, cost, and operation data for a range of modeled futures of the U.S. electric sector.[47] [48] The 2023 Cambium release provided data for 2025–2043. At the time of evaluation 2024 AVERT data was not available, therefore 2023 AVERT data was used. The emissions rate assumed for 2024 was interpolated using values for 2023 and 2025.

Our analysis uses mid-case scenarios, which utilize central estimates for inputs such as technology costs, fuel prices, and demand growth. The 2023 Cambium dataset used for the last 19 years of the study period assumes electric sector policies as they existed in September 2023.

We estimated avoided NO_x and SO_2 emissions using data from AVERT. Marginal 2023 emissions rates for the Distributed PV Generation profile were adjusted to estimate values for future years. The adjustment factors reflected the assumption of a 2.163%/year decrease in marginal emissions rates. That is the default value assumed in NREL's Renewable Energy Integration and Optimization tool, which estimates NO_x and SO_2 impacts from AVERT data.[49] The 2023 AVERT emissions rates used to calculate first-year NO_x and SO_2 impacts are shown in Table 59.

Table 60: AVERT First-year NO_x and SO_2 Emissions Rates (2023 Adjusted, Distributed PV Generation Profile)

REGION	NO_X EMISSIONS RATE (LBS/MWH)	SO_2 EMISSIONS RATE (LBS/MWH)
Mid-Atlantic	0.5217	0.5849
Midwest	0.9614	1.1119

The evaluation team used the Cambium and AVERT data to estimate first-year and lifetime avoided CO_2e emissions, NO_x, and SO_2 emission impacts. We calculated lifetime avoided emissions for 20 years with two different assumed annual PV degradation rates: 1.36% and 0.5%. A 3% (real) discount rate was assumed in the calculation of NPV lifetime emissions impacts.

[47] U.S. Environmental Protection Agency (EPA). 2024. AVERT v4.3 Avoided Emission Rates 2017-2023. Available at https://www.epa.gov/avert.

[48] Gagnon, Pieter. 2024: Long-run Marginal Emission Rates for Electricity - Workbooks for 2023 Cambium Data. NREL Data Catalog. Golden, CO: National Renewable Energy Laboratory. https://data.nrel.gov/submissions/230.

[49] https://reopt.nrel.gov/tool.

Jobs and Economic Impact Analysis

The evaluation team estimated economic impact metrics by applying the IMPLAN input/output economic model with tailored inputs informed by ILSFA program data. IMPLAN's economic sector characterization of the Illinois state economy allows for each of the economic impacts to be disaggregated by economic sector. This enabled an illustration of the breakdown of employment, income, or GDP impacts across sectors such as construction, manufacturing, engineering, and administration.

To develop inputs for the economic analysis we relied on data inputs from other aspects of the evaluation, including ILSFA tracking data, total project costs, on-bill impacts, and subscriber data.

Table 60 tabulates the methods for the calculation of each of the identified economic impacts, broken out by impact category, key inputs, an overview of the technical method, and key outputs.

Table 61. Methodology and Key Outputs

IMPACT CATEGORY	KEY INPUTS	ANALYTIC METHOD	KEY OUTPUTS
Near-term impacts from new solar installations	• Project tracking data, including project expenditures and location by project type	• Project expenditures (as well as any program-related local employment, expenditure assumptions) serve as key input to IMPLAN input/output model • IMPLAN calculates employment impacts for new activity in the New Construction of Power and Communication Structures industry	• Direct, Indirect, and Induced employment impacts across sectors. • Incremental earned income and GDP impacts. • Impacts to taxes resulting from new near-term economic output
Ongoing impacts from energy bill savings	• Average bill savings by project type and geography, estimated by Verdant • Assumptions for household savings rates from the literature	• On-bill savings serve as key input to IMPLAN input/output model • IMPLAN calculates new household spending following gains in household disposable income	• Distribution of new household spending by economic sector

Appendix B. Direct Tax Impacts

The tables below show direct tax impacts by the type of taxpayer at the federal, state, county, and municipal levels.

Table 62. Federal Direct Tax Impact by Taxpayer

TAXPAYER	FEDERAL TAX
Employee compensation	$1,464,000
Enterprises (corporations)	$373,000
Tax on production and imports	$20,000
Household income < $50k	$0
Household income $50-100k	$177,000
Household income $100-200k	$593,000
Household income > $200k	$857,000
Total	**$3,484,000**

Table 63. State Direct Tax Impact by Taxpayer

TAXPAYER	STATE TAX
Employee compensation	$1,000
Enterprises (corporations)	$291,000
Tax on production and imports	$209,000
Household Income < $50k	$6,000
Household Income $50-100k	$67,000
Households Income $100-200k	$151,000
Household Income > $200k	$151,000
Total	**$876,000**

Table 64. County and Municipal Direct Tax Impact by Taxpayer

TAXPAYER	COUNTY TAX	MUNICIPAL TAX
Households	$0	$0
Tax on production and imports	$24,000	$216,000
Total	**$24,000**	**$216,000**

Appendix C. Community Solar Subscribers Attrition

The evaluation team analyzed the percentage of potential Community Solar (CS) subscribers who verified their income eligibility but did not participate in the program. To complete this analysis, we received two lists from Elevate: one list of potential subscribers who completed the income verification process and a final list of subscribers currently enrolled with energized projects. All CS projects energized through program year six (PY6) were approved in PY1-PY3. Within this subset of projects, 25% of the potential subscribers who completed income verification did not end up subscribed to the energized CS projects.

Based on conversations with the program implementer, reasons subscribers may drop out include the subscriber opting out of the subprogram, failing to complete the enrollment process, not finalizing eligibility, or being waitlisted. Currently, the tracking data does not collect reasons subscribers drop out of the program.

Data collected in the process evaluation suggests that limited availability of CS subscriptions may be frustrating to potential participants and may be a contributing factor to their dropping out of the enrollment process before it is complete. Grassroots educators noted that community members can get frustrated when, after learning about the Illinois Solar for All (ILSFA) program and being excited to participate, they find they are unable to access the benefits of the program—either because there are no available CS subscriptions or because the participant faces challenges in participating in another subprogram offering. Grassroots educators have requested a more up-to-date source of information on CS projects accepting subscribers, but the program administrator does not have access to this information either. Potential participants may join waiting lists for CS projects that are already full, but these participants may lose interest or be unable to enroll in the program by the time they are taken off the waitlist. The program administrator expects that IPA's data-sharing agreement with utilities and the Department of Energy's (DOE) Low-Income Clean Energy Connector will help address this issue by connecting participants who qualify for the Low-Income Home Energy Assistance Program (LIHEAP) with available CS subscriptions.

The time between a participant enrolling, completing income verification, and the CS project being energized can also be long. While many CS projects do not start enrolling subscribers until the project has been constructed and energized, some participants indicated that they wished they had more up-front communication about how long these wait times may be.

ILSFA might consider tracking the reasons subscribers drop out before energization. The analysis of this data could provide further insight into why potential subscribers drop out of the program and provide insight into potential solutions. For example, there may be opportunities to streamline processes, better communicate timelines, connect households with resources like the Clean Energy Connector, and share successful strategies implemented by certain Approved Vendors (AVs). Additionally, the program should consider conducting research with potential participants who opted not to participate to gain a deeper understanding of the factors contributing to drop-offs.

Appendix D. Residential Solar (Large) Feedback

The research team spoke with one Residential Solar (Large) participant. This participant was an affordable housing developer who had both a property management and a solar installation company under the same umbrella company. The solar installation company is an Approved Vendor (AV) with ILSFA. They reported they subcontract out the solar installations themselves. Since they are an AV, they see the value in solar and primarily are interested in installing solar panels on their buildings because they want to cut costs for themselves and their residents. They are required to go through affordable housing processes for the Department of Housing and Urban Development (HUD), so they are used to doing income verification for their buildings. They did not report any issues with this process. This participant has installed multiple solar projects, and while they typically have no issues with installation, they reported that it is challenging to work with utilities for interconnections on multifamily properties.

While they do not involve their residents in the solar installation process, this participant reported that they often install solar panels in tandem with building rehabilitation. They also discussed how the ILSFA application felt tedious and confusing and noted the application asks for similar information in multiple places.

Appendix E. PY4-PY6 Results Summary

This appendix presents three-year comparisons for key results from the program year four, (PY4), PY5, and PY6 reports.

Project Summary

Approved projects are summarized below by the number of projects, the total capacity (kW_{AC}), and the average capacity per project.

Table 65. Total and Average Capacity of PY4-PY6 Approved Projects – All Subprogram Totals

METRIC	PY4	PY5	PY6
Number of Approved Projects	207	261	1,340
Total PV Capacity (kW_{AC})	14,351.8	17,452.5	23,696.0

Table 66. Total Capacity and Average Project Costs of PY4-PY6 Approved Projects by Subprogram

PROGRAM	METRIC	PY4	PY5	PY6
Residential Solar (Small)	Number of Approved Projects	158	223	1,296
	Total PV Capacity (kW_{AC})	954.2	1,550.6	9,644.6
	Avg Capacity per Project (kW_{AC})	6.0	7.0	7.4
Residential Solar (Large)	Number of Approved Projects	2	0	1
	Total PV Capacity (kW_{AC})	370.8	N/A	197.5
	Avg Capacity per Project (kW_{AC})	185.4	N/A	197.5
Non-Profit/Public Facilities	Number of Approved Projects	41	33	39
	Total PV Capacity (kW_{AC})	5,621.8	7,151.9	5,453.9
	Avg Capacity per Project (kW_{AC})	137.1	216.7	139.8
Community Solar	Number of Approved Projects	6	5	4
	Total PV Capacity (kW_{AC})	7,405.0	8750.0	8,400.0
	Avg Capacity per Project (kW_{AC})	1,234.2	1,750.0	2,100.0

Energized projects are summarized below by the number of projects, the total capacity (kW_{AC}), the average capacity per project, and the average project cost per kilowatt of system size.

Table 67. Total Capacity and Average Project Costs of PY4-PY6 Energized Projects – All Subprogram Totals

METRIC	PY4	PY5	PY6
Number of Energized Projects	107	175	237
Total PV Capacity (kW_{AC})	7,872.5	15,522.7	28,799.5

Table 68. Total Capacity and Average Project Costs of PY4-PY6 Energized Projects by Subprogram

PROGRAM	METRIC	PY4	PY5	PY6
Residential Solar (Small)	Number of Energized Projects	63	110	134
	Total PV Capacity (kW_{AC})	352.4	675.3	847.4
	Avg Capacity per Project (kW_{AC})	5.6	6.1	6.3
	Avg Project Cost per kW_{AC}	$3,521	$3,377	$3,434
Residential Solar (Large)	Number of Energized Projects	1	2	3
	Total PV Capacity (kW_{AC})	2,000.0	2,348.0	2,370.8
	Avg Capacity per Project (kW_{AC})	2,000.0	1,174.0	790.3
	Avg Project Cost per kW_{AC}	$2,368	$2,908	$2,929
Non-Profit/Public Facilities	Number of Energized Projects	41	58	89
	Total PV Capacity (kW_{AC})	5,466.8	6,746.1	12,413.0
	Avg Capacity per Project (kW_{AC})	133.3	116.3	139.5
	Avg Project Cost per kW_{AC}	$3,114	$2,936	$2,950
Community Solar	Number of Energized Projects	2	5	11
	Total PV Capacity (kW_{AC})	53.3	5,753.3	13,168.3
	Avg Capacity per Project (kW_{AC})	26.7	1,150.7	1,197.1
	Avg Project Cost per kW_{AC}	$3,405	$2,667	$2,882

Electric Energy Savings

The first-year estimated electric generation by project type is presented for approved and energized projects in the following two tables.

Table 69. First-Year Estimated Electric Energy Savings (MWh) of PY4-PY6 Approved Projects

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	1,429.9	2,364.6	15,186.4
Residential Solar (Large)	539.5	NA	326.3
Non-Profit/Public Facilities	9,366.3	11,331.8	8,921.3
Community Solar	15,855.2	19,364.0	16,020.0
Total	**27,191.0**	**33,060.3**	**40,454.0**

Table 70. First-Year Estimated Electric Energy Savings (MWh) of PY4-PY6 Energized Projects

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	507.8	983.7	1,226.0
Residential Solar (Large)	4,214.9	4,719.4	4,754.4
Non-Profit/Public Facilities	7,784.6	9,924.2	19,022.9
Community Solar	95.1	11,024.0	26,249.2
Total	**12,602.3**	**26,651.4**	**51,252.5**

The following two tables present the total generation coincident with the peak and top 100 hour of demand within the PJM-ComEd and MISO-Illinois-Zone 4 systems for approved and energized projects.

Table 71. Estimate Peak and Top 100 Hour Generation (MW/MWh) of PY4-PY6 Approved Projects

PROGRAM	PY4	PY5	PY6
PJM-ComEd*	4.245 (579.1)	3.475 (319.1)	6.040 (638.0)
MISO-Illinois-Zone 4*	2.753 (222.8)	5.452 (469.5)	0.976 (346.1)

*Numbers in parentheses represent an estimated generation coincident with top 100 hours.

Table 72. Estimate Peak and Top 100 Hour Generation (MW/MWh) of PY4-PY6 Energized Projects

PROGRAM	PY4	PY5	PY6
PJM-ComEd*	2.545 (284.1)	4.296 (398.5)	8.243 (813.8)
MISO-Illinois-Zone 4*	1.324 (95)	2.292 (250.2)	2.036 (477.1)

*Numbers in parentheses represent an estimated generation coincident with top 100 hours.

Bill Impacts

The following table shows the average first-year electric bill savings per participant by project type and the net savings after accounting for cost of photovoltaic (PV) paid to vendors by participants expressed as a percentage of the participant's total electric bill prior to PV installation.

Table 73. PY4-PY6 First-Year Estimated Average Monthly Electric Bill Savings per Participant by Subprogram

PROGRAM	METRIC	PY4	PY5	PY6
Residential Solar (Small)	Number of Energized Projects	63	110	134
	Avg Utility Monthly Electric Bill Savings	$86.19	$97.69	$111.90
	Avg Net Savings Pct	85.9%	86.2%	87.5%
Residential Solar (Large)	Number of Energized Projects	1	2	3
	Avg Utility Monthly Electric Bill Savings	$58.10	$58.49	$65.69
	Avg Net Savings Pct	51.3%	68.0%	71.5%
Non-Profit/Public Facilities	Number of Energized Projects	41	58	89
	Avg Utility Monthly Electric Bill Savings	$1,525.15	$2,050.35	$2,194.52
	Avg Net Savings Pct	52.7%	58.5%	60.1%
Community Solar	Number of Energized Projects	2	5	11
	Avg Utility Monthly Electric Bill Savings	$41.52	$91.28	$60.79
	Avg Net Savings Pct	44.7%	50.4%	36.4%

The following table shows the net present value (NPV) of net electric bill savings, which is calculated as the difference between electric bill savings and participants' cost of PV paid to vendors.

Table 74. PY4-PY6 Net Present Value of Lifetime Net Electric Bill Savings (Results for 1.36% and 0.5% Annual PV Degradation)

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)*	$953,346 ($1,028,545)	$1,885,618 ($2,034,464)	$2,576,921 ($2,785,094)
Residential Solar (Large)*	$5,715,921 ($6,213,252)	$6,617,019 ($7,186,989)	$7,794,009 ($8,454,312)
Non-Profit/Public Facilities*	$8,946,566 ($9,684,007)	$18,468,416 ($19,946,587)	$30,969,116 ($33,409,125)
Community Solar*	$71,820 ($77,448)	$11,795,445 ($12,719,942)	$20,323,217 ($21,916,118)
Total*	**$15,687,654 ($17,003,252)**	**$38,766,498 ($41,887,981)**	**$61,663,262 ($66,564,650)**

*Numbers in parentheses represent 0.5% annual PV performance degradation.

The ratio of lifetime participant costs of PV paid to vendor (NPV) to the lifetime participant bill savings (NPV) is present in the table below.

Table 75. PY4-PY6 Net Present Value of Participant Cost per Electric Utility Bill Savings Ratio (Results for 1.36% and 0.5% Annual PV Degradation)

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)*	0.02 (0.02)	0.02 (0.02)	0.03 (0.03)
Residential Solar (Large)*	0.25 (0.24)	0.23 (0.22)	0.19 (0.19)
Non-Profit/Public Facilities*	0.19 (0.18)	0.12 (0.11)	0.10 (0.10)
Community Solar*	0.00 (0.00)	0.35 (0.35)	0.29 (0.29)
Total*	**0.20 (0.20)**	**0.22 (0.22)**	**0.18 (0.18)**

*Numbers in parentheses represent 0.5% annual PV performance degradation.

Environmental Impacts

First-Year and Lifetime Avoided Emissions

The following table shows the estimated first-year avoided CO_2e emissions of approved projects.

Table 76. PY4-PY6 Approved Projects Estimated First-Year Avoided Pounds of CO2e

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	2,147,504	3,455,314	17,522,252
Residential Solar (Large)	807,884	NA	368,846
Non-Profit/Public Facilities	14,609,032	18,146,443	12,734,535
Community Solar	24,796,960	31,988,501	21,728,231
Total	**42,361,380**	**53,590,258**	**52,353,863**

The following table shows the estimated first-year avoided NO_x emissions of approved projects.

Table 77. PY4-PY6 Approved Projects Estimated First-Year Avoided Pounds of NO_x

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	931	1,475	8,372
Residential Solar (Large)	346	NA	170
Non-Profit/Public Facilities	7,236	9,144	8,000
Community Solar	12,388	16,906	12,927
Total	**20,901**	**27,524**	**29,469**

The following table shows the estimated first-year avoided SO_2 emissions of approved projects.

Table 78. PY4-PY6 Approved Projects Estimated First-Year Avoided Pounds of SO_2

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)	1,116	1,670	9,422
Residential Solar (Large)	416	NA	191
Non-Profit/Public Facilities	8,521	10,491	9,227
Community Solar	14,574	19,462	14,846
Total	**24,627**	**31,624**	**33,686**

The following three tables present the estimated lifetime emissions impacts of approved projects for CO_2e, NO_X, and SO_2 emissions, respectively.

Table 79. PY4-PY6 Approved Projects Estimated Lifetime Avoided Pounds of CO_2e (Results for 1.36% and 0.5% Annual PV Degradation)

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)*	11,874,152 (12,295,127)	17,935,831 (18,802,645)	91,114,205 (96,000,458)
Residential Solar (Large)*	4,463,947 (4,622,510)	NA	1,885,867 (1,987,189)
Non-Profit/Public Facilities*	88,019,588 (91,180,732)	100,458,685 (105,310,675)	74,118,257 (77,957,456)
Community Solar*	151,387,126 (156,867,452)	183,410,899 (192,372,347)	124,619,725 (131,147,537)
Total*	**255,744,813 (264,965,822)**	**301,805,414 (316,485,668)**	**291,738,054 (307,092,640)**

*Numbers in parentheses represent 0.5% annual PV performance degradation.

Table 80. PY4-PY6 Approved Projects Estimated Lifetime Avoided Pounds of NO_x (Results for 1.36% and 0.5% Annual PV Degradation)

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)*	10,684 (11,402)	16,920 (18,058)	96,056 (102,517)
Residential Solar (Large)*	3,974 (4,241)	NA	1,953 (2,084)
Non-Profit/Public Facilities*	83,012 (88,596)	104,903 (111,960)	91,778 (97,952)
Community Solar*	142,127 (151,688)	193,955 (207,002)	148,309 (158,286)
Total*	**239,797 (255,928)**	**315,779 (337,021)**	**338,096 (360,840)**

*Numbers in parentheses represent 0.5% annual PV performance degradation.

Table 81. PY4-PY6 Approved Projects Estimated Lifetime Avoided Pounds of SO_2 (Results for 1.36% and 0.5% Annual PV Degradation)

PROGRAM	PY4	PY5	PY6
Residential Solar (Small)*	12,804 (13,665)	19,160 (20,449)	108,093 (115,364)
Residential Solar (Large)*	4,770 (5,091)	NA	2,190 (2,337)
Non-Profit/Public Facilities*	97,764 (104,341)	120,363 (128,460)	105,864 (112,986)
Community Solar*	167,207 (178,454)	223,289 (238,310)	170,330 (181,788)
Total*	**282,545 (301,552)**	**362,812 (387,218)**	**386,477 (412,475)**

*Numbers in parentheses represent 0.5% annual PV performance degradation.

Impact Equivalencies

To help understand the magnitude of the energy and environmental estimated impacts, the evaluation team calculated estimates of equivalent actions that would reduce the same amount of energy or CO_2 emissions as the Illinois Solar for All (ILSFA) PV first-year project impacts. The following table shows these impact equivalents for approved projects.

Table 82. Estimated First-Year Impact Equivalents of PY4-PY6 Approved Projects

PROGRAM	PY4	PY5	PY6
Number of homes powered for a year	3,285	4,315	5,280
Number of cars taken off the road for a year	2,704	3,496	3,428

Appendix F. PY4 Electricity, Bill, Environmental, Workforce, and Economic Impacts

To align with the methodology presented in program year five (PY5) and program year six (PY6) reports, this appendix presents reissued PY4 results for energy, bill, and environmental impacts.

Project Summary

Table 82, below, summarizes program participation by number of projects, total capacity (KWAC), and average capacity per project for PY4 approved projects and energized projects, respectively. The table of energized projects also includes the average project cost per kilowatt of system size.

Table 83. Total Capacity and Average Project Costs of PY4 Approved Projects

PROJECT TYPE		NUMBER OF PROJECTS	TOTAL PV CAPACITY (KW_{AC})	AVERAGE PV CAPACITY PER PROJECT (KW_{AC})
Distributed Generation	Residential Solar (Small)	158	954.2	6.0
	Residential Solar (Large)	2	370.8	185.4
	Non-Profit/Public Facilities	41	5,621.8	137.1
	Total	**201**	**6,946.8**	
Community Solar	**Total**	**6**	**7,405.0**	**1,234.2**
All Approved Projects		**207**	**14,351.8**	

Table 84. Total Capacity and Average Project Costs of PY4 Energized Projects

PROJECT TYPE		NUMBER OF PROJECTS	TOTAL PV CAPACITY (KW_{AC})	AVERAGE PV AC CAPACITY PER PROJECT (KW)	AVERAGE PROJECT COST PER AC KW
Distributed Generation	Residential Solar (Small)	63	352.4	5.6	$3,521
	Residential Solar (Large)	1	2,000.0	2,000.0	$2,368
	Non-Profit/Public Facilities	41	5,466.8	133.3	$3,114
	Total	**105**	**7,819.2**		
Community Solar	**Total**	**2**	**53.3**	**26.7**	**$3,405**
All Energized Projects		**107**	**7,872.5**		

PY4 Electricity Energy Savings

This section presents the estimated first-year and lifetime energy savings by project type. Electric energy savings for PV systems are the kilowatt-hours generated by the photovoltaic (PV) installed through the program. The electricity generated from these projects displaces electricity from the grid. Table 84 and Table 85, each below, present the first-year estimated electrical generation by project type for PY4 approved projects and PY4 energized projects, respectively. These tables also include the average first-year estimated energy savings per project and an estimated capacity factor.

Table 85. First-Year Estimated Electric Energy Savings of PY4 Approved Projects

PROJECT TYPE		ESTIMATED FIRST-YEAR ELECTRIC ENERGY SAVINGS (MWH)	NUMBER OF PROJECTS	AVERAGE ANNUAL ESTIMATED ELECTRIC ENERGY SAVINGS PER PROJECT (MWH)	AVERAGE ESTIMATED ANNUAL CAPACITY FACTOR (AC)
Distributed Generation	Residential Solar (Small)	1,429.9	158	9.1	17.4%
	Residential Solar (Large)	539.5	2	269.8	17.0%
	Non-Profit/Public Facilities	9,366.3	41	228.4	18.6%
	Total	**11,335.7**	**201**		
Community Solar	**Total**	**15,855.2**	**6**	**2,642.5**	**23.4%**
All Approved Projects		**27,191.0**	**207**		

Table 86. First-Year Estimated Electric Energy Savings of PY4 Energized Projects

PROJECT TYPE		ESTIMATED FIRST-YEAR ELECTRIC ENERGY SAVINGS (MWH)	NUMBER OF PROJECTS	AVERAGE ANNUAL ESTIMATED ELECTRIC ENERGY SAVINGS PER PROJECT (MWH)	AVERAGE ESTIMATED ANNUAL CAPACITY FACTOR (AC)
Distributed Generation	Residential Solar (Small)	507.8	63	8.1	16.5%
	Residential Solar (Large)	4,214.9	1	4,214.9	24.1%
	Non-Profit/Public Facilities	7,784.6	41	189.9	18.3%
	Total	**12,507.3**	**105**	**--**	**--**
Community Solar	**Total**	**95.1**	**2**	**47.5**	**21.0%**
All Energized Projects		**12,602.3**	**107**	**--**	**--**

Demand Savings

Peak Hour Impacts

The evaluation team estimated impacts on PJM-ComEd and MISO-Illinois-Zone 4 annual system peaks using simulated PV generation values. Table 86, below, shows peak hour impacts by independent system operator (ISO) region for PY4 approved and energized projects.

Table 87. Estimated Peak Hour Generation for PY4 Approved and Energized Projects

PROJECT GROUP	ISO REGION	NUMBER OF PROJECTS	ESTIMATED PEAK HOUR GENERATION (MW)	ESTIMATED PEAK HOUR CAPACITY FACTOR
Approved Projects	PJM-ComEd	184	4.245	34.5%
	MISO-Illinois-Zone 4	23	2.753	48.7%
Energized Projects	PJM-ComEd	82	2.545	33.5%
	MISO-Illinois- Zone 4	25	1.324	55.1%

Top 100 Peak Hours

The estimated PJM-ComEd and MISO-Illinois-Zone 4 peak hour coincident generation is a snapshot of the beneficial program impacts. Table 87, below, shows the total estimated generation coincident with PJM-ComEd and MISO-Illinois-Zone 4 top 100 hours alongside estimated capacity factors during the top 100 hours for PY4 approved and energized projects. Looking at the top 100 hours of generation shows how the program benefits the grid over a longer period of time.

Table 88. Estimated Generation Coincident with Top 100 Hours for PY4 Approved and Energized Projects

PROJECT GROUP	REGION	NUMBER OF PROJECTS	ESTIMATED TOP 100 HOURS GENERATION (MWH)	ESTIMATED TOP 100 HOURS CAPACITY FACTOR
Approved Projects	PJM-ComEd	184	579.1	49.9%
	MISO-Illinois-Zone 4	23	222.8	37.2%
Energized Projects	PJM-ComEd	82	284.1	47.0%
	MISO-Illinois-Zone 4	25	95.0	42.6%

Bill Impacts

Table 88, below, shows the PY4 average first-year electric bill savings per participant by project type, distinguishing between utility electric bill savings and net savings after accounting for costs of PV paid to vendors by participants. We express the results in terms of monthly averages across the year and calculate the net savings percentage with respect to the participant's total electric bill without PV.

First-Year Electric Bill Savings

Table 89. PY4 Energized Project First-Year Estimated Average Monthly Electric Bill Savings per Participant

PROJECT TYPE		NUMBER OF PROJECTS	UTILITY ELECTRIC BILL SAVINGS	PV COSTS	NET SAVINGS	AVERAGE NET SAVINGS PERCENTAGE
Distributed Generation	Residential Solar (Small)	63	$86.19	$2.59	$83.61	85.9%
	Residential Solar (Large)	1	$58.10	$22.67	$35.43	51.3%
	Non-Profit/Public Facilities	41	$1,525.15	$439.27	$1,085.88	52.7%
Community Solar		2	**$41.52**	$0.00	$41.52	44.7%

Lifetime Electric Bill Savings Compared to Participant Costs

Table 89 shows the PY4 NPV of lifetime electric bill savings and participants' costs by project type with net savings calculated as the difference between the two. The costs represent a participant's payment (total, per month, or per kWh) under their purchase agreement, lease agreement, power purchase agreement (PPA), or subscriber agreement over the duration of their contract. The table also includes a ratio of the lifetime participant costs (NPV) to lifetime participant bill savings (NPV). The results in Table 89 are based on the assumption of a 1.36%/yr PV performance degradation rate. The PV performance degradation rate is an assumption, representing that the performance of solar panels will decline over time due to factors such as panel cleaning, maintenance, and general wear and tear.

Table 90. Net Present Value of Utility Electric Bill Savings and PV Costs of PY4 Energized Projects by Type (1.36%/yr PV performance degradation assumed)

PROJECT TYPE	PROJECT TYPE	NUMBER OF PROJECTS	NPV LIFETIME ELECTRIC UTILITY BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY ELECTRIC BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Distributed Generation	Residential Solar (Small)	63	$971,370	$18,024	$953,346	0.02	58
	Residential Solar (Large)	1	$7,580,446	$1,864,525	$5,715,921	0.25	0
	Non-Profit/Public Facilities	41	$11,022,846	$2,076,279	$8,946,566	0.19	3*

PROJECT TYPE	PROJECT TYPE	NUMBER OF PROJECTS	NPV LIFETIME ELECTRIC UTILITY BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY ELECTRIC BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
	Total	105	$19,574,662	$3,958,828	$15,615,834	0.20	61
Community Solar	**Total**	2	$71,820	$0	$71,820	0.00	2
All Energized Projects		107	$19,646,481	$3,958,828	$15,687,654	0.20	63

[a]The customer payment terms were not available for one NP/PF project since the approved vendor (AV) and the customer were the same entity. However, since the total renewable energy credit (REC) incentives for this project were greater than the total project cost, the customer's cost for this project is modeled as a $0 payment.

The NPV results are sensitive to the assumption about how PV performance will change over time. An assumption of a slower PV performance degradation rate of 0.5%/yr produces the results presented in Table 90.

Table 91. Net Present Value of Utility Electric Bill Savings and PV Costs of PY4 Energized Projects by Type (0.5%/yr PV performance degradation assumed)

PROJECT TYPE	PROJECT TYPE	NUMBER OF PROJECTS	NPV LIFETIME UTILITY ELECTRIC BILL SAVINGS	NPV LIFETIME PARTICIPANT COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY ELECTRIC BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Distributed Generation	Residential Solar (Small)	63	$1,047,504	$18,959	$1,028,545	0.02	58
	Residential Solar (Large)	1	$8,174,576	$1,961,324	$6,213,252	0.24	0
	Non-Profit/Public Facilities	41	$11,849,698	$2,165,692	$9,684,007	0.18	3
	Total	105	$21,071,778	$4,145,974	$16,925,804	0.20	61
Community Solar	**Total**	2	$77,448	$0	$77,448	0.00	2
All Energized Projects		107	$21,149,227	$4,145,974	$17,003,252	0.20	63

We show the NPV of utility bill savings and participants' PV costs by sector and ownership type in Table 91, below, for PY4 Distributed Generation projects, assuming a PV performance degradation rate of 1.36%/yr.

Table 92. Net Present Value of Bill Savings and Cost by Sector and Ownership Type of PY4 Energized Distributed Generation Projects (1.36%/yr PV performance degradation assumed)

SECTOR	OWNERSHIP TYPE	NUMBER OF PROJECTS[a]	NPV LIFETIME UTILITY BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Residential (Small and Large)	**Lease**	54	$836,334	$0	$836,334	0.00	54
	PPA	9	$7,707,493	$1,882,548	$5,824,945	0.24	3
	Purchase	1	$7,989	$0	$7,989	0.00	1
Non-Profit/Public Facilities	**Lease**	12	$1,972,358	$336,316	$1,636,042	0.17	0
	PPA	25	$6,773,028	$1,473,536	$5,299,491	0.22	1
	Purchase	4	$2,277,460	$266,427	$2,011,033	0.12	2

[a]This table excludes one NP/PF Distributed Generation project as its ownership type was not available.

An assumption of a slower PV performance degradation rate of 0.5%/yr produces the results presented in Table 92.

Table 93. Net Present Value of Bill Savings and Cost by Sector and Ownership Type of PY4 Energized Distributed Generation Projects (0.5%/yr PV performance degradation assumed)

SECTOR	OWNERSHIP TYPE	NUMBER OF PROJECTS [A]	NPV LIFETIME UTILITY BILL SAVINGS	NPV LIFETIME PARTICIPANT PV COSTS	NPV LIFETIME NET SAVINGS	NPV PARTICIPANT COST PER UTILITY BILL SAVINGS RATIO	NUMBER OF PROJECTS WITH $0 PAYMENTS
Residential (Small and Large)	**Lease**	54	$901,884	$0	$901,884	0.00	54
	PPA	9	$8,311,581	$1,980,283	$6,331,298	0.24	3
	Purchase	1	$8,615	$0	$8,615	0.00	1
Non-Profit/ Public Facilities	**Lease**	12	$2,119,794	$336,316	$1,783,478	0.16	0
	PPA	25	$7,282,044	$1,562,948	$5,719,096	0.21	1
	Purchase	4	$2,447,860	$266,427	$2,181,433	0.11	2

[a]This table excludes one NP/PF Distributed Generation project as its ownership type was not available.

Environmental Impacts

The evaluation team estimated the environmental impacts of PY4 approved projects and energized projects. We calculated the emission impacts as the difference between the emissions generated by the program PV systems and baseline emissions that would have occurred in the absence of ILSFA.

First-Year and Lifetime Avoided Emissions

We estimated avoided emissions using the National Renewable Energy Laboratory (NREL) Cambium dataset of marginal CO_2e emissions rates and marginal CO_2e, NO_x, and SO_2 emissions rates from the U.S. Environmental Protection Agency's (EPA) AVoided Emissions and geneRation Tool (AVERT). We calculated emissions impacts as the product of marginal emissions rates and estimated PV generation. Table 93 presents estimated first-year emissions impacts of PY4 approved projects by project type.

Table 94. PY4 Approved Projects Estimated First-Year Avoided Emissions per NREL Data

PROJECT TYPE		FIRST YEAR ESTIMATED AVOIDED LBS OF CO_2E	FIRST YEAR ESTIMATED AVOIDED LBS OF NO_X	FIRST YEAR ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	2,147,504	931	1,116
	Residential Solar (Large)	807,884	346	416
	Non-Profit/Public Facilities	14,609,032	7,236	8,521
	Total	**17,564,421**	**8,513**	**10,053**
Community Solar	**Total**	**24,796,960**	**12,388**	**14,574**
All Approved Projects		**42,361,380**	**20,901**	**24,627**

Table 94 presents estimated first-year emissions impacts of PY4 energized projects by project type.

Table 95. PY4 Energized Projects Estimated First-Year Avoided Emissions

PROJECT TYPE		FIRST YEAR ESTIMATED AVOIDED LBS OF CO_2E	FIRST YEAR ESTIMATED AVOIDED LBS OF NO_X	FIRST YEAR ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	760,324	326	391
	Residential Solar (Large)	6,311,534	2,706	3,248
	Non-Profit/Public Facilities	12,342,022	6,433	7,529
	Total	**19,413,881**	**9,465**	**11,169**
Community Solar	**Total**	**159,099**	**96**	**111**
All Energized Projects		**19,572,980**	**9,561**	**11,279**

Table 95 shows the distributions of lifetime emissions impacts estimates by project type for PY4 approved projects for two different PV degradation rates: 1.36%/yr and 0.50%/yr. The emissions rate assumed for the first year was obtained from AVERT, while emissions rates forecast for future years are from NREL's Cambium dataset. We used a discount rate of 3% (real) to calculate these values.

Table 96. PY4 Approved Projects Estimated Lifetime Avoided Emissions per NREL Data (Results for 1.36%/yr degradation rate, and 0.50%/yr degradation rate)

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	11,874,152	10,684	12,804
		(12,295,127)	(11,402)	(13,665)
	Residential Solar (Large)	4,463,947	3,974	4,770
		(4,622,510)	(4,241)	(5,091)
	Non-Profit/ Public Facilities	88,019,588	83,012	97,764
		(91,180,732)	(88,596)	(104,341)
	Total	104,357,686	97,669	115,338
		(108,098,370)	(104,239)	(123,097)
Community Solar	Total	151,387,126	142,127	167,207
		(156,867,452)	(151,688)	(178,454)
All Approved Projects		255,744,813	239,797	282,545
		(264,965,822)	(255,928)	(301,552)

Table 96 shows the distribution of the lifetime estimated emissions impacts by project type for PY4 energized projects.

Table 97. PY4 Energized Projects Estimated Lifetime Avoided Emissions per NREL Data (Results for 1.36%/yr degradation rate, and 0.50%/yr degradation rate)

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
Distributed Generation	Residential Solar (Small)	4,184,460	3,740	4,489
		(4,332,741)	(3,992)	(4,791)
	Residential Solar (Large)	35,150,009	31,046	37,267
		(36,406,698)	(33,135)	(39,774)

PROJECT TYPE		LIFETIME ESTIMATED AVOIDED LBS OF CO_2E	LIFETIME ESTIMATED AVOIDED LBS OF NO_X	LIFETIME ESTIMATED AVOIDED LBS OF SO_2
	Non-Profit/ Public Facilities	76,841,094	73,799	86,378
		(79,614,749)	(78,763)	(92,189)
	Total	116,175,563	108,585	128,135
		(120,354,187)	(115,889)	(136,754)
Community Solar	Total	1,092,017	1,103	1,269
		(1,131,865)	(1,177)	(1,355)
All Energized Projects		117,267,581	109,687	129,404
		(121,486,052)	(117,066)	(138,109)

Impact Equivalencies

To help understand the magnitude of the energy and environmental estimated impacts, the evaluation team calculated estimates of equivalent actions that would reduce the same amount of energy or CO_2 emissions as the PY4 ILSFA PV first-year project impacts. Table 97 shows these impact equivalents.

Table 98. PY4 Estimated First-Year Impact Equivalents

EQUIVALENT IMPACT	PY4 APPROVED PROJECTS	PY4 ENERGIZED PROJECTS
Number of homes powered for a year	3,285	1,523
Number of cars taken off the road for a year	2,704	1,249

Workforce and Economic Impacts

To align with the methodology presented in the program year five (PY5) and program year six (PY6) reports, this appendix presents reissued PY4 results for PY4 energized projects only.

Table 98, below, shows the modeled direct, indirect, and induced impacts by project subgroup. In PY4, there were no energized Residential Solar (Large) projects, which is reflected by the lack of employee compensation and GDP impacts. Non-Profit/Public Facilities (NP/PF) projects had the largest impact, generating almost $33 million in total projected GDP impacts.

Table 99. PY4 Modeled GDP and Employee Compensation Impacts by Project Type

IMPACT TYPE	PROJECT TYPE		EMPLOYEE COMPENSATION	GDP IMPACTS
Direct	Distributed Generation	Residential Solar (Small)	$720,000	$2,320,000
		Residential Solar (Large)	$0	$0
		Non-Profit/ Public Facilities	$5,990,000	$19,170,000
	Community Solar		$70,000	$70,000
Indirect	Distributed Generation	Residential Solar (Small)	$200,000	$770,000
		Residential Solar (Large)	$0	$0
		Non-Profit/ Public Facilities	$1,670,000	$6,350,000
	Community Solar		$20,000	$20,000
Induced	Distributed Generation	Residential Solar (Small)	$250,000	$860,000
		Residential Solar (Large)	$0	$0
		Non-Profit/ Public Facilities	$2,100,000	$7,120,000
	Community Solar		$30,000	$30,000
Total	Distributed Generation	Residential Solar (Small)	$1,180,000	$3,950,000
		Residential Solar (Large)	$0	$0
		Non-Profit/ Public Facilities	$9,760,000	$32,640,000
	Community Solar		$120,000	$120,000
	Statewide Total		**$11,060,000**	**$36,990,000**

The model estimates the total GDP impacts for energized projects to be about $37 million, which has increased 81% to $67 million in GDP impacts in PY6. Additionally, the total estimated employee compensation for PY4 energized projects totaled $11 million and represents the modeled total

compensation awarded to local workers for the construction of Illinois Solar for All (ILSFA) projects, including wages paid to Future Energy Jobs Act (FEJA)/Climate and Equitable Jobs Act (CEJA) job trainees.

The following three tables show direct, indirect, and induced impacts by region. The highest direct impacts come from Cook County where there was $6.5 million worth of project spending on energized projects. Spending in this region made up 30% of all PY4 energized project spending. This resulted in the highest level of direct, indirect, and induced impacts in this region.

Table 100. Modeled Direct Impacts of PY4 Energized Projects by Region

REGION	TOTAL EMPLOYMENT IMPACT	TOTAL EMPLOYEE COMPENSATION	IMPACTS TO GDP
Cook County	40	$2,070,000	$6,510,000
Northeast	20	$1,510,000	$4,450,000
Northwest	30	$1,830,000	$5,910,000
East Central	20	$720,000	$2,540,000
West Central	10	$340,000	$1,160,000
South	10	$320,000	$1,160,000
Total	130	$6,790,000	$21,730,000

Indirect impacts model spending on construction inputs for building solar projects. GDP and employee compensation impacts were primarily focused on Cook County and the northern part of the state. This is consistent with PY5 and PY6 indirect impacts and signals the continued reliance of the rest of the state on the Chicagoland and surrounding area for materials.

Table 101. Modeled Indirect Impacts of PY4 Energized Projects by Region

REGION	TOTAL EMPLOYMENT IMPACT	TOTAL EMPLOYEE COMPENSATION	IMPACTS TO GDP
Cook County	10	$750,000	$2,470,000
Northeast	10	$520,000	$1,980,000
Northwest	10	$370,000	$1,460,000
East Central	<10	$130,000	$560,000
West Central	<10	$80,000	$410,000
South	<10	$50,000	$300,000
Total	30	$1,900,000	$7,180,000

Induced impacts were consistent with the areas in which spending occurred. Since most projects were in Cook County and the Northeast region, these areas saw the highest level of induced impacts, as well. In total, across direct, indirect, and induced effects, we estimate that PY4 energized projects stimulated demand for around 190 employees over the course of the year.

Table 102. Modeled Induced Impacts of PY4 Energized Projects by Region

REGION	TOTAL EMPLOYMENT IMPACT	TOTAL EMPLOYEE COMPENSATION	IMPACTS TO GDP
Cook County	10	$970,000	$2,880,000
Northeast	10	$590,000	$2,020,000
Northwest	10	$470,000	$1,730,000
East Central	<10	$190,000	$760,000
West Central	<10	$90,000	$370,000
South	<10	$70,000	$310,000
Total	30	$2,380,000	$8,070,000

In addition to spending impacts, the analysis also modeled tax impacts for PY4 energized projects. The figures below show the direct tax impacts by taxing authority and total tax impacts by type. Most of the tax impacts come from federal employee compensation taxes, personal income taxes on households with income over $200,000 per year. State taxes had a similar split with the exclusion of employee compensation.

Figure 22. Modeled Direct Tax Impacts by Type

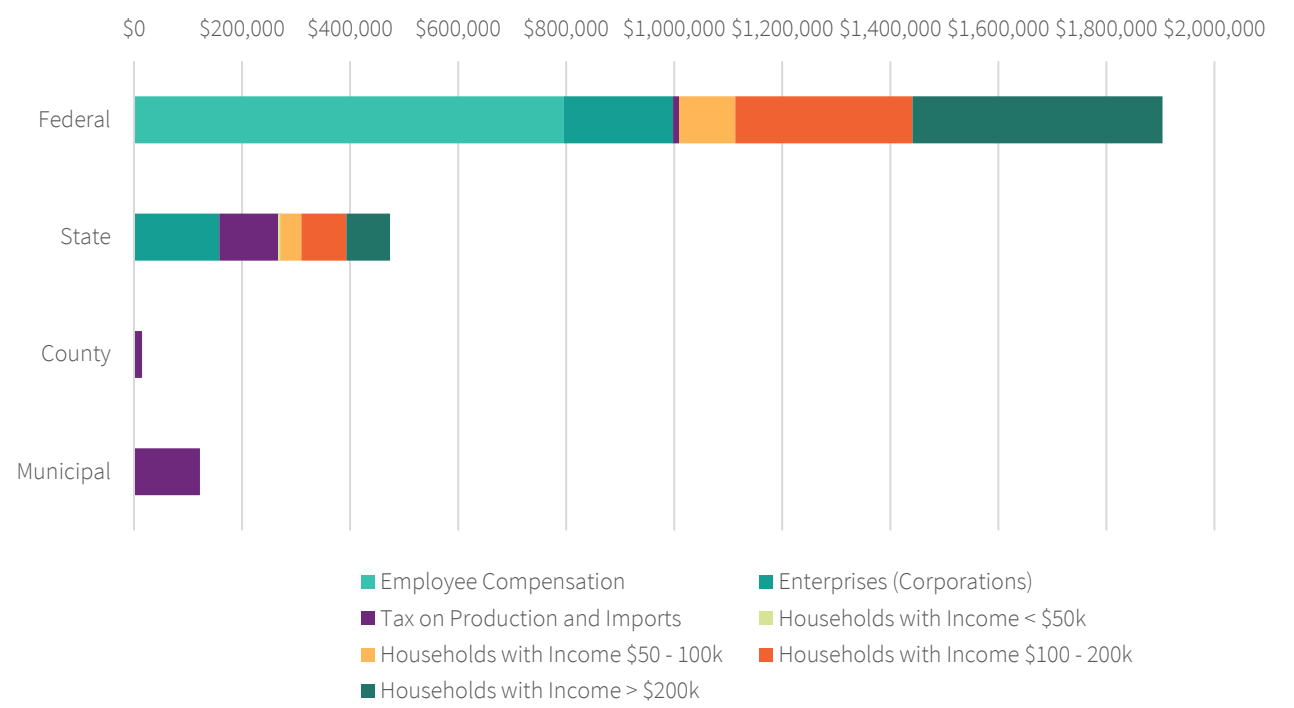
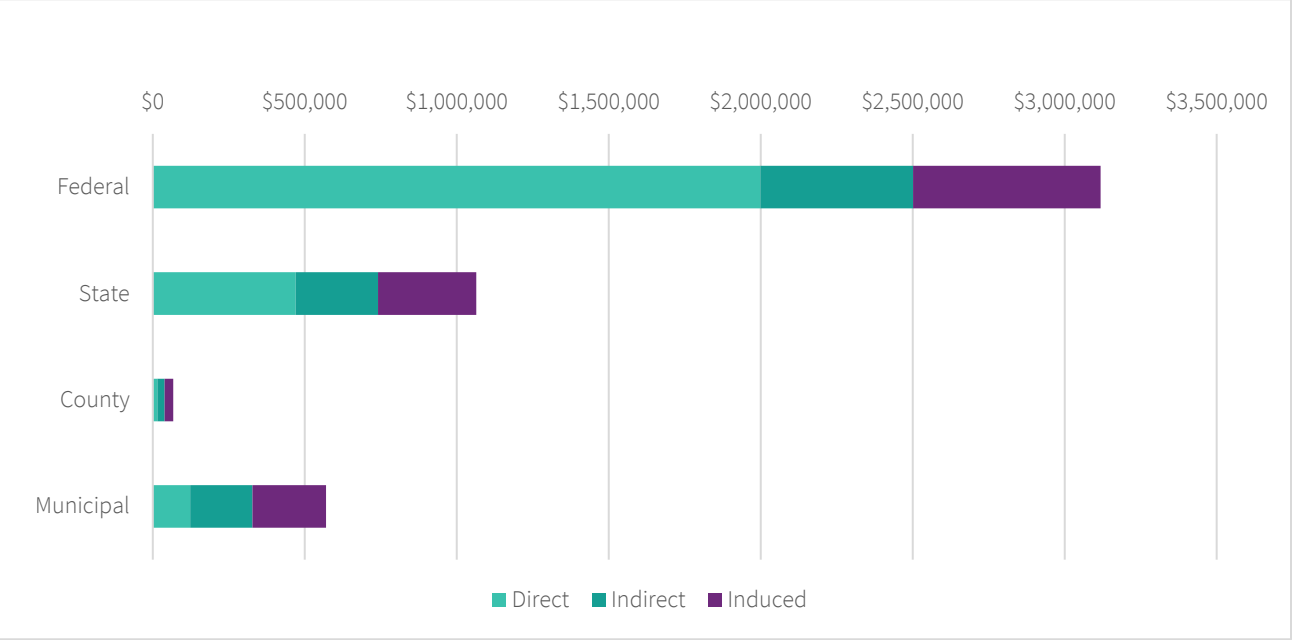


Figure 23. Modeled Direct, Indirect, and Induced Tax Impacts for PY4 Energized Projects



Ongoing Impacts from Household Energy Bill Savings

The table below shows the modeled economic activity from household spending using bill savings from PY4 energized projects. In PY4, households were most likely to spend their additional money on housing followed by healthcare, retail shopping, and groceries and dining. ILSFA participants are likely to use their bill savings to pay for necessities and can benefit from ILSFA-related savings through improved housing and food security, better health, and the freedom to spend money on what matters to them.

Table 103 Induced Spending from Energy Bill Savings from PY4 Energized Projects

CATEGORY	IMPACT
Housing	$70,000
Healthcare	$60,000
Other	$50,000
Retail Shopping	$50,000
Groceries and Dining	$40,000
Transportation	$30,000
Utilities	$30,000
Debt Service	$30,000
Insurance	$10,000
Non-Cash Savings and Investments	$10,000
Business Expenses	$5,000