

The University of Chicago

**Bringing Sunshine to Illinois: Improving Illinois Solar For All's
Mission to Provide Solar Energy to Low-Income Communities**

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Abstract

This research paper examines the highly celebrated state program, Illinois Solar for All. Created as a part of Illinois' Future Energy Jobs Act and one of the largest bipartisan efforts in the country to address climate threats, Illinois Solar for All (ILSFA) provides solar panels to low-income communities in the form of distributed generation and community solar. The program specifically targets low-income residents, non-profit organizations, and public facilities. Attempting to combat environmental justice issues, the program places a special emphasis on low-income communities and communities of color. However, despite the program's much needed mission, there are questions surrounding the fact that it has no functioning programs to date and doubt regarding its true accessibility across the state.

Through interviews with multiple stakeholders in the program and a supplemental geospatial analysis investigating the various components of this program, it is concluded that ILSFA's program requirements are too stringent for tangible benefits to be felt across communities. These requirements include, but are not limited to, financial expectations for stakeholders and geographic restrictions on project placement. Specifically, the definition of an "Environmental Justice Zone" greatly influences the potential projects in the program and limits vulnerable communities from participation. Furthermore, implementation challenges with respect to administrative burdens and communication restrictions between stakeholder parties hold the program back from committing to more projects.

This study suggests that while quantitative metrics are a necessary part of the ILSFA application process, they limit the program's intentions when narratives are often more telling of an organization or individual's situation than pure numbers. The study further calls for a review of the geographies ILSFA should focus on. The conclusions from this study can be utilized when revising ILSFA policies for the next program cycle and when developing future programs assisting affordable renewable energy programs across the country. As climate change continues to aggressively affect our day-to-day lives, programs like Illinois Solar for All are undeniably important in ensuring economic and racial equality are present during policy development.

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In a few decades, the relationship between the environment, resources, and conflict may seem almost as obvious as the connection we see today between human rights, democracy, and peace.

Wangari Maathai



The environmental movement can only survive if it becomes a justice movement. As a pure environmental movement, it will either die, or it will survive as corporate “greenwash”. Anyone who is a sincere environmentalist cannot stand that role.

Vandana Shiva

Introduction

As defined by the Environmental Protection Agency, environmental justice is defined as the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies”.¹ Policies, such as Illinois Solar for All (ILSFA), specifically provide clean energy and affordable solar installations for low-income communities, directly working to promote environmental justice values. The programs’ goals are admirable, working with a community that is frequently overlooked in the environmental policy-making process.

People of color and indigenous groups have experienced some of the most harmful consequences of environmental degradation, yet are the minority in campaigns to fight climate change.² In fact, people of color make up only 12% of environmental studies though their population is 36% of the US, according to the 2014 Green 2.0 report.³ They are often subject to the highest rates of dangerous pollution in the country; counties in America that have the highest rates of cancer-related air pollution have the lowest percentage of white residents.⁴ Beyond these statistics, the voices of people of color are often unheard in the policy-making process, and consequently, their communities are disproportionately affected. There is academic consensus that their schools don’t have the same access to green energy, they are left out of residential solar

¹ “Environmental Justice.” EPA, Environmental Protection Agency, 28 Jan. 2020, www.epa.gov/environmentaljustice

² Holden, Emily. "A lot at Stake": Indigenous and Minorities Sidelined on Climate Change Fight." The Guardian, Guardian News and Media, 10 Mar. 2019, www.theguardian.com/world/2019/mar/10/environment-climate-change-movement-indigenous-minorities-sidelined.

³ “The Challenge.” Green 2.0, www.diversegreen.org/the-challenge/.

⁴ Lerner, Sharon. “The EPA’s Bungled Response to an Air Pollution Crisis Exposes a Toxic Racial Divide.” The Intercept, 24 Feb. 2019, theintercept.com/2019/02/24/epa-response-air-pollution-crisis-toxic-racial-divide/.

energy campaigns, and they are subject to industrial pollution. Since the creation of ILSFA as part of the Future Energy Jobs Act (FEJA) in 2016, around 40 projects have been approved, with zero currently functioning.⁵ This delay in the number of functioning projects from the program can be attributed to its recent conception (the first application cycle for projects occurred in 2018). However, given the wide potential of the program, studying ILSFA's accessibility and implementation challenges early on can provide useful insights for its progression forward as well as for similar rising programs across the nation from California to New Jersey.

This research paper describes the program obstacles and implementation challenges involved in ILSFA through qualitative interviews with stakeholders and a geospatial analysis. These stakeholders include approved vendors, approved project holders, and grassroots educators. By examining various parts of the program, from the initial marketing of the program by grassroots educators to securing an approved vendor, the paper identifies areas where ILSFA's accessibility is hindered. I argue that ILSFA should provide financial support not just for installing solar panels, but also for the construction that precedes it, including repairing roofs and upgrading electric wiring systems. This is because many individuals are unable to participate in their program due to the costs of these additional services. I additionally argue that rather than constraining communication between stakeholders in the process, the program should use technology to create a joint portal where stakeholders can jointly communicate and facilitate the implementation of a project together. Currently, grassroots educators and approved vendors are allowed very minimal contact due to concerns about unfair preference for one vendor over another. Finally, I argue that the geographic boundaries that define environmental justice communities (EJC) do not always paint the full picture of those who suffer the consequences of

⁵ Zero projects functioning as of Feb 27, 2020. Information is from direct email communication with ILSFA representative. 40 project estimation is from the solar project dashboard on the ILSFA website.

environmental racism/environmental injustice. Metrics such as housing age, income disparity, electricity bill/income proportion, and racial diversity serve as important indicators as well. By expanding the metrics ILSFA utilizes to define an EJC and by including qualitative questions in their application, they can improve their accessibility to include more people in the program.

This research challenges the structure of Illinois Solar for All and asks policy makers to expand financial support for the program, use technology to better integrate stakeholders for successful projects, and re-consider the definition of an “Environmental Justice Community”.

Background

Global Background

Globally, 3 out of every 4 people living in poverty rely on agriculture and natural resources for a living.⁶ Many of these resources are threatened by shifting weather patterns, increasing natural disasters, and unpredictable seasons. These global changes push low-income populations towards instability, sometimes compromising their ability to self-sustain. This creates a large strain on humanitarian aid organizations. Furthermore, erratic floods and droughts limit food supply and can increase the price of staple foods. Once again, poor communities are placed at risk. Last year alone, 60% of all home displacements were attributed to weather-related disasters induced by climate change. These disasters wiped homes in many impoverished communities. Unless we intervene, the climate will continue to worsen, and its impacts will be disproportionately felt by poorer communities.

⁶ "The Facts: How Climate Change Affects People Living in Poverty." Mercy Corps, 9 Apr. 2020, www.mercycorps.org/blog/climate-change-poverty.

Climate change affects poorer communities in both developed and developing countries. Julius McGee studied 175 countries from 1990 to 2014 and found that “renewable energy consumption reduces carbon emissions more effectively when it occurs in a context of increasing inequality”.⁷ Essentially, where inequality exists, renewable energy investments are more impactful. This study indicated that there is a trade-off between income inequality and sustainable energy. Because renewable energy investments are incentivized by subsidies and the subsidies come from tax increases, these policies negatively impacts low-income families and causes energy poverty. Furthermore, a survey from the U.S. Energy Information Administration (EIA) stated that 1 in 5 households “report reducing or forgoing basic necessities like food and medicine to pay an energy bill” and “with every 10% increase in home energy costs, 840,000 Americans would be pushed below the poverty line”.⁸ Renewable energy initial costs tend to be greater than fossil fuels costs and subsequently, they are pushed on the consumers. Once again, low-income individuals are disproportionately affected. Consequently, when creating renewable investments public policy, it is important to consider the socioeconomic consequences, especially in marginalized communities. In America, these communities tend to be ones composed of minority races and indigenous people.

Environmental Injustice in Illinois

The state of Illinois specifically has been contending with the issue of environmental justice over the past few years. The city of Waukegan, north of Chicago, recently held several

⁷ Portland State University. "Shifts to renewable energy can drive up energy poverty, study finds." ScienceDaily. ScienceDaily, 12 July 2019, www.sciencedaily.com/releases/2019/07/190712151926.htm.

⁸ “U.S. Energy Information Administration - EIA - Independent Statistics and Analysis.” *Residential Energy Consumption Survey (RECS) - Analysis & Projections - U.S. Energy Information Administration (EIA)*, <https://www.eia.gov/consumption/residential/reports.php>.

protests over their poor environmental conditions.⁹ Home to a coal power plant, two active coal ash ponds, and three superfund sites, this community faces serious pollution. The community is also more than 50% Latino and 19% African American. Due to the air pollution, 1 in 3 children in Waukegan face asthma or asthma-related issues.¹⁰ Moreover, because of the coal plants, Waukegan is suffocated economically – Waukegan residents received only 12% of the jobs at the plants. Many environmental policies inadvertently leave communities like Waukegan behind, even though the Civil Rights Act of 1964 dictates that the Environmental Protection Agency is responsible for making sure that state and local programs do not discriminate based on race, color, or national origin. Waukegan indicates a crisis in the state of Illinois: environmental racism and injustice.

In February of 2016, the chairman of the U.S. Commission on Civil Rights and the Illinois Advisory Committee convened for a hearing testimony from community members, academics, industry representatives, and government officials in Illinois, Alabama, and South Carolina where there is a prevalence of environmental injustice.¹¹ Many members of these communities face intense health issues and have stories similar to Waukegan. Several recommendations came out of this hearing, but one specifically mentioned that the EPA should provide technical assistance to minority, tribal, and low-income communities to ensure coal ash

⁹ Rakia, Raven. “Residents Fight for Economic and Environmental Justice in One Illinois Town.” *Grist*, Grist, 10 Feb. 2016, <https://grist.org/living/residents-fight-for-economic-and-environmental-justice-in-one-illinois-town/>.

¹⁰ Ibid.

¹¹ *Environmental Justice: Examining the Environmental Protection Agency’s Compliance and Enforcement of Title VI and Executive Order 12,898*. United States Commission on Civil Rights, Sept. 2016, www.usccr.gov/pubs/2016/Statutory_Enforcement_Report2016.pdf.

is disposed immediately. This is because minorities face the brunt of consequences from pollution, such as coal ash, and are often left behind when policies are created to address them.

A second case study of environmental injustice can be found in Willowbrook, Illinois. A 2018 EPA National Air Toxic Assessment found that residents of Willowbrook had a risk of developing cancer at three times the national average.¹² This increased risk was directly attributed to high levels of ethylene oxide in the air, which was emitted from a local chemical plant, Sterigenics. Community residents of Willowbrook created a “Stop Sterigenics” campaign and worked with lawyers in the area to launch a litigation case against the sterilization company.¹³ Community members paid for independent testing of the chemical and were highlighted across local newspapers and media. In October 2019, Sterigenics shutdown.¹⁴ While the community was successful in protecting the environment, it was also 77% white.¹⁵ This affluent community had the fundraising capital and influential leaders to create change and protect their health. While Willowbrook’s environmental problems are not foreign to low-income communities around Illinois, Willowbrook’s resources are.

In an effort to address the environmental injustice and inequality, Senator Tammy Duckworth founded the Senate’s Environmental Justice Caucus.¹⁶ Through this committee, Senator Duckworth called for the EPA to protect families in Illinois from unsafe levels of manganese, invest further in solar energy, and improve the monitoring of ethylene oxide

¹² 2014 NATA: Assessment Results | National Air Toxics ... www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results.

¹³ Lerner, Sharon. “The EPA’s Bungled Response to an Air Pollution Crisis Exposes a Toxic Racial Divide.” *The Intercept*, 24 Feb. 2019, theintercept.com/2019/02/24/epa-response-air-pollution-crisis-toxic-racial-divide/.

¹⁴ Cease, Ivan. “Illinois Sterigenics Plant Could Reopen to Aid COVID-19 Fight.” *Chicago Morning Star*, 30 Mar. 2020, chicagomorningstar.com/illinois-sterigenics-plant-could-reopen-to-aid-covid-19-fight

¹⁵ *Ibid.*

¹⁶ “Duckworth Calls for Environmental Justice at Chicago’s Faith in Place Green Team Summit.” *U.S. Senator Tammy Duckworth of Illinois*, Tammy Duckworth, 14 Sept. 2019, <https://www.duckworth.senate.gov/news/press-releases/duckworth-calls-for-environmental-justice-at-chicagos-faith-in-place-green-team-summit>

emissions. Prior to these progressive steps, Illinois passed the Future Energy Jobs Act on December 7, 2016. This was one of the largest bipartisan efforts and most significant pieces of energy legislation to pass across the nation.¹⁷ Built from two years of negotiations between energy companies, consumer advocates, and environmental groups, this bill worked to regulate two large electric utilities, invest in renewable energy, and provide resources to low-income communities.

Illinois Solar For All

A significant part of the Future Jobs Energy Act is the creation of Illinois Solar For All.¹⁸ Illinois Solar For All is a program that is dedicated to providing clean energy, specifically affordable solar installations, for low-income communities. Elevate Energy serves as the Program Administrator for ILSFA on behalf of the Illinois Power Agency. Solar For All first evaluates a list of approved vendors who are engaged to work on solar installation projects in low-income communities. There is an application process that is offered online to become an approved vendor. These vendors are listed on the public website. Concurrently, they evaluate participants who want solar panels on their property as part of the program. These participants can be income-eligible homeowners and renters, non-profit organizations, or public facilities that serve low-income or environmental justice communities (EJC). Approved projects can also be found on the ILSFA website.

¹⁷ “What Is the Future Energy Jobs Act?” *Citizens Utility Board - Fighting for Illinois Consumers*, <https://www.citizensutilityboard.org/future-energy-jobs-act/>.

¹⁸ “Greater Access. Cleaner Energy. A Brighter Tomorrow.” *Illinois Solar for All*, <https://www.illinoisfa.com/>.

A separate component of Illinois Solar For All is its grassroots education program. The program provides up to \$1.5 million for existing organizations (usually nonprofits) across the state to educate their communities on the importance of renewable energy and Illinois Solar For All. These funds are distributed based on applications detailing an organization's mission, ideas, and impact. ILSFA aims for these organizations to start campaigns in hard-to-reach communities, and focus specifically in areas where environmental injustice is prevalent. A list of approved grassroots organizations can be found on the ILSFA website.

ILSFA will only approve a vendor, a project, or a campaign if it is specifically involved with an environmental justice community or a low-income community. Although they have identified a set of environmental justice communities based on a methodological framework described on their website, additional communities may be a part of it. These communities are self-designated; an individual from the community must fill out an application claiming their community qualifies to be an environmental justice community and faces environmental racism/discrimination.¹⁹ After ILSFA approves it, it will be added to a list of communities where projects can take place.

Primary Research

This paper aims to conduct a program evaluation of Illinois Solar For All, and specifically, its ability to successfully target communities that face the greatest environmental injustice. As a product of the largest bipartisan piece of legislation in the nation, ILSFA is one of the first statewide programs to specifically focus on promoting green energy in low-income

¹⁹ *ILSFA Environmental Justice Community Self-Designation Application*, <https://elevateenergy.tfaforms.net/4653360>.

communities. As the program attempts to expand, it is critical to study its efficiency and accessibility. Are members of these marginalized populations finding ILSFA to be accessible? ILSFA regards several key stakeholders such as approved vendors, grassroots educators, utility companies, and project owners. It is important to understand if individuals in all stakeholder groups are able to navigate the ILSFA application process and successfully access solar power. Moreover, the program only approved 11 projects in its first year, with none currently operational.²⁰ This is a low number, considering the number of individuals who could potentially qualify for a project across Illinois. By identifying the implementation challenges ILSFA faces, the program can improve and develop, incorporating more successful projects in their upcoming application cycles. Thus, this paper will answer the following questions:

1. What obstacles do organizations that apply to ILSFA face as approved vendors, project owners, and grassroots educators? Do these obstacles provide an advantage for groups/communities that are inherently financially stable, thus mitigating the purpose of ILSFA to grant greater access to clean energy for low-income communities?
2. Does Illinois Solar For All, which relies on self-advocacy and self-designation, adequately cover communities that are at the greatest environmental risk? Or should standards other than their Environmental Justice Community metric be used?

²⁰ Approved vendor numbers from October, 2019 and project completion numbers from February, 2020.

Literature Review

Environmental Justice

There is a strong consensus in the scientific community that pollution is tied to poverty. On a global scale, 92% of pollution-related deaths occur in low and middle income countries.²¹ From a healthcare perspective, the costs of this are immense with welfare losses larger than \$4.6 trillion per year. In 2015 alone, pollution was responsible for 9 million premature deaths or 16% of total global deaths. A study by Lipfert found that poverty itself can exacerbate pollution because poverty leads to “reliance on inefficient and excessively polluting vehicles and heating and cooking vehicles”.²² Unfortunately, the poor also stomach a lop-sided share of the economic burden when prices of housing, fuels, vehicles and appliances are increased due to ineffective environmental policy regulations. Therefore, a two way relationship exists. Poverty leads to pollution due to cheap, inefficient, and harmful technologies; simultaneously, pollution disproportionately affects the poor because the poor endure the brunt of the economic ramifications of pollution, face a lack of medical care, and suffer from limited representation in legislative processes. Angered by the lack of representation, Luke Cole, founder of the Center on Race, Poverty, and the Environment, even wrote a book titled “The Need for Environmental Poverty Law”. The book discussed the critical need for legal advocates for low-income communities in the environmental policy field.²³

Specifically, environmental justice is often associated with race, spurring the term environmental racism. The EPA’s National Center for Environmental Assessment released a

²¹ “Pollution and Poverty.” *HEART*, https://www.heart-resources.org/reading_pack/pollution-and-poverty/.

²² Lipfert, F W. *Air Pollution and Poverty: Does the Sword Cut Both Ways*, <https://jech.bmj.com/content/58/1/2>.

²³ Anna. GNHRE, 30 Jan. 2014, gnhre.org/2014/01/30/empowerment-as-the-key-to-environmental-protection-the-need-for-environmental-poverty-law-l-cole/.

study stating the “results at national, state, and county scales all indicate that non-Whites tend to be burdened disproportionately [by climate change] to Whites”.²⁴ The study further qualifies that African American and Hispanic people are exposed to particulate matter at 1.5 times and 1.2 times respectively, when compared to Whites. This leads to significant health effects when specifically looking children; asthma rates in black children are double those of white children. The above research points to one conclusion – environmental racism in America is prevalent and immediate action should be taken to mitigate the disproportionate effects of climate change.

Significant efforts are being made globally to implement green policies. While these are great strides in mitigating the pollutants in the environment, they are also susceptible to racial disparity. Specifically, access to rooftop solar energy involves high upfront costs and house ownership, making them inaccessible to low-income households.²⁵ Since Hispanic Americans and African Americans are statistically twice as likely as white Americans to rent their homes, they are immediately left out of a pool of individuals who can enjoy the benefits of residential solar energy. A study conducted by the California Solar Initiative further found that there was a correlation between an increase in residential solar applications and a decrease in non-white populations.²⁶ Therefore, national initiatives, such as Vote Solar’s Low-Income Solar Access Program and GRID Alternatives, are crucial to allow low-income and minority communities to benefit from solar energy.

²⁴ II, Vann R. Newkirk. “Environmental Racism Is Real, According to Trump's EPA.” *The Atlantic*, Atlantic Media Company, 28 Feb. 2018, <https://www.theatlantic.com/politics/archive/2018/02/the-trump-administration-finds-that-environmental-racism-is-real/554315/>.

²⁵ Chester, Matt. “Green Causes Are Not Always Colorblind: Racial Disparity in Energy Issues.” *Chester Energy and Policy*, 7 Jan. 2019, <https://chesterenergyandpolicy.com/2018/03/05/green-causes-are-not-always-colorblind-racial-disparity-in-energy-issues/>.

²⁶ Ibid.

Statewide Programs

GRID Alternatives (GRID) is one of the most successful solar programs in the nation having installed solar for 15,807 households so far.²⁷ GRID is the national leader in serving low-income households and communities of color with affordable solar power and jobs. Participants in the program have seen their electricity bills drop by 50-90%. In 2017, the US Department of Energy conducted a case study on GRID to better understand the factors that contributed to its success.²⁸ This is similar to the savings ILSFA advertises for potential clients. One of the key strengths the EPA mentions is GRID's funding sources. GRID receives in-kind donations from large solar equipment manufacturers such as Enphase and SunPower. Furthermore, they receive funding from multiple state agencies, foundations, corporate partners, and individual donors. These resources allow GRID to reduce the cost of solar panels and supplemental equipment for program participants. GRID also significantly expanded when they were selected by the California Public Utilities Commission (PUC) to be the statewide manager of the Single-family Affordable Solar Homes incentive program. This program financially supported solar energy systems for low-income families. Their statewide recognition as well as their diverse funding sources allowed GRID to expand greatly. ILSFA has the potential to follow a very similar trajectory as GRID if they successfully expand and facilitate projects. GRID is a reliable case study to understand the full potential of a low-income solar energy program.

²⁷ "GRID Alternatives." GRID Alternatives | People. Planet. Employment, gridalternatives.org/.

²⁸ GRID Alternatives: Solar Programs in Underserved Communities. [betterbuildingssolutioncenter.energy.gov/sites/default/files/GRID Alternatives_Final.pdf](http://betterbuildingssolutioncenter.energy.gov/sites/default/files/GRID%20Alternatives_Final.pdf).

Another factor that contributed to GRID's success was their use of partnerships. For example, GRID worked with organizations such as Habitat for Humanity "to connect with low-income households and gain their trust".²⁹ ILSFA uses a very similar model to GRID with regards to partnerships. By using grassroots educators, non-profits that have existing connections in low-income communities, ILSFA leverages trusted organizations to help communicate the mission and benefits of the program. This model remains promising.

NY-Sun presents another successful case study to investigate.³⁰ While NY-Sun doesn't solely focus on communities of color, New York's Affordable Solar subdivision started in 2015 with 6 single-family solar projects and 15 approved projects centered on low and middle income households. These numbers are very similar to ILSFA right now in its early stages. While residential solar was quick to develop, community distributed generation took more time to start. This also reflects the trend ILSFA is experiencing now. As NY-Sun continued to receive funding and worked with more partners around the state, they expanded and are now aiming to install 6 GWd by 2025.³¹ NY-Sun demonstrates the importance of private and public funding as well as partnerships with non-profit organizations. These components are integral to the growth of ILSFA as well.

²⁹ Ibid.

³⁰ Reforming the Energy Vision: Low-Income Solar Initiatives. www.epa.gov/sites/production/files/2017-06/documents/0144_reformingenergyvision_nysdps.pdf

³¹ Misbrener, Kelsey. "NYSEIA Applauds NYSERDA Plan to Extend and Expand NY-Sun Program." *Solar Power World*, 27 Nov. 2019, www.solarpowerworldonline.com/2019/11/nyseia-applauds-new-york-plan-to-extend-expand-ny-sun-program/.

Environmental Justice Zones

Illinois Solar for All focuses on providing solar energy specifically in low-income and environmental justice communities. As the mission statement on the program homepage reads, “the program promotes equitable access to the solar economy through program incentives that help make solar more affordable for low-income communities”. This plan, part of one of the biggest bi-partisan efforts in the country, is a necessary step towards ensuring communities aren’t being left behind as the rest of the world focuses their efforts on renewable energy investments.

One point of concern with ILSFA is the definition of environmental justice community (EJC). Defining EJs is a key analytical step to creating impact. Rowangould, Karner, and London explored how different measures for environmental justice impacted which communities were assessed.³² They realized that the metric used to define EJ communities could significantly determine policy impacts. Ultimately, they developed a metric that would make the most sense when thinking about the implications of transportation planning agencies. This metric is based on grouping geographic areas using demographics. Within context to ILSFA’s goals, the metric for determining environmental justice communities should be assessed to ensure it meets the communities that are in most need of assistance. California has similarly created a metric that takes into account 19 indicators to provide a statewide ranking of all 8,000 tracts. This metric aims to provide on clear, science-based method to identify the communities that are most

³² Rowangould, Dana, et al. “Identifying Environmental Justice Communities for Transportation Analysis.” *Transportation Research Part A: Policy and Practice*, Pergamon, 21 Apr. 2016, <https://www.sciencedirect.com/science/article/pii/S0965856416302920>.

disproportionately burdened.³³ These two projects underline the idea that there needs to be detailed thought in creating a metric that defines which communities are environmental justice communities. It is very possible that certain metrics are not comprehensive enough and could exclude communities that are very much in need.

On the other hand, systems cannot solely rely on quantitative data because "zones" as a concept can be slightly inaccurate. The idea that pollution is contained to one geographic region, on a community/zip code level, can be quite flawed as pollution travels from district to district. Research conducted in New York found that throughout the day from southern Brooklyn to Midtown, levels of PM2.5, a toxic airborne particle, greatly varied.³⁴ This is an example of a situation where air pollution travels through a city for an entire day and it is difficult to identify specific zones with the most exposure. Though it is possible to use quantitative metrics to determine EJC zones, qualitative metrics can also help identify areas at risk of high toxic pollution. In 2016, Rowe et.al conducted a study to determine whether to use qualitative or quantitative methods to choose a habitat quality metric for air pollution policy.³⁵ While their study focused on biodiversity in ecosystem, it supported the conclusion that "a combination of qualitative and quantitative methods used to summarize expert judgement is likely to be effective at other interfaces between science and policy". The evidence suggests that metrics involving both qualitative and quantitative factors are successful. This finding can be directly applied to the

³³ California Environmental Justice Alliance. "Defining Environmental Justice Communities: Using CalEnviroScreen in State Policy." *Medium*, Medium, 6 Sept. 2016, <https://medium.com/@cejapower/defining-environmental-justice-communities-using-calenviroscreen-in-state-policy-4d1f350b3207>.

³⁴ Milman, Oliver. "Air Pollution Threat Hidden as Research 'Presumes People Are at Home': Study." *The Guardian*, Guardian News and Media, 24 Aug. 2016, www.theguardian.com/environment/2016/aug/24/air-pollution-dangers-flawed-research-new-york-study.

³⁵ Rowe, Edwin C, et al. "Using Qualitative and Quantitative Methods to Choose a Habitat Quality Metric for Air Pollution Policy Evaluation." *PLOS One*, 24 Aug. 2016, journals.plos.org/plosone/article?id=10.1371/journal.pone.0161085.

idea of defining EJCs, and asks policymakers to revisit their current analysis in identifying an EJC.

Statewide solar programs have a track record of success. Evidence from the California Solar Initiative found that rebates have a positive effect on low-income residential solar installation.³⁶ Over 20 years, the installations reduced CO2 emissions between 2.3 million and 3.4 million metric tons and 53% of installations would not have occurred without subsidies. While ILSFA uses similar financial principles as California's program, it differs in the sense that it requires self-advocacy. Whether an individual wants to label their community as an environmental justice community, or a non-profit wants to be a part of a solar initiative, ILSFA places a burden on individuals in communities to advocate for themselves. Therefore, successes from programs such as those in California cannot be necessarily translatable, and it is necessary to evaluate the ways in which defining "environmental justice" can leave out communities and hinder the success of ILSFA.

³⁶ Jonathan E. Hughes and Molly Podolefsky, "Getting Green with Solar Subsidies: Evidence from the California Solar Initiative," *Journal of the Association of Environmental and Resource Economists* 2, no. 2 (June 2015): 235-275.

Methodology

As mentioned above, this study's main purpose is to understand what barriers exist in making ILSFA a broader and more effective program beyond its recency. It further investigates whether the criteria defining an Environmental Justice Community is one that fully encompasses the communities that need the funding the most. This questions were answered via mixed methods: qualitative interviews with participants in ILSFA and geospatial data analysis using different maps to compare communities in need with ILSFA's outreach efforts.

Part 1: Qualitative Interviews

There are several components of ILFSA that work towards installing solar projects in communities that are considered low-income and/or identified as environmental justice communities (EJC). In order to assess the barriers that exist when receiving funding and establishing solar projects, I interviewed individuals from three different sections of the program: Approved Vendors, Grassroots Education Programs, and Approved Solar Projects. This provided me with three very different perspectives regarding the program and helped me understand the challenges in different realms of the program.

Approved Vendors

Approved vendors are companies that have been approved by the program to build the solar market in low-income and environmental justice communities. These companies range in size, scale, and mission. Some approved vendors are new, local companies created to serve ILSFA, while others are national companies who employ union workers for solar projects. They are responsible for all the program requirements including income verification, job training

requirements, minimum customer savings, community engagement, and consumer protections. Approved vendors also are the “contractual counter party with either the Illinois Power Agency or an Illinois electrical utility for RECs purchased through ILSFA” as stated on the ILSFA website.³⁷ RECs are renewable energy credits that are calculated from the amount of clean energy produced by a company, and can be bought and sold. They are one of the largest financial incentives for investing in solar energy.

Approved vendors work with ILSFA clients to install solar power infrastructure. These clients must be approved by ILSFA as designated solar projects funded through the program. Approved vendors must go through a selective, application process to become a part of the program. Below are 13 guiding questions that I asked approved vendors during their interviews. These questions will allow me to better understand the process and barriers to becoming a vendor. It will also help me understand how project choices are influenced by vendors. These interviews ranged from 30 – 45 minutes and covered these 13 questions along with additional topics the vendor wanted to discuss. Summaries from each interview can be found in the appendix.

1. What is your position and experience in this company?
2. How long has your company existed?
3. Where is your company located and where do you employ people from?
4. How did you hear of Illinois Solar for All?
5. Why did you choose to be an Approved Vendor?
6. Are there financial benefits to becoming an Approved Vendor?
7. Describe your experience with the application process to become an Approved Vendor?

³⁷ "For Vendors." Illinois Solar for All, www.illinoissfa.com/for-vendors/.

8. Did the application process ask for any technical information that you had to outsource to find or that you didn't know? Did you have to hire anyone? Did this process require financial support?
9. How have you been used as an Approved Vendor so far? Have you completed any projects? If not, what has prevented you from doing so?
10. Have you had a rejected proposal? If so, what was the issue?
11. Are the communities you work in environmental justice communities (EJC)?
12. What are the reactions of community members who you pitch ILSFA to?
13. What are your pain points, if any, with the program?

The Illinois Solar For All website contains a directory of all their approved vendors.³⁸ I was able to interview nine vendors who are part of the program.

Grassroots Education Program

ILSFA provides up to \$1.5 million to organizations across the state to educate their communities on the benefits and opportunities in Illinois Solar for All. These organizations build campaigns that reach across communities in Illinois to build awareness of renewable energy, and specifically, ILSFA. The organizations are also expected to engage in hard-reach-communities and ensure that the benefits of the program are accessible to low-income and environmental justice communities across the state. I interviewed individuals from these programs to understand how they were involved in the program, how they have benefitted from ILSFA so far, and what communities their campaigns target. Are these programs ones that are

³⁸ "ILSFA Approved Vendors." *Illinois Solar for All*, <https://www.illinoissfa.com/vendor-directory/>.

already established and large? Or does ILSFA provide support for new campaigns in lower-income communities? Most importantly, I wanted to know how community members reacted to ILSFA. Grassroots educators are the key point of connection between ILSFA and members of marginalized communities. If there are any roadblocks or challenges in this first part of the process, community members will never interact with any other part of ILSFA, approved vendors and beyond. I asked the following guiding questions to better understand the grassroots education campaigns.

1. What is your position in the organization and how long has the organization existed?
2. What would describe as the mission of your organization?
3. Where do you currently conduct environmental campaigns?
4. How did you hear of ILSFA?
5. Why did you choose to apply to the program?
6. What are the financial benefits you received from ILSFA, if any?
7. Please describe your experience with the application process.
8. Did you use any external resources to apply for the program (ex. hiring someone)?
9. How much funding did you receive from ILSFA?
10. What programming did you pitch in your application? Were you able to complete any of it so far?
11. What communities did you complete your programming in?
12. How did community members react when you spoke to them about ILSFA? What tactics did you use?
13. Do you have any pain points? How would you address them?

The Illinois Solar For All website contains a directory of all the current grassroots educators.³⁹ I interviewed nine organizations.

Solar for All Approved Projects

ILSFA approves a select set of programs every single year that receive solar panels and funding for the process. I wanted to understand what sorts of resources these individuals had when applying to be part of ILSFA. Were they well established with a strong capital base? Did they have buildings in new and updated conditions? Did they have strong connections with legislative bodies? How did they meet an approved vendor? Based on the application process online, it seems as though there may be several barriers to receiving approval. I interviewed individuals from the approved projects and understand how they applied for ILSFA. Hearing about their processes allowed me to better understand how established one needs to be to apply for this program and whether it is reasonable to expect this from organizations that are located in low-income, environmental justice communities. My guiding interview questions delved into the resources needed to apply for one of these programs and the factors necessary to begin an application.

1. What is your position in the organization and how long has the organization existed?
2. What would describe as the mission of your organization?
3. How did you hear of ILSFA?
4. Why did you choose to apply to the program?
5. Can you explain the application process was like to join the program?

³⁹ “Grassroots Education.” *Illinois Solar for All*, <https://www.illinoissfa.com/grassroots-education/>.

6. Did the application process ask for any technical information that you had to outsource to find or that you didn't know? What resources did you use to apply?
7. Were any of these resources hard to procure? Did they require financial support? Did you have to hire someone to help you understand?
8. What were your main motivations for applying?
9. What financial benefits do you anticipate expecting? What was your financial state when you applied for ILSFA?
10. Describe the process of working with ILSFA and the vendors. What were roadblocks and concerns?
11. Why do you think other [organizations in a similar field] have not applied/succeeded?

The Illinois Solar For All website contains a file of the all the selected project summaries.⁴⁰ I interviewed individuals from 2 major project sites.

For each interview, I took detailed notes and asked the interviewee whether I could refer to them in my findings or if they would prefer to be anonymous. Many individuals requested a copy of my notes before agreeing to having their name in the paper. Many interviewees also followed-up with additional details or let me know they were very open to a follow-up interview if necessary. Interviewees ranged from being the CEO of their organizations to specific project managers. They were all the main point of contact for their respective organizations on the ILSFA website and thus, had the most exposure to ILSFA.

⁴⁰ Selected Project Summaries: Program Year 2018-2019 . Illinois Solar for All,
www.illinoissfa.com/app/uploads/2019/10/2018-2019-Selected-Project-Summaries_v6.pdf

Below is a table summarizing all the individuals/organizations interviewed. Each one has been assigned to a alphanumeric code which is what they will be referred to as throughout the paper. Some chose to remain anonymous and thus, will only be referred to by their alphanumeric code.

Organization	Name	Category	Code
Balance Solar	Zachary Kearnan	Approved Vendor	AV1
Central Road Energy	Jay Corgiat	Approved Vendor	AV2
Certasun	Jesse Feinberg	Approved Vendor	AV3
Day and Night Solar	Melinda Kershaw	Approved Vendor	AV4
Anonymous	N/A	Approved Vendor	AV5
Anonymous	N/A	Approved Vendor	AV6
Anonymous	N/A	Approved Vendor	AV7
SA Energy	Brett Robinson	Approved Vendor	AV8
PSG Energy	Isabella Solari I.	Approved Vendor	AV9
C.E.F.S Economic and Opportunity Corporation	Kevin Bushur	Grassroots Educator	G1
Anonymous	N/A	Grassroots Educator	G2
Anonymous	N/A	Grassroots Educator	G3
Anonymous	N/A	Grassroots Educator	G4
Ecology Action Center	Larissa Armstrong	Grassroots Educator	G5
Embarras River Basin Agency	Mindy Browning	Grassroots Educator	G6
People for Community Recovery	Courtney Hanson	Grassroots Educator	G7
Pilsen Environmental Rights and Reform Organization	Joshi Radin	Grassroots Educator	G8
Sustain Rockford	Brad Roos	Grassroots Educator	G9
West Aurora High School	Angela Smith	Approved Solar Project	AP1
Senior Services Plus	Jonathan Becker	Approved Solar Project	AP2

Part 2: Geographic & Visual Assessment

The focus of ILSFA is helping environmental justice communities and thus, projects must be located in an EJC zone or a low-income community to be approved. ILSFA used EPA's EJSCREEN tool to create a map determining which communities are part of the EJC and which are not.⁴¹ If a community is not part of an already designated EJC, community members may apply to become an EJC through a separate application.⁴² This application has several components to it. It accepts, but is not limited to, the following materials: letters of support, geographic limits designating the community, qualitative support (1,000 words using economics, media articles, plant openings, and historical events as support), quantitative evidence, and expert testimony. While this application is flexible in the materials it requires, it does place the burden of proving environmental injustice on a community member. It is reasonable to believe that low-income community members, who face many stressors in their daily life, would not have the time nor expertise to put together such an application.

Thus, I wanted to create a six maps looking at key socio-economic indicators and observe where the most critical counties were located. Next, I compared these counties to where approved vendors/approved projects/grassroots educators were located across IL. Finally, I related these findings to where ILSFA approved EJCs were. These maps would answer the following questions: (1) is ILSFA an accessible program for low-income communities and (2) do EJC zones adequately cover the communities that face environmental injustice? These maps

⁴¹ "Illinois Solar for All." *ArcGIS Web Application*, www.arcgis.com/apps/webappviewer/index.html?id=fa5c9f04479b4706983bf9ca75a122e4.

⁴² ILSFA Environmental Justice Community Self-Designation Application, <https://elevateenergy.tfaforms.net/4653360>.

would also serve as important supplemental analysis to my qualitative interviews. It would visually analyze accessibility and help highlight what factors ILSFA may look into in the future to help projects qualify for approval.

Each of the six maps was created based on a socio-economic factor that was prevalent to environmental justice, a stated barrier that came up in my interviews, or a key component of ILSFA (approved vendors, etc.). The rationale for each factor is explained below. The maps were based on the following categories: community electricity rate-income ratio, housing age, income distribution, population density, race, and approved vendor location.

In order to create these maps, I used ArcGis. After finding an Illinois shape file, I was able to divide the map into counties. I used counties because I wanted to keep my maps consistent and some variables, such as housing age, were only available by county. I have broken my methodology down by map type.

For All Maps:

Using the location of the approved vendors, grassroots educators, and approved programs online, I found the latitude and longitude coordinates on Google Maps and then plotted them on each map. This helped me see the location of ILSFA stakeholders with respect to the specific category I was investigating.

Commercial Rate/Income:

Based on findings from the Center for European Economic Research, I created my own metric, commercial rate/income, to understand how commercial electricity rates disproportionately affect those in low-income areas.⁴³ I developed this metric because I wanted a

⁴³ Schuessler, Rudolf. *Energy Poverty Indicators: Conceptual Issues Part I: The Ten-Percent-Rule and Double Median/Mean Indicators* .

method to geographically highlight areas where people were experiencing the most energy poverty. These areas tend to be ones where commercial rates for electricity are a higher proportion of an individual's average income. Thus, this metric highlights areas of Illinois where a consumer may face a higher energy bill burden relative to their income. Part of ILSFA's purpose is to provide renewable energy to low-income communities that are burdened by the costs of electricity. This metric identifies which communities suffer the most from this burden and when compared to the site of approved vendors and approved projects, can help us understand where we can focus grassroots educator campaigns in the near future.

The report from the Center for European Economic Research used electricity expenditure/income as a measure of energy poverty to understand how individuals of different income levels are affected by electricity rates. The higher the ratio was, the more that county was affected by higher electricity rates. While the paper argued for different energy expenditure/income thresholds that defined "energy poverty", it presented the idea that this type of ratio reflected energy burden on families. The Low-Income Home Energy Assistance Program (LIHEAP) has also used the metric of energy cost/income in their plan to advocate for reduced electric rates for low-income customers.⁴⁴ Thus, I was able to use a variation of it for the creation of my maps.

1. I found commercial electricity rates per zipcode from the US Energy Information Administration.⁴⁵ I fit them into the shape file and then calculated the weighted average

⁴⁴ McCarthy, Kevin. REDUCING ELECTRIC RATES FOR LOW INCOME CUSTOMERS, www.cga.ct.gov/2008/rpt/2008-R-0068.htm.

⁴⁵ "U.S. Energy Information Administration - EIA - Independent Statistics and Analysis." *Residential Energy Consumption Survey (RECS) - Analysis & Projections - U.S. Energy Information Administration (EIA)*, <https://www.eia.gov/consumption/residential/reports.php>.

electricity rate per county by multiplying zipcode area * electricity rates and then dividing by total area in county.

2. I found income per county from an online public data set using the US Census Bureau.⁴⁶
3. I created a new layer of commercial rate per county/income and displayed it as a gradient.

Race:

EJC communities are often ones that have large minority populations that have been disregarded by typical environmental protection legislation. The Center for American Progress specifically listed studies across the nation proving environmental harms were directly correlated with communities of color.⁴⁷ Therefore, these communities should be the focus of those receiving benefits from ILSFA. I pulled data on total African American and Hispanic populations from the US Census Bureau and plotted it on a gradient on the map as well.⁴⁸

The following maps were created as a response to my findings via the qualitative interviews.

Population Density:

Many grassroots vendors complained that approved vendors were only found in cities and very few were in rural areas/EJC-like communities. To visualize where the approved vendors were with respect to the population, I found population density data and plotted it along with the

⁴⁶ *Illinois Median Household Income (in 2018 Dollars), 2014-2018 by County*, www.indexmundi.com/facts/united-states/quick-facts/illinois/median-household-income#table.

⁴⁷ Bell, Jasmine. "5 Things to Know About Communities of Color and Environmental Justice." *Center for American Progress*, 8 May 2017, www.americanprogress.org/issues/race/news/2016/04/25/136361/5-things-to-know-about-communities-of-color-and-environmental-justice/.

⁴⁸ "U.S. Census Bureau QuickFacts: Illinois." *Census Bureau QuickFacts*, www.census.gov/quickfacts/fact/table/IL#a

approved vendors.⁴⁹ Combined with the race and income data, this would help me better understand if rural, low-income communities were adequately served.

Housing Age:

Through my interviews, I learned that the strength of a roof is integral to the feasibility of installing solar panels. The roof of a home must be stable for at least 15 years so that one can receive the benefits from ILSFA. Many grassroots educators informed me that they were unable to convince community members to participate in ILSFA because community members did not have houses that were stable or modern enough. I wanted to see how old houses in Illinois were, and found data from the US Census Bureau that listed the percentage of houses in each county from each decade - 1939 to today. I took the most popular decade (the decade that had the most houses in it) from each county and assigned it to the county. For example, if Bond County had the most houses built from 1970-1979, the county was assigned to the value “1970s”. I then plotted all the counties as a layer and formatted it as a gradient. This helped me understand in which communities, residential solar panels were a realistic possibility.

Limitations

This study had a few limitations in its methodology. Considering the size of the program is very small, it was important to get as many perspectives as possible to ensure I could create holistic conclusions from people’s experiences. I was able to interview 20 organizations, a little

⁴⁹ “Illinois Counties by Population.” *Illinois Outline*, www.illinois-demographics.com/counties_by_populations

over 1/3 of the total approved vendors, grassroots educators, and approved projects.⁵⁰

Interviewing more individuals would have given me more detailed findings.

Secondly, much of my map data was restricted to the county level. This was due to the fact that US Census Bureau data sets are often sorted by county and finding all my variables by zip code was not possible. This is not the most accurate picture since even within county, geographies can vary greatly. For example, Cook County alone has severe income disparity just looking at the north and south sides of Hyde Park. Therefore, metrics by county provide a bird's eye image of the issue. Further research into specific zip codes could create maps that tell us a more detailed story of whether or not the metrics used by ILSFA to define environmental justice communities are efficient in dictating which communities need more assistance.

Furthermore, I made some assumptions while constructing my geospatial analysis. I am assuming that an older house will not have the ability to hold solar panels for 15 years. In reality, while a house may be built in 1940s, it may be upgraded or refurbished periodically, making it eligible for solar panel installation. However, I did not have access to this data. When creating the commercial rate/income ratio, I also was not able to take into consideration how much electricity individuals used. Unfortunately, this data was private and I was not allowed to access it. Ideally, I would have used the following metric: $(\text{commercial rates} * \text{kWH of electricity used per household}) / \text{household income}$ and found the average for each county. This metric is more accurate than commercial rates/income because it takes into account how much individuals use. Individuals in higher income brackets are more likely to use more electricity. However, the premise of the ratio remains sound as it looks at constant price of electricity per county as a proportion of income.

⁵⁰ This was true at the time of data collection in November, 2019. Since then, the program has expanded and updates are discussed in the conclusion.

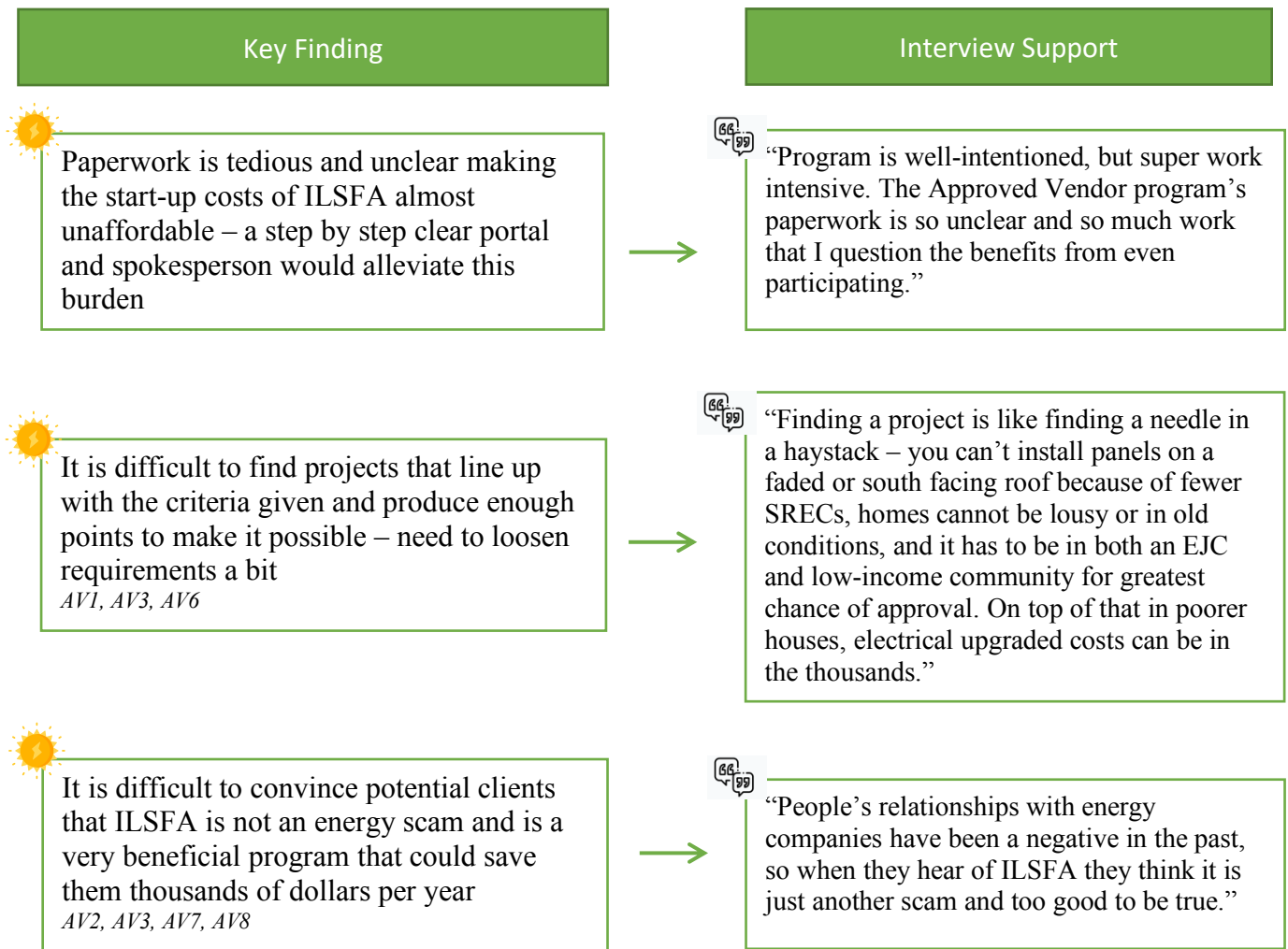
Lastly, my interview data was highly qualitative. The addition of quantitative metrics may have better measured the impact of individual answers. For example, tracking the number of people who were approached by grassroots educators, understanding how many actually contacted Approved Vendors for a project quote, and how many completed a solar project would have provided great quantitative evidence for ILSFA's success. However, many of the individuals I interviewed did not have quantitative data to provide and thus, my observations were based on qualitative responses. Because the purpose of my study was to identify major barriers in accessibility to ILSFA and underline points where efficiency could be increased, qualitative interviews still allowed me to come up with succinct answers. Through qualitative interviews, I was able to hear the stories of individuals who were successful or unsuccessful in their attempt to get a project approved and the conversations grassroots educators had with potential clients. While quantitative studies could have provided an idea of the magnitude of the issues I identified, qualitative evidence was crucial to understanding the holistic picture of ILSFA.

Discussion and Results

Through the process of interviews with three different groups involved in ILSFA (approved vendors, grassroots educators, and approved projects), I took away key findings from each of the groups. Each group has a very different position within the organization and thus, separating their findings is important to understand ILSFA from a systematic perspective. I have organized these major findings by category below.

Interview Findings

Approved Vendors





ILSFA is not financially advantageous for Approved Vendors and presents financial challenges for non-profits
AV2, AV4, AV5, AV6



“There is a significant financial outlay before we even apply for projects. With no idea if the project will even make it past the first project, we are at a very disadvantageous financial position.”

Through interviewing approved vendors, several key findings came to light. Most of the approved vendors listed ILSFA’s mission as their primary reason for joining the programs rather than any financial benefits. In fact, many approved vendors cited no financial benefits from the process due to 2 main reasons: the financial outlay for the process and the inconsistent probability of project approval. Several times when scouting out clients, projects aren’t approved. As one interviewee said, “to get 10 customers, we have to pay the price of 20”. As he mentioned in his experience, he had to submit his projects more than twice: once due to missing paperwork that was not listed on the portal requirements and once because after submitting all the paperwork, the project was deemed not eligible due to the client having an income greater than the threshold allowed. Secondly, because projects are only deemed as qualified after all the paperwork is submitted (including paperwork that is not directly related to income and location qualifications of the project), approved vendors spend hours trying to collect data and information about each potential client only for clients to be deemed ineligible due to their location/income.⁵¹ There should be a first qualifying round of paperwork before asking vendors for pages of details to make sure a project is eligible for consideration. Between all the

⁵¹ Another vendor told me the following story. They had spent almost a month visiting a potential project site, collecting details about the potential profit from the project, sizing it to present a budget, and collecting all the paperwork. Only after this entire process had been finished, they received notification that this individual was not eligible, though the program was familiar with this individual from the start of the process. The vendor stated this took away a month for him. He argued that the program, before anything else, should first vet potential projects for eligibility from a requirement standpoint. After that, a more detailed proposal can be submitted.

paperwork and administrative processes, most approved vendors do not make any money, few even it a potential “sunk cost” (AV3, AV4, AV5).

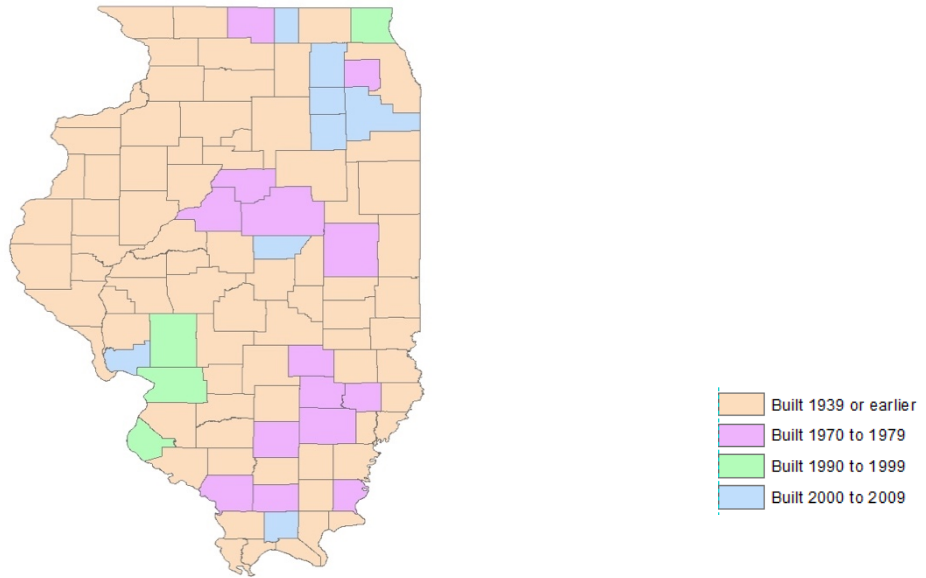
Approved vendors also struggle to find clients because the requirements to qualify clients are stringent. Participants must fall under some of the lowest income brackets in Illinois. Unfortunately, individuals that have such a low income often don't have houses that can hold the structure of solar panels or the financial capacity to take out any loans for such upgrades or repairs. Participants must also have a high enough electricity usage such that vendors can still benefit from the Solar Renewable Energy Certificates (SRECs) from the project. Low income consumers often limit their electricity usage to save money and thus, vendors don't have enough of an interest in pursuing such projects. Because of unstable employment and personal factors in their lives, potential participants cannot commit to 15 years of living in the same place. However, ILSFA contracts are set for 15 years. Thus, “finding a customer is like finding a needle in a haystack” (AV3). Furthermore, even if all the above criteria are met, houses must be facing south for the highest SRECs. These reasons also align specifically with the reasons why the distributed generation segment of ILSFA has very limited progress and why many approved vendors feel a sense of waning interest.

A final requirement that can dissuade approved vendors is the requirement that one must submit 8-10 projects at once to meet the minimum 50kW requirement. One vendor explained this requirement by noting that ILSFA sends projects in batches so that the Illinois Commerce Commission (ICC) is able to approve everything at once. The process to get projects approved by the ICC tends to be lengthy and slow. This often sets back timelines that ILSFA and approved vendors have set into place. By submitting all projects at once, the ICC is able to process them faster. Although this batch requirement helps ILSFA work with the ICC more effectively, it also

places a burden on vendors. Finding 8-10 projects can be difficult and time consuming because even if one project fails to pass through, the vendor must completely resubmit their application. Especially when it comes to working with residential households that use less electricity, a 50kW batch requirement can mean completing paperwork with more than 10 homeowners, which is cumbersome for vendors. On the other hand, one project with a large non-profit may exceed the 50kW batch size. Thus, this policy makes it easy to work with large non-profit clients, but harder with residential ones. This could potentially explain the fact that most approved projects currently have clients that are large non-profits.

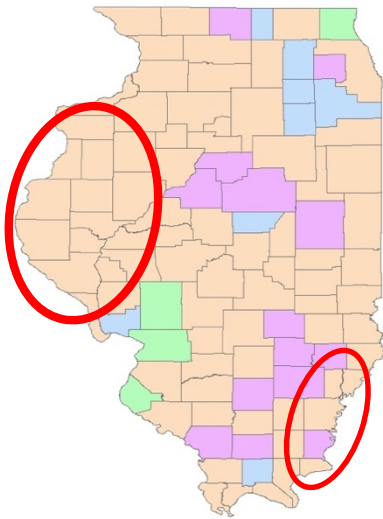
Approved vendors repeatedly stressed the importance of having a strong roof for solar installation to be feasible. One vendor told me the story of how he visited a client site only to find that there was no way the client's roof could carry "even half a solar panel". The map below highlights the most frequent housing age in each county in Illinois. From this map, it is clear that the majority of Illinois falls in the category "Built 1939 or earlier". This provides context to the issue of roofing in potential client houses as we can see that most of the houses in Illinois were built earlier than 1939. Low-income individuals have an even greater probability of living in such old houses since the older a house without renovation is, the cheaper it is. Looking at the prevalence of light orange shading, it makes sense that approved vendors are having trouble finding client that fits the check box of having a stable and strong roof.

Housing Age

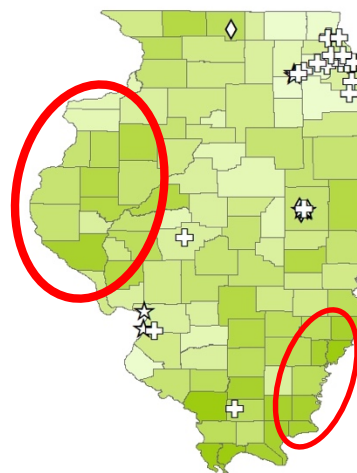


It is also interesting to directly compare housing age with consumer electricity rate/income. Below we can see the two maps side by side.

Housing Age



Commercial Electricity Rates/Income



In the commercial electric rates/income (comm/income) map, the areas that are darker have a higher ratio while the areas that are lighter have a lower ratio. A higher ratio indicates a greater financial burden from energy bills. When we compare these maps side by side, it is interesting to note that the areas that have the darkest green are also the areas that have the oldest houses. Meaning, the communities that face some of the highest burdens of electricity bills are also the communities that have houses with the oldest infrastructure. Approved vendors noted that several of their potential customers did not have roofs that were strong enough. These maps demonstrate a relationship between old houses and energy burden. ILSFA is designed to help those who face financial difficulties, but unfortunately, those are the same people who do not have a house strong enough to hold solar panels.

It is important to note that if a project meets all the necessary criteria required by ILSFA, approved vendors would receive benefits through SRECs, federal tax credits, and Purchase Power Agreements (PPAs) (AV3, AV7). The financial structures that are in place currently are financially beneficial for approved vendors. The issue lies in whether these benefits are accessible given the challenges with procuring and approving projects.

Five approved vendors spent a great deal of their interview discussing issues with the paperwork for the program calling it “complicated”, “burdensome”, “tedious”, and “work intensive” (AV2, AV3, AV4, AV5, AV6). Several applicants had to submit their paperwork more than once due to confusions about the requirements. Many individuals attributed this to the fact that the program was brand new and this could be part of the administrative challenges of any new program. Participants also mentioned that whenever they asked for clarification they were often directed towards the vendor guide and the vendor guide “used lots of legal language that wasn’t easily understandable” (AV6). The paperwork alone seemed to be the largest

frustration for approved vendors in this program and a key reason for one approved vendor deciding they no longer wanted to participate.⁵² Thus, assigning a representative from ILSFA to each vendor to answer their questions could make the process easier.

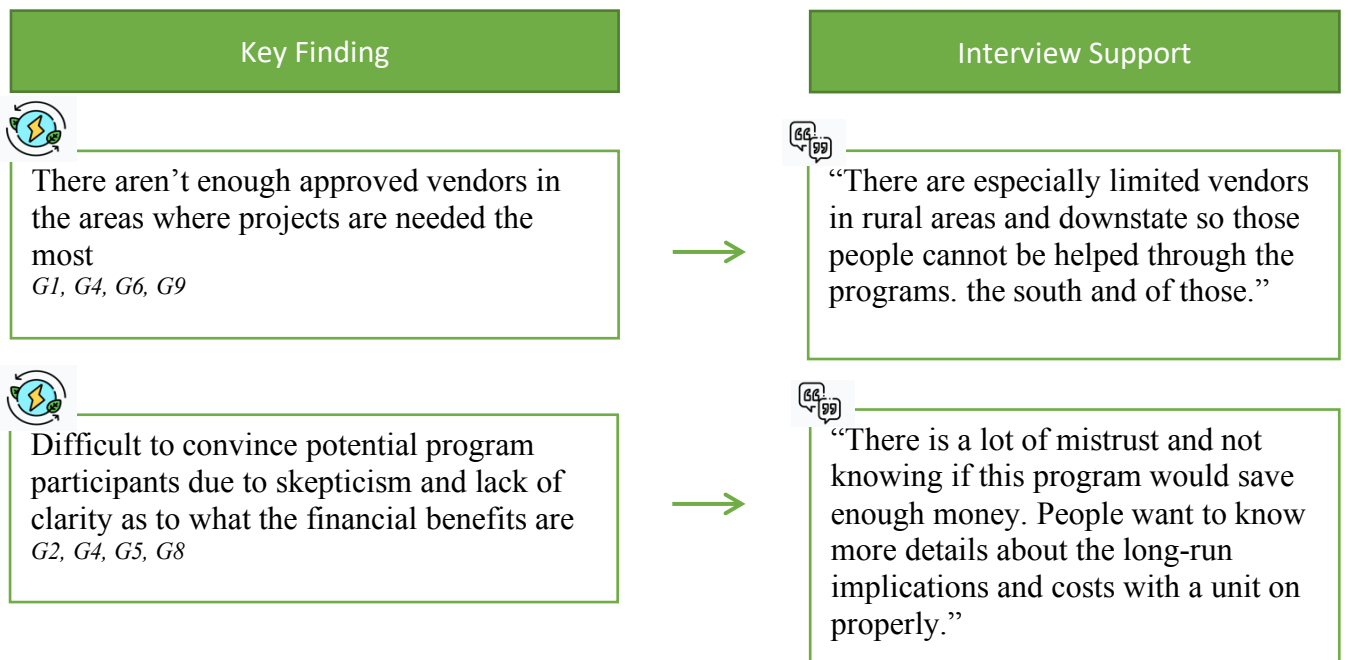
I also had the chance to speak with PSG Energy Group, the approved vendor for an approved project at West Aurora School District. This interview was unique in that it was the only vendor that I spoke to who had seen through the process and is planning to start project construction this year. This interview brought out three key points. First, there is significant due diligence that must be completed before project approval. Firms have to absorb due diligence costs (structural engineering, electrical engineering, etc.) that cannot be paid upfront by the customer, per ILSFA requirements. Approved vendors must be prepared for the financial costs and duration this task can compose of, and be willing to risk that the project may not be selected and thus, the costs won't be recovered. However, it is one that must be conducted and cannot be removed from the program. Secondly, the interconnection agreement is an unpredictable variable. Because it can take around three months to receive approval, approved vendors have to be ready to begin the next processes as soon as their connection is approved. Building plans can be delayed due this step. Processing the interconnection agreement faster is beyond the scope of ILSFA, and lies with utility companies. These above two points are important because they highlight that ILSFA does not have control of certain implementation challenges. Finally, they noted that finding their client, West Aurora School District, was a mix of hard work and strategic planning. The fact that WASD was already preparing for a roof replacement made them an ideal candidate for PSG. On PSG's side, they had individuals search for clients using personal contacts, networks, and the EJC/LI Zone screening tool on the ILSFA website. PSG had a very

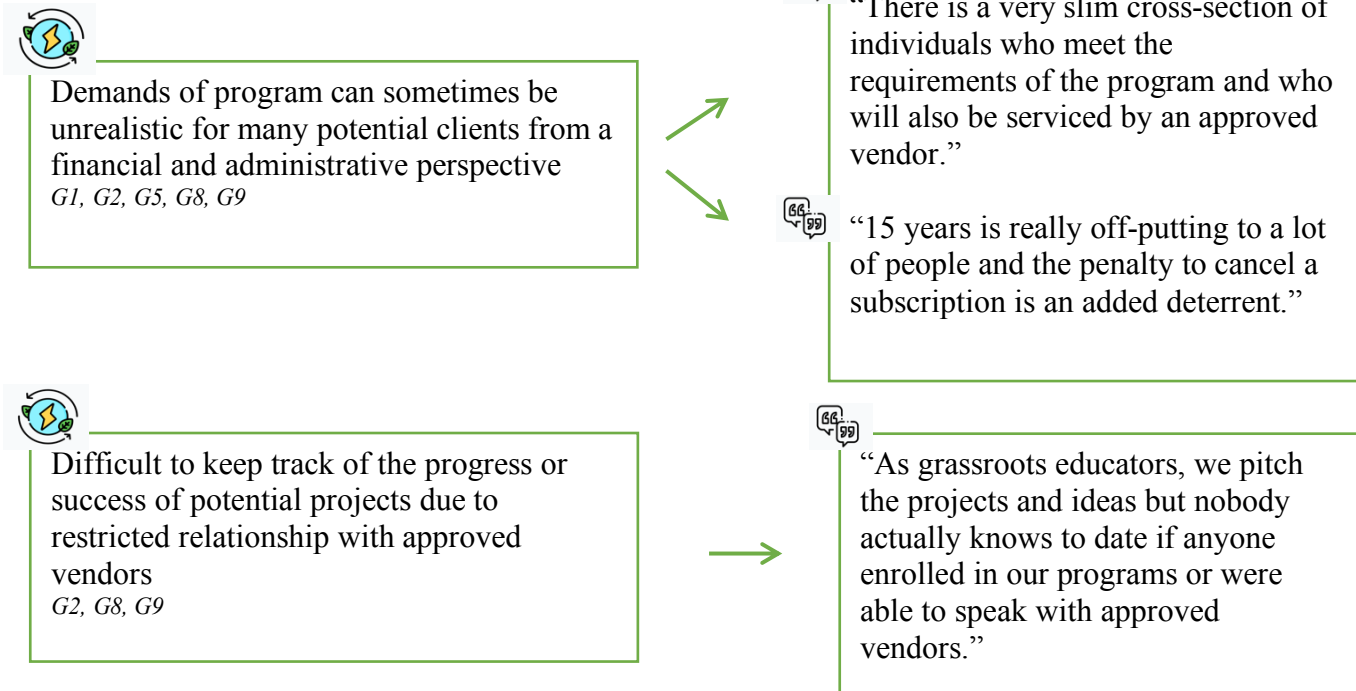
⁵² I want to emphasize this was only heard from one vendor. All other vendors were extremely enthusiastic about the mission of ILSFA and requested that the paperwork component be simplified.

positive experience and plans to continue working with ILSFA for more successful projects in the future. ILSFA would ideally expand with more project successes such as the PSG/WASD project.

Overall, approved vendors believed in the mission of ILSFA and all felt that this program was very much needed in the state. Sentiments of appreciation for Elevate Energy and their hard work were strongly present in each interview. It is important to highlight that two interviewees emailed me in April expressing the importance of thanking ILSFA/Elevate Energy staff. During the recent COVID-19 crisis, they pointed out the staff was responsive and communicative, providing webinars and videos to vendors. During these interviews, much of the frustration was directed towards structures of the program, not the program administrators themselves. In fact, AV7 and AV8 talked about how quickly they received responses from the administrators whenever they had any last minute questions. The approved vendors' main wish was for the frustrations above to be addressed in the next round of project applications such that more projects are implemented and the process is easier to navigate.

Grassroots Educators



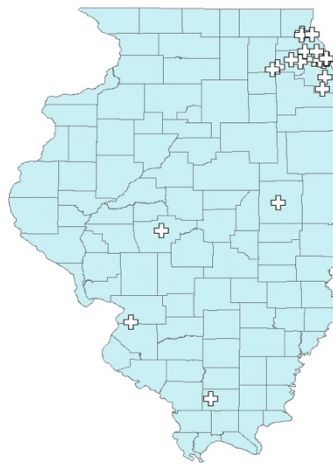


More than approved vendors, grassroots educators have the ability to interact with potential clients through workshops, presentations, and door-to-door campaigns. Thus, their perspective was critical in understanding what the implementation challenges were from the perspective of potential ILSFA clients (low-income individuals, non-profits, and government organizations).

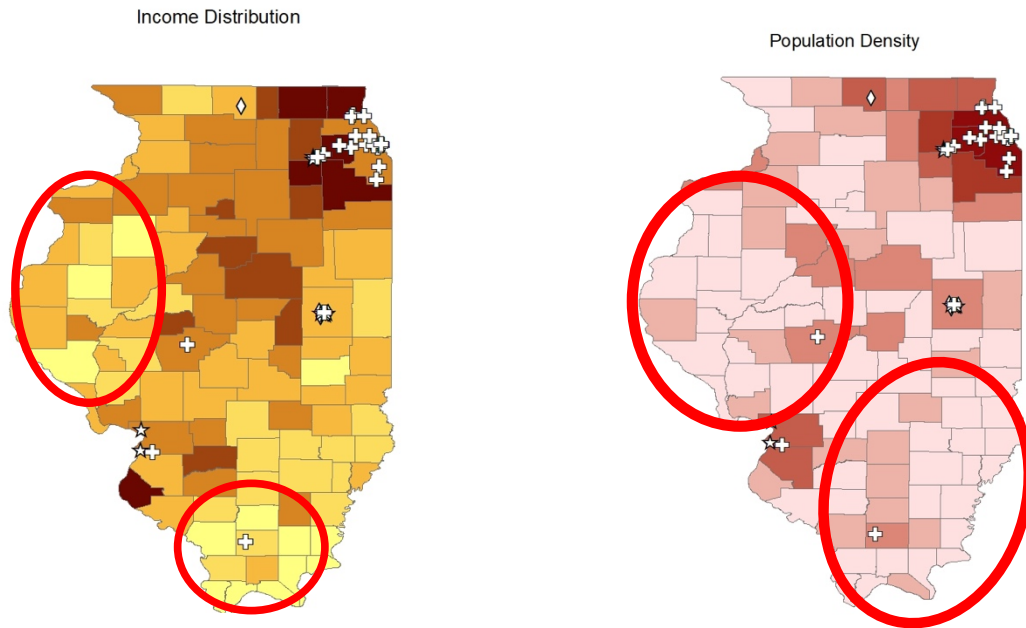
One of the major concerns expressed by grassroots educators was the lack of availability of approved vendors. Many of them mentioned the lack of geographic distribution across the state as a major reason for projects failing to realize. Below is a map of the approved vendors, indicated by the white plus sign, in the state of Illinois.⁵³

⁵³ This map is created based on data from December, 2019. Since then, there have been updates to the number of approved vendors as part of ILSFA.

Approved Vendors



It is very clear from this map that the grassroots educators were valid in their concerns. Most of the approved vendors are located in Cook County/Northeast Corner of Illinois. This leaves over 90% of Illinois without an approved vendor in their county. While approved vendors complete work beyond just their county, they are less likely to accept any projects that are far from their central location as “the process to become a vendor is hard and you often can’t find a vendor in the area of a potential project” (G1). Approved vendors are a critical part of ILSFA as they are the ones who have the license to connect installers with project participants and bring the solar panels to life. To further understand the disparity between the location of approved vendors and low-income areas and population density, I built the following maps.



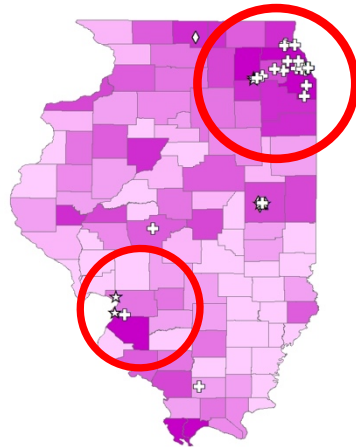
On both maps, the plus sign represents the approved vendors, the diamonds represent grassroots educators, and the stars represent approved projects. In the income distribution map, the lighter colors represent poorer areas while darker colors represent areas with the highest incomes. It is clear from the maps above that in the poorest places in Illinois, there are no approved vendors nearby. In fact, in the south of Illinois there is only one major approved vendor. In the east, where there are quite a few counties who are light yellow, there are no vendors. When looking at the population density map, we similarly see that the approved vendors are concentrated in the darkest (most populated areas). Rural areas (the lightest pink shade) don't have any approved vendors in them. Thus, these maps support the claim that low-income, rural areas, the very target population of ILSFA do not have approved vendors near them. This is a key reason why few projects are being completed. **The program's target population is unable to access the resources needed for project implementation and completion.** Rather, the resources are most abundantly available in the richest counties of

Illinois, where few people qualify for the income bracket criteria required in ILSFA. This is further supported by the fact that no star (approved project) is present on the map without a nearby vendor (plus sign).

It is true that approved vendors do not have much incentive to place themselves in rural areas because they would have access to less business. It is expected that as population density increases, the number of approved vendors would increase as well. Thus, ILSFA may respond to this issue in two ways. First, they could create a subsidy or incentive program for approved vendors to travel to rural and poorer counties, where more individuals could qualify for ILSFA. As understood from the interviews with approved vendors, many feel that the cost to acquire a client is greater than the profit. By providing a financial incentive, they could mitigate this issue. Secondly, they could increase their efforts to market their program specifically to electric companies in these target communities. This geospatial analysis brings up the need for a system to connect approved vendors in populated cities to low-income rural populations.

On a positive note, approved vendors are located in communities with the highest African American and Hispanic populations. This is important since a central tenant of environmental justice is equality amongst all races. In the map below, areas that are darker purple have higher minority populations. In northeast and southwest Illinois, there are approved vendors in some of the darker purple communities. This is a step in the right direction and should be continued. Further researching analyzing the income levels and energy use of the minority populations in those counties is warranted to support the assumption that these are target neighborhoods for ILSFA.

Black, African America, and Hispanic Population



In addition to the lack of geographic distribution of approved vendors, grassroots educators expressed concern regarding their relationship to vendors and how that relationship could be further utilized to pursue projects. Due to concerns with approved vendors unfairly incentivizing educators or taking advantage of their position, there are strict restrictions on how educators can interact with vendors.⁵⁴ However, educators strongly feel that they could be more effective if they could directly interact with vendors and act as a “an active middle man between vendors and possible ILSFA participants” helping them follow-up with vendors (G9). The process lies in the hands of the participants currently. Participants must contact vendors, follow-up if there is no response, and provide all the paperwork and documentation for the process to get started with the vendor. These participants often have day-to-day concerns such as job and food security that outweigh the need for both solar panels and the work that comes along with participating in ILSFA. ILSFA often gets left behind on their list of daily tasks. Thus, educators

⁵⁴ As an interviewer explained to me, these concerns stem from the fear that GEs and AVs could collaborate together. For example, an GE may only advertise one AV to a potential client, when the client might have a better agreement with another AV. This has not happened to date, but restrictions have been created to avoid such a situation.

feel they could play a bigger role in ensuring the process moves forward from just the introduction of the program and advances to implementation.

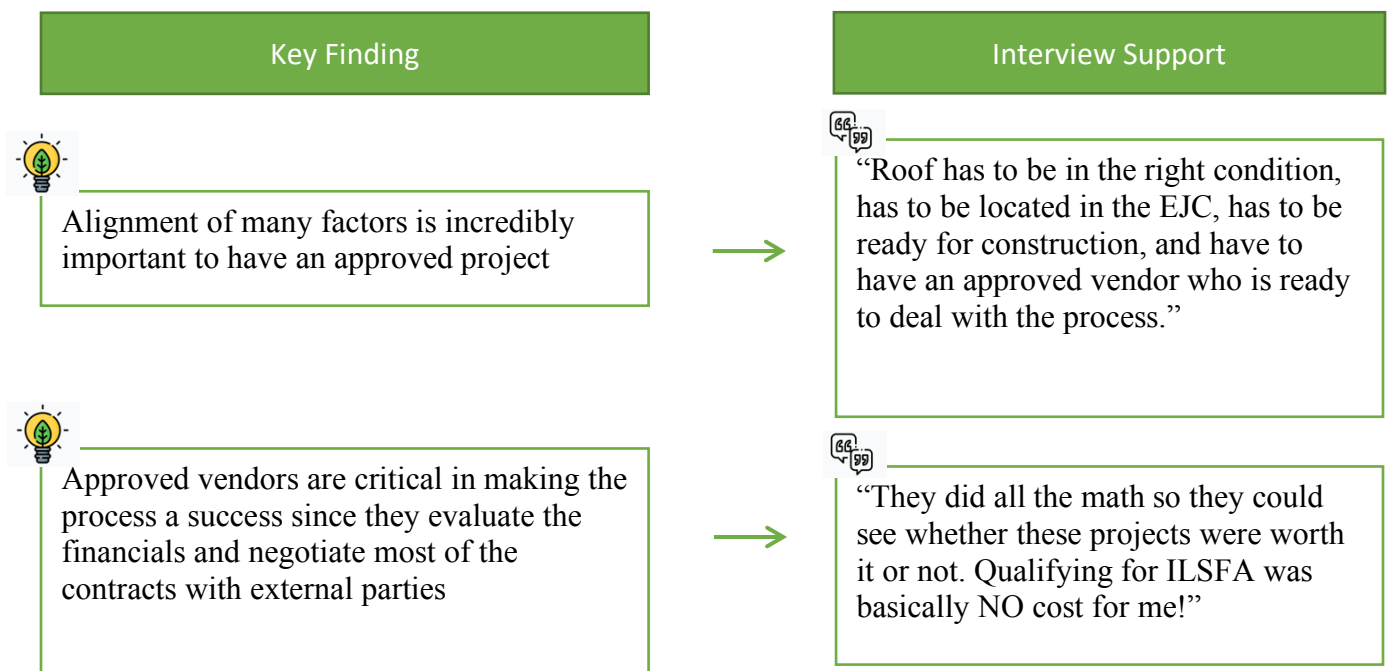
Not only do educators have to forge a relationship between potential participants and approved vendors, but also have to convince often skeptical individuals of the benefits of the program. Participants are weary of alternative energy vendors coming to their doors and luring them into scams disguised as benefits (G5). Thus, they have trouble both believing educators and understanding the financial benefits given how complex the program is. There are often many questions about how much exactly they would save each month, and what the long-run implications of using solar energy looks like (G4). The pamphlets given by ILSFA seem to provide a vague understanding of benefits and do not necessarily quantify it using factors of interest (income, electric territory, and amount of energy). One group even created their own materials using real people as examples to further convince individuals about the program benefits. Between the insurance people will have to carry, the lack of clarity on how much they will be charged, the \$200 penalty fee, and financing options available to organizations/individuals, many potential participants step away from the program in fear and skepticism. Communication with these individuals is critical to the program being a success, and better resources would allow for clearer communication. It is difficult to provide these resources with coherent examples as ILSFA is currently in its first stages of development. However, as more projects become successes, ILSFA can certainly create pamphlets with realistic numbers and stories of individuals who have benefitted from energy savings.

Finally, educators share the same concerns as approved vendors that the requirements for being a participant in the project are very stringent and leave a “very slim cross-section of potential individuals” (G8). Projects must have the infrastructure ready (both physical roof and

electrical wiring), the ability to pay interest on any loans taken out, confidence in their 15 year stay in one building, have a roof facing east with no trees, meet low-income qualifications, stay in an EJC, and qualify for loans when approaching the bank. These requirements greatly limit the number of participants in the program who could greatly benefit from the reduced electricity costs. It is understandable that ILSFA wants to ensure its resources are diverted to exactly the right group of people. However, these requirements are coming at the cost of many potential candidates not qualifying.

Overall, each conversation proved that grassroots vendors were extremely excited by the mission of ILSFA and felt it was very much needed in Illinois. They all understand that with any new program there are many bumps in the road and want to continue working with ILSFA. Not a single grassroots educator expressed sentiments of wanting to quit and in fact, are eager to expand. They hope to see changes with the next project cycle such that all their campaigning bears fruit.

Approved Projects





EJC zones can sometimes be arbitrary which restricts the process of approving projects



“Two of our buildings were a few blocks from one another and one was in a zone while the other wasn’t. I understand there needs to be a boundary somewhere, but it does seem to be a little disappointing. They are breathing the same air!”



Interconnection agreements are one of the most difficult steps in the process



“We had to light a fire to get ComEd to get the job done.”

Speaking with approved project holders illuminated the viewpoints of those who ultimately benefitted from ILFA and placed the concerns of approved vendors and grassroots educators into broader context.

Both project holders talked about the importance of having multiple factors align. The roof must be in proper condition/already be considered for renovation, the building has to be facing the right way, they must be in an EJC zone/low income neighborhood, they should have the financial capacity to take on this project, and they need an approved vendor who is familiar and patient with the process. They both understood that they were very lucky to have green check marks next to each of these factors. They also both mentioned that the chance of this happening was uncommon.

The approved vendor seemed to be the most important piece to the puzzle. The vendors were in charge of doing all the math to understand where the solar panels were viable, how many SRECs they could produce, and whether this was beneficial for the vendor and the non-profit/low-income organization. The vendor also had to work closely with ComEd and Ameren

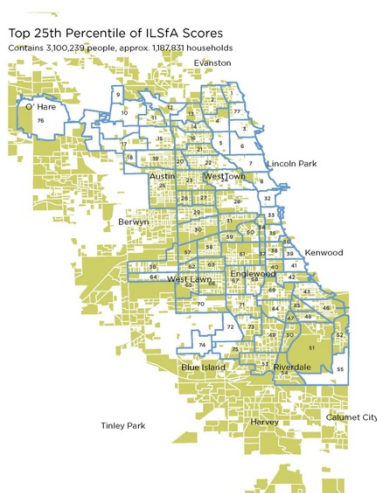
to ensure the interconnection agreements flowed through.⁵⁵ Most importantly, the vendor was given a grant to realize the upfront costs of the infrastructure which was the financial key to start the project's implementation. This required tons of paperwork and communication between the vendor and ILSFA. If the vendor was unfamiliar with the process or not willing to patiently understand it, the project could not be completed. An important point that was brought up was that once a vendor understands how to pass a project for approval, it becomes an economies of scale situation. The payback with each project only increases for the vendor. Essentially, Nobel Energy and PSG took the paperwork and worries out of the clients hands and completely handled it. "Qualifying for solar for all was at NO cost for me!" (AP1). Both projects reported a very smooth experience working with the approved vendors and Elevate Energy, program administrator of ILSFA.

A final interesting point was that EJC zones were seemingly arbitrary (AP1). AP1 experienced a situation where she had two buildings a couple of blocks apart from each other; while one qualified under ILSFA, the other did not. She mentioned that while she understood boundaries must be built to ensure there are standards and rules, individuals in both buildings were breathing the same air. This statement questioned the way in which an EJC zone was designed. Individuals from all three stakeholder groups discussed EJCs as a critical function of qualifying for an approved project. An analysis of what components should determine an EJC zone is warranted.

⁵⁵ A common theme among many of my interviews was frustration with getting the interconnection agreement signed (requesting permission to connect energy to the grid). Up front, the utility companies state that they will take around 3 months to approve this. This puts approved vendors in a difficult position because they have timelines that dynamically change based on when the utility company approves the agreement. Unfortunately, these challenges lie beyond the scope of what ILSFA can address.

EJC Boundaries

ILSFA uses the EPA's EJSCREEN tool to calculate a EJ scores for each census block group in Illinois using factors such as exposure to pollutants, proximity to environmental harms, and socioeconomic factors. Census block groups with the highest 25% of EJ scores are highlighted in green below.⁵⁶



ILSFA uses 17 different metrics to determine what an EJC zone is. However, these metrics are not necessarily telling of an entire community's conditions, an explanation for the harm they may be facing, or a justification for their participation in ILSFA. For example, using pollution as a metric does not support the purpose of ILSFA's mission. While using solar panels reduces emissions in the air, one project is not enough to shut off the power plant that serves hundreds of people and is ultimately producing the emissions., ILSFA's mission directly allows low-income individuals to access a cheaper form of energy while contributing to the environment positively. However, from a practical perspective, it does not directly lower

⁵⁶ Garcia, Samuel. "Community Solar for IL's Environmental Justice Communities." *NRDC*, 28 Jan. 2019, www.nrdc.org/experts/samuel-garcia/community-solar-ils-environmental-justice-communities.

emissions significantly. Therefore, looking at emissions to dictate EJC does not directly correlate with the purpose of ILSFA, which is more focused on aiding low-income and minority populations.

To mitigate some of the issues mentioned above, ILSFA allows for community self-designation. A community member can apply on behalf of their community to be considered an EJC based on a specific issue in their community (quantitative or qualitative). However, this process works under the assumption that an individual from an affected community would take the time to submit a clear application explaining their community's issue and it places an undue onus upon the individual. If these communities are also low-income ones, which most of the time they are due to the nature of environmental injustice, they face stressors that are more imperative than the ILSFA EJC zone application. AV5 submitted such an application, that ultimately failed, on behalf of their client. They said, "It took an incredible amount of time and effort for me, who has to do this as part of my job. How can we expect this from people who are often marginalized or put at a disadvantage?"

Below is a map of the EJC zones in Illinois. According to the ILSFA website, "communities in orange were designated as such [Environmental Justice Community] through a calculation utilizing the US EPA tool, EJ screen, and demonstrate a higher risk of exposure to pollution based on environmental and socioeconomic factors".⁵⁷ As demonstrated on the map, there are two major clusters of EJC zones one near St. Louis and another near Chicago. The rest of Illinois does not fall under this category. Approved vendor proposals that include projects in EJC zones are weighed higher than other proposals when they are evaluated for approval. This

⁵⁷ ArcGIS Web Application, elevate.maps.arcgis.com/apps/webappviewer/index.html?id=cfd020c99ed844668450c6b77eacb411.

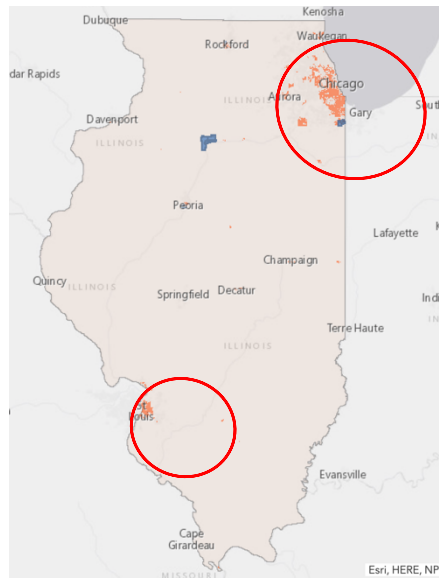
means that projects that are in the remainder of Illinois, will be weighed less than projects in specifically these two areas which make up for a very small portion of the state. If an individual is interested in participating in ILSFA and is not located in an EJC zone, they have the opportunity to submit an application asking for “self-designation” to increase their chances of being an accept project. We can compare the current EJC map to the maps I created looking at 5 socioeconomic factors for an understanding of accessibility to ILSFA.

In each of the maps, I highlighted the most “at-risk” areas. These included (1) the areas with the highest financial electricity burden in comm elec/income, (2) the areas with the highest minority population, (3) the lowest income distributions, (4) the lowest population density,⁵⁸ and (5) oldest houses. As shown, with the exception of minority populations, the at risk areas in the remaining four maps is not covered under current EJC zones. As an example, in 4 maps east IL is highlighted, yet there are no approved vendors in that area nor is it considered an EJC zone. **At a broad level, these maps demonstrate that there are communities that are left behind when designating EJC zones. They further prove that ILSFA has the potential to reach more communities than they do so right now and the opportunity to create widespread change if they expand their definition of EJC.** The current definition of EJC zones is not extensive enough, and restricts individuals from qualifying for an ILSFA project despite being the “ideal” candidates to do so under a traditional environmental justice definition. While the socioeconomic factors displayed in the maps are expansive, they all share the common denominator of defining environmental justice and poverty. Further research is warranted to better understand the

⁵⁸ The areas with the lowest population density are “at-risk” because as mentioned in the background section, individuals who live in rural areas are often more dependent on agriculture which is disproportionately impacted by climate change. Thus, they tend to fall closer to the environmental justice category. Secondly, as mentioned in the grassroots education section, rural individuals often qualify for ILSFA from an income perspective, but do not have approved vendors close enough to access solar panel installation.

specifics of each community as explained in the limitations section. This geospatial analysis requests the reconsideration of what an “EJC Zone” is and motivates ILSFA to expand their target zones to increase their chances of approving successful projects.

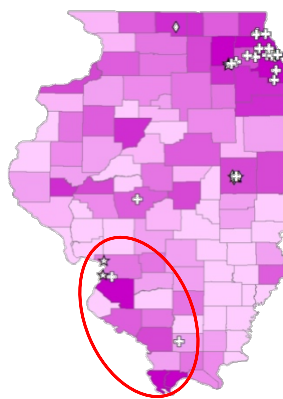
Current EJC Zones



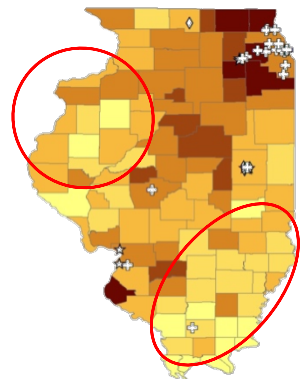
Comm Elec/Income



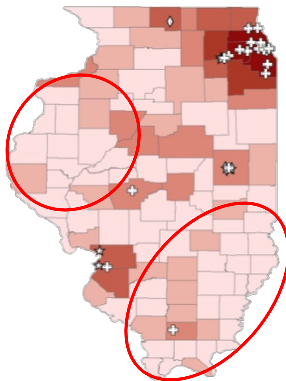
Black and Hispanic Population



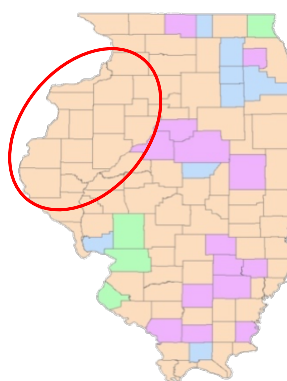
Income Distribution



Population Density



Housing Age



Policy Recommendations



ILSFA should **expand its current definition** of an EJC to include more counties because (1) many potential beneficiaries do not live in current EJC and (2) self-designation is a large burden to place on a low-income community member.



Qualifications for environmental justice programs should **weigh qualitative factors equal to quantitative ones** because environmental impacts cannot always be contained by zip code or community.



Along with financing solar panel installations, solar programs should provide **financial support** for creating the infrastructure necessary for installation. This includes repairing roof repairs and upgrading electric system.



Solar programs should leverage technology and create a **central portal** to increase communication and clarity between all stakeholders involved.

Expanding EJC Definition

As observed through the geospatial analysis, many counties are currently not a part of an existing EJC despite containing some of the key features of such an afflicted community. This is because the guidelines for being a part of an EJC are very particular. As expressed by several approved vendors and grassroots organizers, residential projects can be difficult to find because they must meet several specific criteria. Having a project in an EJC immediately boosts the project's chances of approval. Thus, by expanding the definition of an EJC, which is a subjective term in its origin, we increase the chances of approved vendors finding eligible projects.

There are two major benefits from expanding this definition. First, it increases the incentive for approved vendors to participate in this program. As noted from the interviews, some approved vendors were frustrated because it seemed impossible to find a project. If there are more geographies where one can find a feasible project, there is a greater possibility of success. Second, it makes the program more accessible. Right now, rural communities especially are held

back from this program because there are not enough approved vendors in those areas and because they are not typically in EJCs. Rural communities don't face the same levels of pollution as cities because of their low population density. The low population results in fewer toxins in the water and air. These toxin levels as well as general pollution levels are factors taken into consideration when calculating an EJC currently. Thus, many rural communities will not qualify as an EJC. At the same time, rural communities are some of the most affected by climate change due to their dependence on agriculture. Many rural communities also suffer from poverty with research indicating the poverty rate in rural areas can be greater than urban centers⁵⁹ and they suffer from an affordable housing crisis.⁶⁰ Solar programs for low-income residences serve the purpose of reducing pollution and providing clean energy to individuals with financial burdens. Therefore, they should include rural communities in their programming and increase their accessibility. Expanding the definition of an EJC would serve this purpose.

While ILSFA has the option to self-designate a community as an EJC, this places a burden on an individual that already been marginalized. Part of the cause of environmental injustice is that marginalized communities do not have the same tools to advocate for themselves as those in privileged communities do. The idea of self-designation pushes responsibility onto communities that have more pressing daily issues. Self-designation can remain as an option because it is a tool for self-advocacy, but it should not be the only way for one to make their community an EJC

⁵⁹ Nasser, Haya El. "Poverty Rate Lower in Rural America Than Urban Centers." The United States Census Bureau, 23 May 2019, www.census.gov/library/stories/2017/11/income-poverty-rural-america.html.

⁶⁰ Scally, Corianne Payton, and Brandi Gilbert. "Rural Communities Need More Affordable Rental Housing." Urban Institute, 18 Dec. 2018, www.urban.org/urban-wire/rural-communities-need-more-affordable-rental-housing.

because it becomes an unfair responsibility. Instead, EJC zone definitions should be expanded to include more communities.

Further research is needed to understand exactly which socioeconomic factors should be included in an updated EJC definition and it would warrant thorough analysis.⁶¹ However, this updated definition may include less quantitative metrics and may look towards a couple of large socio-economic factors to encompass more regions of IL that could greatly benefit from ILSFA. This could also account for narratives from individuals as discussed in the next policy recommendation.

Considering Both Qualitative and Quantitative Factors

Quantitative markers are used as succeeding criteria in several low-income beneficial programs. Given the need for a selective process due to financial considerations, this is understandable. However, seeing that environmental factors have no physical boundary to their impacts, it may be in the program's benefit to reduce their emphasis on quantitative factors and instead consider more qualitative ones. This would help alleviate three main issues expressed in interviews: (1) lack of projects who meet the requirements, (2) "arbitrary" factor of EJC zones, (3) reducing the client search time for approved vendors and thus, reducing their upfront financial investment.

Feedback from approved vendors, grassroots educators, and approved projects all highlighted the same issue – it is nearly impossible to find clients who have all the appropriate check marks to participate in ILSFA. Participants must fall in the "low-income" bracket, but not so low that

⁶¹ I understand this is a large question to answer and several researchers are currently looking into it. Within the next few years, more accurate metrics will probably be developed. However, this does not take away from the fact that the stricter the definition is, the less likely communities in need can benefit from the program.

they are unable to keep up with any of the costs required in the program, interest payments, or live in a house with needed roof/electric repairs. While these quantitative metrics, such as the one for income, can still be a part of the application to provide further context, it shouldn't been a blank "yes" or "no" based on income and the application should also allow each individual/organization to share their story. A qualitative component explaining why this specific organization/individual could use solar energy and why they serve low-income communities/are part of that community themselves would add important context that could keep the organization/individual as a contender for ILSFA.

As mentioned in the discussion, EJC boundaries can be arbitrary such as in the case of AP1, where the two buildings with similar missions were a few blocks from each other, but one was in an EJC and the other was not. Thus one building received approval and the other did not. The consequences of breathing poor quality air or drinking from poor quality water do not stop at the border of a zip code. These conditions pass on through the area and in surrounding areas. Thus, quantitative metrics are not the most effective approach to increasing accessibility to the program. This qualitative piece to the application could help individuals explain why their organization should be considered for solar energy despite not being in the right "zone". As seen in the maps in the discussion section, factors such as income, electricity rate/income, and racial disparity all contribute to the definition of environmental justice and are all found in different counties across IL. Thus, an organization in any of those areas could make a case as to why they should be considered. By adding a strong qualitative component to the application, ILSFA will ensure they do not miss opportunities to serve those who may have a strong story, while still helping those who are subject to harm by pollution and societal barriers.

Lastly, similar to the first policy recommendation, broadening the requirements for a project would allow for approved vendors to see an increased percentage of their proposals pass which will motivate them to continue in the program. Turning down clients because they earn \$3,000 more than the requirement dictates even though they too breathe polluted air is demotivating. As demonstrated in the interviews, project requirements were seen as unrealistic and deterred many approved vendors from moving forward.

Financial Support

Part of any policy should not just include financial support for the implementation of the main policy itself, but also support for the supplementary aspects of the policy. All three stakeholder groups mentioned the importance of a strong roof to build solar panels. As the target group for this policy is low-income community members, these individuals often do not have the means to spend money on renovating their roof or electrical wiring. They immediately become disqualified for ILSFA if they do not have a strong enough roof to handle the panels. Poor roofing structure contributes a significant amount of failed project ideas. If ILSFA could provide a loan for roof repair, or add a clause to the policy that provided a grant for any necessary repairs depending on project type, this issue would be solved. It would also encourage many more people to apply since they will not feel that they need a large, strong house to participate in the program. Providing supplementary funding for roofing repairs alongside solar installation would 1) widen the pool of individuals who could apply for ILSFA increasing its accessibility, 2) provide approved vendors with a greater chance of finding a client, and 3) help ILSFA better serve their target group (low-income communities).

Creating a Central Portal

Policies that rely on the successful interactions of multiple stakeholders require clear communication between each party. In this case, approved vendors mentioned that they could not find enough projects that met the program's criteria, grassroots educators mentioned that they had projects in mind but there weren't enough AVs to execute, and approved projects credited their success to the knowledge of their AVs. If ILSFA developed a portal where GEs could upload the profile of a potential client and all AVs were on that portal with the option to contact potential clients, it could close this gap. With this portal, I can log on as an AV, see a list of individuals/non-profits that are interested in being a part of ILSFA and the details of their buildings. I do not have to go searching for projects or be worried that they will not qualify under the right circumstance as the portal will already vet that. As a GE, I can track my clients, see their progress, and help them if they are able to match with an AV. I can also help manage my client's profile and set-up meetings with AVs on their behalf if my client is very busy and does not have time. This is an especially important feature because many individuals are interested in this program, but because of how time-intensive it is, shy away from it. If I am a potential AP, I would love this system because it helps me realize which vendors are reliable and it also takes away the hardest part of the process, finding an AV. Thus, the creation of a central portal through the policy allows for direct communication between all the parties involved and closes current communication gaps.

Conclusions

Illinois Solar for All is a unique policy, one of the first statewide efforts of its kind in the nation. It focuses on communities that have been repeatedly overlooked when considering environmental factors and their health implications. By presenting “clear energy savings up to 70% and an opportunity to feel good about the environment, this program is nothing but a win-win situation” for low-income individuals, non-profits, and other entities that qualify to the program (AP1). However, as often occurs in the realm of public policy, the implementation of the program disconnects with the original mission. There are hurdles to overcome for potential project holders to reach the point where they can experience the intentional benefits of the program.

ILSFA has just finished its 2nd round of project selection and is currently working to put out its application for the 3rd round. The findings in this paper can improve the outcomes of the 3rd round, hopefully creating room for the first distribution generation projects in residential households, a category that has no interest or projects currently. The findings in this paper can also be directly applied to improve the strategy of ILSFA, run by Elevate Energy, such that obstacles such as paperwork do not impede on the organization’s ability to create a difference in Illinois. Using technology to create as a central portal, could solve a large portion of the problems brought up in interviews with stakeholders. While this is an administrative update, it can result in widescale improvements for all parties involved in the policy.

This paper also includes policy recommendations that would increase the accessibility of the program. Right now, the program struggles due a cyclical issue. Individuals facing extreme poverty are the only ones who can qualify based on ILSFA requirements. However, they don’t have the financial means to upgrade their electric wiring or roof, a stable enough house to hold

solar panels, or confidence they will live in the same location for 15 years. Thus, they are unable to participate in the program. This results in approved vendors and grassroots educators having to look for other low-income individuals. These individuals tend to face the same challenges mentioned above. If the program opened up its boundaries to listen to qualitative stories and did not disregard individuals merely on the criteria of slightly higher income, the program could see a surge in project holders. Several of these recommendations work to break the cycle that is disrupting the flow of ILSFA.

I want to write a note of acknowledgement that this program is relatively new and the first of its kind. As such, administrative challenges are normal as programs often need to work out their organizational procedures initially to function smoothly later on. While the many of those interviewed complained about the difficult and unclear administrative processes, I have confidence those will improve over time after speaking with a representative from ILSFA and hearing about the feedback they are reviewing. However, from a policy implementation perspective, certain changes must be made so that the target population for ILSFA can fundamentally access the benefits that were designed for them. These two major changes include changes in the criteria of those considered and financial support for all the supplemental costs to having solar panels.

I would also like to provide an update regarding ILSFA. At the start of this research project in October 2019, there were only 11 projects that reached the project development state. However, as of April 2020, there are now 37 in ILSFA's 2nd round of applications.⁶² This is a stark improvement and demonstrates the program is already scaling up rapidly and its benefits

⁶² "Project Dashboard", Illinois Solar for All, Illinoisfa.com, www.illinoisfa.com/project-dashboard/.

are being acknowledged by more communities across the state. This is even more of a reason why the program should consider the analysis in this paper and implement changes such that the 3rd round can present even greater advancement. Two interviewees also emailed me in early April informing me of important updates. First, two large distributed generation providers “rolled out limited ILSFA offerings”. This is a great first step towards opening up accessibility to those using distributed generators. Secondly, a grassroots educator noted that they are seeing increased success, with five new residential clients “working through the preliminary assessment for residential solar”. While there are still no completed projects, both these updates demonstrate that ILSFA is expanding. These recommendations in this paper are thus, even more important in ensuring the program can push projects towards the completion state.

ILSFA stands as a role model to all the rising solar panel programs in various parts of the country. For example, New Jersey recently announced the start of their statewide effort.⁶³ If ILSFA is able to increase the effectiveness of its program even within 2 cycles, thousands of low-income households will have the opportunity to access solar energy and financially benefit from lower energy costs as other statewide program imitate ILSFA. Program flaws are unavoidable during any new initiation, and it is clear ILSFA should continue to make progress to reach their true impact across Illinois.

⁶³ “Justice, Climate, and Solar Advocates Release NJ Equitable Solar Policy Roadmap.” *Earthjustice*, 12 Dec. 2019, earthjustice.org/news/press/2019/justice-climate-and-solar-advocates-release-nj-equitable-solar-policy-roadmap.

Appendix

Interview Summaries

Grassroots Educators

1. Sustain Rockford - Brad Roos
2. C.E.F.S. - Kevin Bushur
3. Embarras River Basin Agency – Mindy Browning
4. Anonymous Organization
5. Pilsen Environmental Rights and Reform Organization – Joshi Radin
6. Ecology Action Center – Larissa Armstrong
7. Anonymous Organization
8. Anonymous Organization
9. People for Community Recovery – Courtney Hanson

Approved Vendors

1. Balance Solar Power – Zachary Kearnen
2. Day and Night Solar – Melinda Kershaw
3. Central Road Energy – Jay Corgiat
4. Anonymous Vendor
5. Certasun – Jesse Feinberg
6. SA Energy – Brett Robinson
7. Anonymous Vendor
8. Anonymous Vendor
9. PSG Energy Group – Isabella Solari I.

Approved Projects

1. West Aurora School District #129 - Angela Smith
2. Senior Services Plus - Jonathan Becker

Grassroots Educators

GE: Sustain Rockford		
Name: Brad Roos	Position: President/Founder	Date: 1/20/20
<p>Sustain Rockford had a strong relationship with the Metropolitan Mayor’s Caucus where it first heard about ILSFA and responded to an RFP by Elevate Energy to become a grassroots educator. They completed the application in-house and felt that it required a “fair amount of work” because it was a new program and things were initially complicated. Their campaign involved 10 large scale and 10 small group presentations, attending a Sustainability Summit in town, and a home show.</p> <p>Major findings:</p> <ul style="list-style-type: none">- Felt that ILSFA was overconcerned with potential conflict of interest between approved vendors and grassroots educators. Wanted brochures/flyers with approved vendors information so that that people they talk to in the community could be		

connected with the vendors. Wanted to be an active middle man between vendor and potential ILSFA participant.

- “Sustain Rockford might be better able to serve the clients of Habitat for Humanity (their homeowners) if SR could work more closely with HFH and its homeowners to be sure that they are able to navigate the complexities of the ILSFA program. Also, organizations like HFH have a deep relationship with their homeowners and, therefore, HFH is a good conduit for ILSFA to connect with those homeowners. This as opposed to SR trying to contact individual homeowners who might qualify for ILSFA.”
- Not enough approved vendors – 12 in north and 12 in south and not all of them are willing to work in the 4 categories (community solar, non-profit, residential, pilot program). Leaves a lot of rural areas left behind.
- ROI is insufficient to attract Approved Vendors to do projects with individual homeowners because of (1) the substantial amount of paperwork required for each project/homeowner and (2) the need for the AV to finance the installation for some period of months/years so it can meet the central requirement of ILSFA that the homeowner not be required to pay any upfront money. AVs may be able to bundle small projects to obtain affordable financing.
- Suggested that this is more difficult to finance than someone who is trying to get out a mortgage or car loan.

GE: C.E.F.S

Name: Kevin Bushur

Position: CEO

Date: 1/21/20

C.E.F.S is a community action agency that heard about ILSFA through an email listhost. They serve 22,000 individuals, providing them with opportunities and helping them maintain stability in their lives. C.E.F.S. has 7 major programs under their umbrella including HeadStart, Low Income Energy Assistance Program, and Meals on Wheels. Through LIHEAP (Low Income Home Energy Assistance Program), they are able to support 6,000 families with energy financing. Through their proposal, they aimed to create flyers and conduct information sessions by utilizing platforms from the various programs they run. They planned to host these sessions in March.

Major findings:

- Had to complete the budget 4 different ways → wish there was a template or clear format for the budget to alleviate the time spent on the application to become a grassroots educator.
- Process to become a vendor is very difficult and as a result, many clients cannot find a vendor that is willing to complete their project (especially rural areas)
- Insurance costs associated with installing solar panels sometimes add extra costs that could deter individuals from participating in the program
- Individuals in extreme poverty who qualify for the program don't have a house structure that could support solar panels for 15 years

GE: Embarras River Basin Agency		
Name: Mindy Browning	Position: Energy Assistance Coordinator	Date: 1/22/20
<p>Embarras River Basic Agency is a community action agency that worked with the LIHEAP Program in South Central, Illinois. They were invited by Citizens Utility Board to attend a meeting regarding ILSFA and split the grant with CEFS. They help between 6,000-9,000 households each year with energy assistance and the integration in LIHEAP. During application interviews to be a part of LIHEAP, ERBA informs individuals about ILSFA and invites them to a series of workshops ERBA hosts about ILSFA. So far they presented ILSFA at 18 Head Start workshops and planned to present at bigger workshops in February.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Around 75% of the people who were told about ILSFA were interested in learning more so there was strong interest from the public - Elevate was very particular about bookkeeping which was both positive and negative. Pros included being responsible with their budget and cons included ERBA felt strained in their initiatives by having to pay attention to even 1/10th of a mile. - Felt process was very clear and there wasn't much back and forth between ERBA and Elevate - Stressed the importance of needing more approved vendors – there were none in rural areas so a lot of their clients didn't have approved vendors to help them even if they qualified for a project 		

GE: Anonymous		
Name: N/A	Position: N/A	Date: 1/23/20
<p>This organization works with low-income working class families. They recruit members of their organization to participate in door-to-door campaigns. During these campaigns, they advertise ILSFA and have the opportunity to interact with several members of ILSFA target communities.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Most families were interested in community solar rather than residential solar because they didn't own their own homes. There was also lots of interest in fitting schools and churches with solar panels. These organizations had a greater chance of meeting the project requirements (located in low-income neighborhoods and EJC zones) and wanted to work with an approved vendor. - Families didn't fully trust the program and questioned whether it really saved money. This skepticism rose from previous interactions with alternate energy providers that had come into such communities before. Because those energy providers didn't necessarily provide true savings, families were eager to hear more details about ILSFA. - Very few vendors were ready to help out the families who lived in some of the communities this organized worked in. This is because the community solar projects were not up and running for residents to sign up for. Residents also voiced concerns 		

that there were not community solar projects (arrays) being set up within their own communities instead of communities further away.

- The application process was a bit delayed which meant that they the choice to finish their proposal in the original timeframe or extend the timeframe. There are “a lot of systems and processes that need further development”; specifically among the approved vendor process in order to build more protections for low income residents.
- This vendor looked forward to continue working with ILSFA because of their mission and believed that with time, the organizations processes would smooth out.

GE: Pilsen Environmental Rights and Reform Organization

Name: Joshi Radin

Position: Organizer for Community Education around ILSFA

Date: 1/23/20

PERRO is an environmental justice organization that primarily focuses on reducing environmental racism and ensuring that families in Pilsen have clean access to clean water and air regardless of race, sex, or class. They heard of ILSFA through their co-founder who knew about the request for proposal (RFP) from his local network. By participating in door to door campaigns and giveaways, organizing community meetings, setting up booths at events and public spaces, and marketing on social media, PERRO aimed to spread the word in their local community about ILSFA. They were able to reach over 40 people through these efforts.

Major findings:

- Application process was primarily a positive experience, taking about 1 month to complete. Fortunate to have experts in the organization who were experienced in grant-writing.
- Met with lots of skepticism because Pilsen community members had bad experiences with alternative electric suppliers who also advertise cost savings and are known for cheating clients.
- Community members had lots of questions about where the money was coming from and how this actually worked for them
- Don’t know if anyone actually enrolled because it is difficult to keep track of anyone who applies and if they were able to find a vendor. Wish there was a better platform to connect with other grassroots educators and with vendors.
- The cross-section of those who meet the requirements of the program and are can be serviced by an approved vendor is very slim. Must meet low income and environmental qualifications, while qualifying for a loan, having a south facing roof with no tree obstruction, and no shade cover.
- To date: nobody enrolled in job training program
- Update from email in April, 2020: more approved vendors entered the space and PERRO was able to make offers that served the typical housing in Pilsen. Have 5 interested residents going through the preliminary assessment for residential solar in ILSFA. Additionally, a non-profit in Pilsen, Working Bikes, has been approved as an ILSFA project and is moving forward in the process. Clear development since January.

GE: Ecology Action Center		
Name: Larissa Armstrong	Position: Assistant Director	Date: 1/29/20
<p>EAC is an environmental non-profit that focuses on solid waste management, clean water, energy efficiency, renewable energy, and community energy. They heard about ILSFA by attending info sessions regarding the Future Energy Jobs Act. They worked with other non-profits in the community who had strong relationships with low-income residents and used their space for presentations about ILSFA. They have been able to conduct 12 presentations at partner organization locations, as well as advertise through social media, newspapers, and radio stations.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - The 15 year commitment required by the program is off-putting because people are unsure of their plans that far ahead. The \$200 penalty to cancel a subscription is also a deterrent in case individuals have to move out and cannot afford the cancellation fee. - Lots of skepticism and fear this was a “bogus expensive energy plan”. Lots of homes had no solicitation signs which prevented them from knocking on their doors. - Approved vendors are not willing to do direct installation because it is not profitable for them. - There is too much of an onus on the residents/organizations to reach out to the approved vendor. There should be a portal where vendors and clients can connect with each other. - People need to clearly know ahead of time how a plan looks like with an example of what their savings could look like month by month. 		

GE: Anonymous		
Name: N/A	Position: N/A	Date: 1/30/20
<p>The organization conducted regular seminars for the individuals who were part of their organization.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - It is difficult to communicate what personal savings could look like to people because of how complex ILSFA is. People wanted to hear concrete numbers and “we need examples of what savings could look like from Elevate”. Materials were “so overly technical”. - They re-wrote materials with avatar characters, using simple language, and leaving out all the technical jargon. - Lots of potential clients were unable to participate because of the lack of a healthy roof. - People need clearer feedback as to why their projects are not getting approved. There is too much ambiguity. - Feel very frustrated with the program, but strongly believes in the mission of it. Hoping for improvement in the future. 		

GE: Anonymous		
Name: N/A	Position: N/A	Date: 1/30/20
<p>The organization is a member-based organization and heard of ILSFA through FEJA. They plan to host events where solar training providers can talk to their members about ILSFA and its benefits. Their events range from 7 to 50 attendees.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - There is a large mismatch between where the joining training development program is being conducted and where the actual job seekers are. - Vendors are very worried that job trainees don't have the skills they are looking for and are not interested in working with ILSFA job training program. - Jobs are not a consistent means of income and are not sustainable. This is because some approved projects are just for a few days which doesn't provide people with consistent wages. - Strongly believes in the mission of ILSFA. Suggests studying the models of other solar job training programs in the country. 		

GE: People for Community Recovery		
Name: Courtney Hanson	Position: Program Manager	Date: 1/21/20
<p>PCR works with organizations and communities south of 95th as those areas are often overlooked in program development and implementation. They host house parties with low income homeowners so residents can learn more about ILSFA and invite their neighbors. They also host educational seminars at various locations including community churches.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - They believed the application process to become a grassroots educator was very straightforward and reasonable. They also had very positive interactions with Elevate Energy. - Individuals are worried if their homes are strong enough to handle solar panels. Majority of individuals prefer owning instead of leasing. - If people participate in this project, they would receive a 2nd electricity bill. Although the bill for the other utilities in their house + ILSFA bill would be less than their current bill, individuals were psychologically "turned off" by the idea that they would have two bills. Asked if it is possible to consolidate this payment with other monthly payments so people feel better? - Job training program harmed PCR's reputation because it was a bit disorganized with a late start date. At one of the sessions, some racist remarks were made by trainers which unfortunately influenced people's perceptions of the program. - Several different organizations ran job training programs through Illinois Solar for All with varying levels of success. One job training implementor struggled with community engagement, meeting deadlines for starting the class (pushing the start date back several times) and lack of cultural competency among trainers. This negatively impacted participants' views of Solar for All as well as PCR's reputation in the community. A more standard method of outreach and engagement as well as a consistent training curriculum among all training providers would help the program. 		

- Suggests a decentralized approach to job training.

Approved Vendors

AV: Balance Solar Power		
Name: Zachary Kearnen	Position: Co-Owner	Date: 12/10/19
Balance Solar Power is a renewable energy financing company. While they don't install panels specifically, they use sub-contractors and aim to work primarily with non-profits and low-income communities.		
Major findings:		
<ul style="list-style-type: none"> - ILSFA allows them to take in income for the first 5 years and then maintain a steady, but lower, cash flow after that. It provides much greater financial incentives for Approved Vendors to work with non-profits specifically. - You must first apply to be part of the Adjustable Block Program before you can be part of ILSFA. - The application process required extensive knowledge of financials – without the CFO, it would have been difficult to fill it out. - While there are projects out there, if they are not both in environmental justice and low-income communities, they probably will not be approved. There are very few projects that can meet all the requirements of the program. 		

AV: Day and Night Solar		
Name: Melinda Kershaw	Position: Director of Marketing	Date: 12/11/19
Day and Night Solar does not install or employ any installers directly. They have a national agreement with national union trades to provide direct factory pricing on PV products to them which allows DNS to call into any market and solidify installers for that market. They work with non-profit , public, and utilities.		
Major findings:		
<ul style="list-style-type: none"> - You need to have the interconnection agreement, city permit and inspection finalized, and utility company inspection complete before you can receive money from ILSFA so there is quite a long preparation process. - Illinois has a much more difficult process for solar panel installation than other state in the nation. Paperwork is difficult to process and communication is repeatedly delayed. So far, they have not made a profit from the program. - There are a limited amount of approved projects because of the cumbersome process to get a project processed. - The program is not appealing to non-profits because non-profits cannot pay more than 50% of their power savings for the system on a yearly basis. This means they are forced to pay for the system through a 3rd party and must carry a loan from this for 10 years at least. The compound interest on this loan is a severe burden for non-profits. This structure does not work for them and the financials must be re-worked if non-profits are to benefit. 		

AV: Central Road Energy		
Name: Jay Corgiat	Position: Owner	Date: 1/17/20
<p>Central Road Energy is an approved vendor and works with various projects teams to install solar panels. While an installer puts the application on the building, CRE provides compliance and holds the REC contracts.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - So far, there are no financial benefits for CRE. Spent quite a lot of money, but didn't make any money yet. Worried about being stuck in debt. - Program is set-up such that it is a major sunk cost for Approved Vendors. They spend lots of time and money on finding potential clients, but most clients reject or are rejected by ILSFA. Additionally, the paperwork is one of the most complicated parts of the program. - Vendor is part of a group that has written a white paper on the issues with the program, hoping to find solutions soon. - Nobody is doing distribution generation projects because they are not easy to find nor profitable. The program is "too difficult, complex, and expensive upfront". - Houses in low income communities generally do not have roofs that would be able to handle solar panels or confidence they will be in the same house for over 15 years. - Financial structure with ITC and savings from PPA needs to be re-visited; right now it is not appealing to investors because they cannot charge as much as they previously could. Non-profits need investors to help fund the upfront costs. 		

AV: Anonymous		
Name: N/A	Position: N/A	Date: 1/22/20
<p>This organization works with several local organizations that are faith-based and serve people of color.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Believes there may not even be any financial benefits for Approved Vendors because of the length of the registration process and the lack of developed processes for vendors to communicate with grassroots educators, potential project owners, and ILSFA organizers. - ILSFA doesn't provide funding for roof replacement or patchwork which makes it impractical for several members of low-income communities. - Interconnection agreements are one of the largest obstacles because of ComEd's lack of cooperation. - Called for a narrative structure; a community should be able to share their story on the application, not just provide numbers. Emphasized the importance of qualitative data. - Felt that EJC is misguided; it doesn't take into account all the factors that a community might experience when it comes to needing financial aid with solar panels. "Listen to their stories". 		

AV: Certasun		
Name: Jesse Feinberg	Position: Co-Founder	Date: 1/23/20
<p>Certasun was launched as a response to the Illinois Shines Program. They are a for-profit, residential solar company that focuses on single family homes.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Felt that the financial incentives for being an approved vendor were attractive if you are able to find a project and own the system on the residential property. Payments for the SRECs can be profitable. - Found the application process to become an approved vendor to be straightforward and simple - Difficult to find people who qualify for this program. They need to qualify as low-income under the program guidelines and they need to have a strong roof that is south facing. Shaded roofs have less SRECs which make them less profitable. Most houses do not have the electrical capacity for solar panels and the company cannot fund the repairs. Finding projects can be like “finding a needle in a haystack”. - IL SREC is \$150/SREC - Project approval process is difficult – had to submit 3 times to receive any approvals. The minimum batch size requirement is not feasible (must have at least 50KW in each batch) because it requires you to find 8-10 individual residential projects at once. Customer acquisition cost is high. - Low-income homeowners think the program is taking advantage of them because they have had misleading experiences before. Important to gain trust with them because ILSFA has their best intentions in mind. Believes that the mission of ILSFA is very important and needed in the state. - Thinks a portal with step-by-step instructions for paperwork and clear communication would help improve the program. Advocates for grassroots educators having the chance to introduce approved vendors to potential ILSFA participants. 		

AV: SA Energy		
Name: Brett Robinson	Position: Energy & Construction Man	Date: 1/23/20
<p>SA Energy has completed the construction of one 2.5 megawatt solar project and is waiting for ComEd to approve the process and connect the energy lines.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Found the SREC price to be the main motivating factor in becoming an Approved Vendor. Stated that they only breakeven and do not significantly profit. - Thought that Elevate was a great group of people to work for, they were even available during the weekends for additional help - Cites ComEd as the reason for the lack of projects; ILSFA and Elevate have done a great job but ComEd is behind on their work which causes delays for ILSFA projects to start running. - Thought ILSFA was easy to pitch since customers get upwards of a 72% savings on their electric bill though he faced some skepticism. 		

- Believes Elevate should be a model for future projects that target low-income communities.

AV: Anonymous		
Name: N/A	Position: N/A	Date: 1/30/20
<p>This organization is an experienced installer that has worked with solar panels in various communities before.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Stated that ILSFA can be disadvantageous from a financial perspective for approved vendors, but wanted to participate in the program because of the strong mission. Between the Adjustable Block Program and State Tax Credits, stated there were more than enough opportunities to make money as an approved vendor. - Did not find it difficult to identify potential projects and found the EJC & low-income community map on ILSFA website very helpful. - There is a significant financial outlay for approved vendors before they even find a project that might work. They can't accept money until the project is successfully completed, but they have to spend lots of money to get the project started. - Stringent requirements from ILSFA can hurt because it lengthens the duration of starting a project. - Requests forms and manuals with less legal, technical language. Noted that it is very difficult to work with the Vendor Guide and it doesn't provide adequate information. Suggestions the implementation of liaisons at Elevate that could help them get through all the paperwork. 		

AV: Anonymous		
Name: N/A	Position: N/A	Date: 2/6/20
<p>One of the core missions of the company is to participate in ILSFA. All employees have solar experience.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Incentivized to join because of the mission statement. - There are three main ways you can make money as an approved vendor: SRECs, Power Purchase Agreement (PPA), and federal tax credit. Profit size depends on size of company and project. - Felt application process was quite smooth to become AV. - Grassroots educators really helped with finding potential projects for bid, implementing education programs in local communities, and finding qualified low income participants that can benefit from the project. Believes in a strong relationship between AVs and GEs. Was able to submit several applications for low-income community solar. - Stated that Elevate Energy and ILSFA did a great job helping them out. Administrators of the program are very responsive and communicative. They have used training videos, webinars, and documents to keep the program running. - Low-income residents are often skeptical of the program – requests better communication materials with them so they understand the benefits of ILSFA are real. 		

AV: PSG Energy Group		
Name: Isabella Solari I.	Position: Design Engineer	Date: 4/24/20
<p>PSG Energy Group worked with the West Aurora School District through an approved ILSFA project.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - Mentioned that without ILSFA, the project with West Aurora School District would not have happened. ILSFA allowed this project to be financially feasible. - Finding WASD was a combination of both hard work and strategic planning. Hard work on the part of PSG vetting several potential clients by using the ILSFA requirement guidelines and their EJC/LI Zone look-up function on the website. It was fortunate that WASD had roof replacements plans on some of the schools, which positioned them as ideal candidates for holding solar PV modules. - Two main points of improvement. (1) Lots of due diligence burden on vendors. They have to pay upfront all due diligence related costs, under the uncertainty that the project will be selected. These costs cannot be paid upfront by the customer per ILSFA requirements. (2) Requests advanced notice for when application windows open since it can take more than 3 months to have projects lined up for application submission. - A bit of difficulty working with the interconnection agreement because it makes the actual project timeline unpredictable. Normally, they would have 3-6 months for due diligence, but because of the lengthy wait for the interconnection agreement to be signed, they had to squeeze it into 1-2 months. - Plans to continue working with ILSFA for more successful projects in the future. Had a very positive experience. 		

Approved Projects

AP: West Aurora School District #129		
Name: Angela Smith	Position: Assistant Superintendent for Operations	Date: 2/4/20
<p>WASD was able to work with ILSFA and had 6 projects approved through the program at their schools.</p> <p>Major findings:</p> <ul style="list-style-type: none"> - As a taxpayer funded entity, it made sense to be a part of ILSFA because it cut the gas bill by almost \$300,000 a year. - Major reason it worked for them is because they were anyway replacing their roof. They planned the ILSFA projects such that the solar panels could be added with the new roof. - Had an agreement with PSG to help pay for the upfront installation costs so WASD had guaranteed savings from the project. PSG also took care of all the communication with ComED and any other paperwork/agreements that needed to be done. This lifted a huge burden off of WASD. Credits the success of the program to PSG, the approved vendor. 		

- Why was WASD able to successfully participate in this program while other school districts are not able to? (1) WASD worked with a very experienced approved vendor that took care of all the bureaucratic challenges and completed financial calculations to ensure the plan provided savings (2) WASD had already planned a roof replacement and raised capital irrespective of ILSFA (3) WASD had “lucky locations” with schools in ESG and low-income zone
- Understood the need for ESG boundaries but also talked about how boundaries could be very arbitrary. Had a high school 4 blocks away from an early learning center – one was approved and the other wasn’t because of ESG lines, but “both are breathing the same air”.

AP: Senior Services Plus

Name: Jonathan Becker	Position: CEO	Date: 2/4/20
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Senior Services Plus heard of ILSFA through Nobel Energy. Their project to implement solar panels on the roof of their senior center was approved. They predict their energy bill will be cut by about 50% (dependent on the weather) and that the savings from electricity bills in 5-10 years will pay back all their current investments.

Major findings:

- Multiple factors lined up allowing this project to be a success: (1) They had just completed a \$2.5M capital campaign that will allow them to spend on the project (2) Their roof was leaking anyway so they needed to replace it allowing for solar panels to go on the new roof (3) Ameren had just upgraded with a new transformer which increased electricity capacity and capability (4) Nobel Energy was an experienced approved vendor that was able to manage the process efficiently
- One of the hardest parts of the process was raising enough capital for the roof, the new wellness center, and the building upgrades. If an organization had the electrical capability and a good roof, it would not be much money from pocket.
- Approved vendors benefited from tax credits and a new client relationship.

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