Bringing Community Perspectives to Community Solar

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B.A. Mathematics
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Jake Ford is a Data Scientist with experience in statistical analysis and machine learning applications in research and industry. At Solstice, Jake maintains EnergyScore, a patent-pending algorithm that provides more accurate and inclusive risk assessments compared to traditional credit scores. Additionally, Jake provides data analysis support and methodological construction for research initiatives within the organization.

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J.D. loading

As a result of systemically exclusive policies and historic underinvestment, socioeconomic and racial inequality are apparent in both access to solar and household energy burden. To understand better practices in creating an equitable expansion of community solar, Zahra led Energy Allies' Project with the Department of Energy's Solar Energy Technology Office. Her goals and desires surround radical intersectional societal change, but when she's not daydreaming about utopia, or critiquing the status quo, you'll find her walking in Prospect Park with her dog, Rocket, or eating her way through New York's restaurant scene. She will be attending CUNY Law as soon as she's back from ASES.
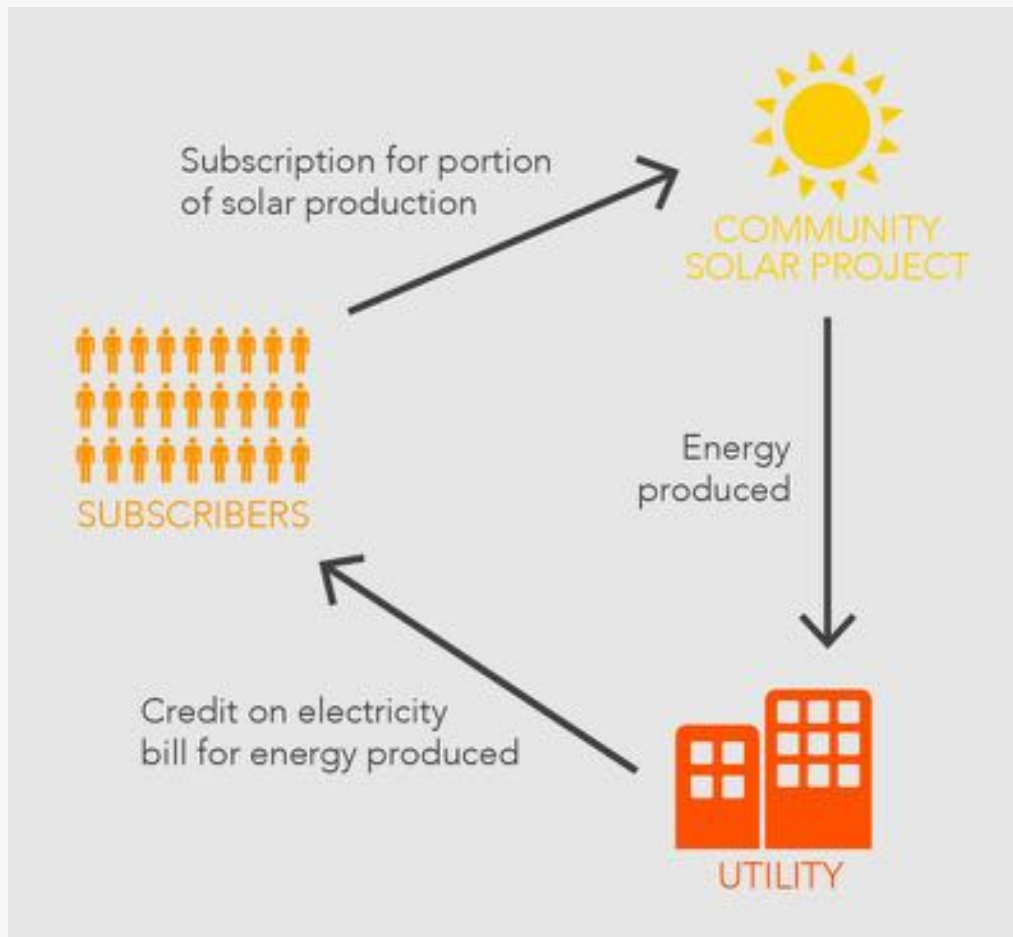
Energy Allies revolutionizes the energy system by centering climate-impacted communities through clean energy projects, policy advocacy, and education.

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Community Shared Solar

- Individuals subscribe to an offsite solar project
- The solar project is connected to the grid, and individuals receive savings on their utility bill

Subscription for portion of solar production

COMMUNITY SOLAR PROJECT

SUBSCRIBERS

Energy produced

Credit on electricity bill for energy produced

UTILITY

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Research Objectives

Overall: Understand the barriers for low-to-moderate income (LMI) participation in Community Shared Solar (CSS).

1. How can CSS incorporate LMI and BIPOC priorities into program design?

1. What are developer perspectives on barriers to LMI participation in CCS?

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*note: the entire project has other objectives but here we are focusing on the questions related to the smaller data set that we will be discussing

Data Collection

01

Community Priorities Survey

Respondents were asked to evaluate two hypothetical community solar contracts with varying contract terms. Demographic information was also collected.

- 1,493 individuals
- 2,986 contracts reviewed
- 8 states: CA, CO, IL, MD, NY, OR, MA, MN

02

Developer/Financier Survey

Respondents were asked about barriers to LMI participation in CSS, typical contract terms, and motives for LMI participation.
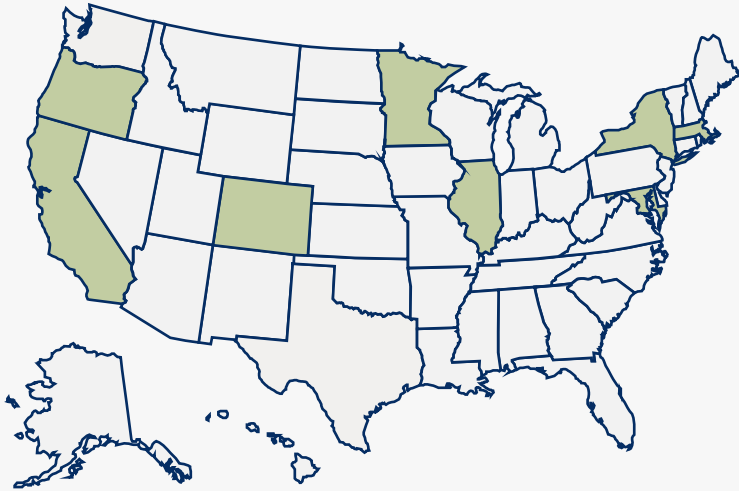
- 256 individuals
- National

03

Payment Performance Data

Monthly payment performance data from two CSS projects was collected to determine factors for churn/default.
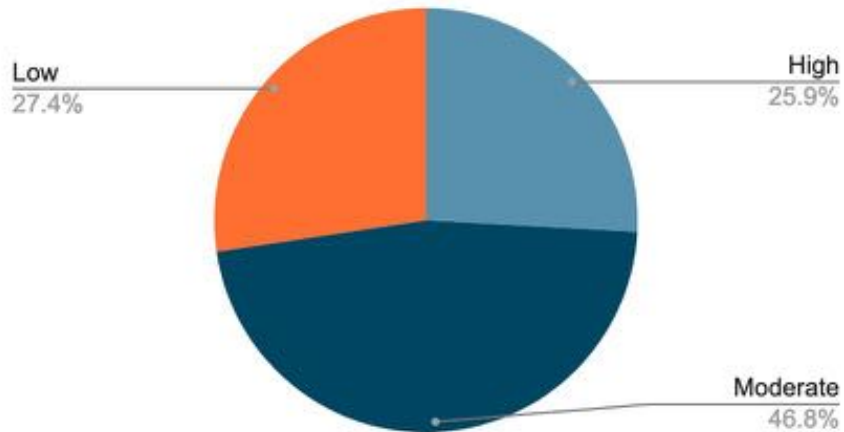
- 620 accounts
- New York

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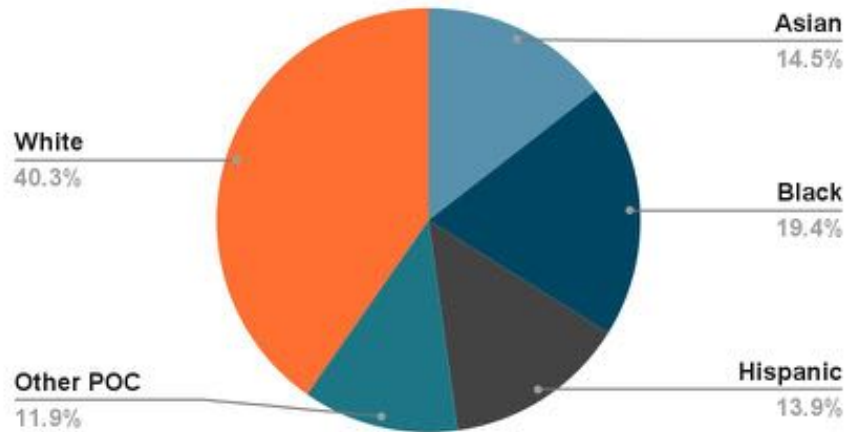
01 Community Priorities Survey – Overview

1	Race	White, Black, Asian, Hispanic, other POC
2	Homeowner Status	Homeowner, Renter, Other
3	Income	High, Moderate, Low
4	Familiarity with CSS	Less Familiar, More Familiar
5	Government Assistance	None/Unknown/Other, At least one govn't program
6	Respondent Time Spent Reviewing Contract	Less Review, More Review
7	Survey Source	Qualtrics Panel, Community
8	Contract Length in Years	1-year, 25-years
9	Contract Length in Pages	10 page, 20 page
10	Cancellation Fee	$250, no cancellation fee
11	Savings Rate	5%, 10%, 20%
12	Contract Review Order	First review, second review

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Community Priorities Survey – Respondents

Income Status

- **High** 25.9%
- **Moderate** 46.8%
- **Low** 27.4%

Race

- **Asian** 14.5%
- **Black** 19.4%
- **Hispanic** 13.9%
- **Other POC** 11.9%
- **White** 40.3%

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Community Priorities Survey - Respondents

Homeownership Status

Renter
41.9%

Homeowner
58.1%
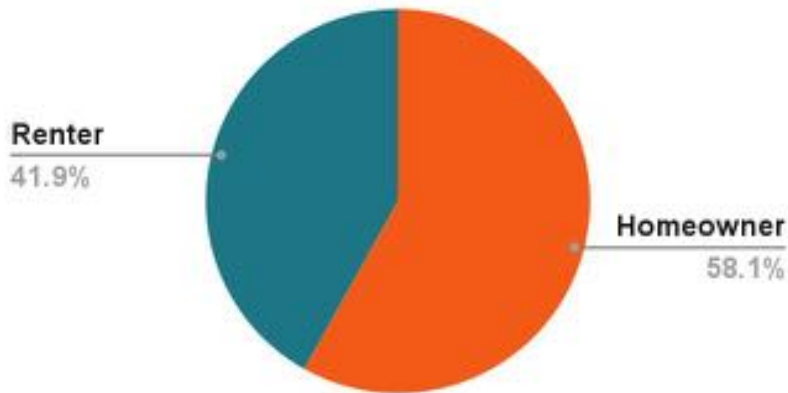
Familiarity with Community Solar by Income

■ Low Familiarity ■ High Familiarity

	High	Moderate	Low
Low Familiarity	30%	41%	29%
High Familiarity	23%	51%	26%

Income Level

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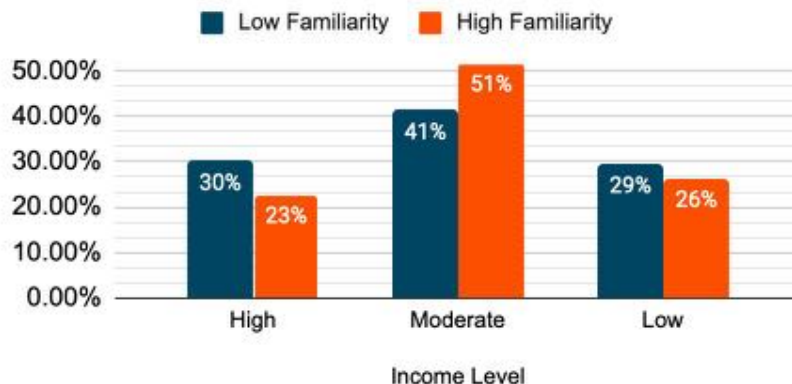
Community Priorities Survey – Trust

Nonprofit
- Disagree 8.5%
- Neutral 27.9%
- Agree 63.6%

Government
- Disagree 14.4%
- Neutral 37.0%
- Agree 48.6%

Utilities
- Disagree 16.1%
- Neutral 33.7%
- Agree 50.2%

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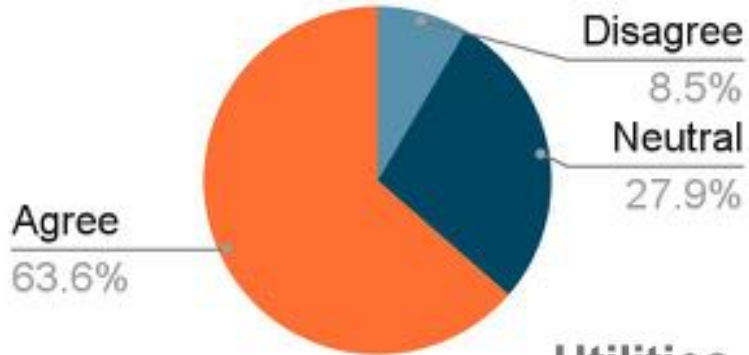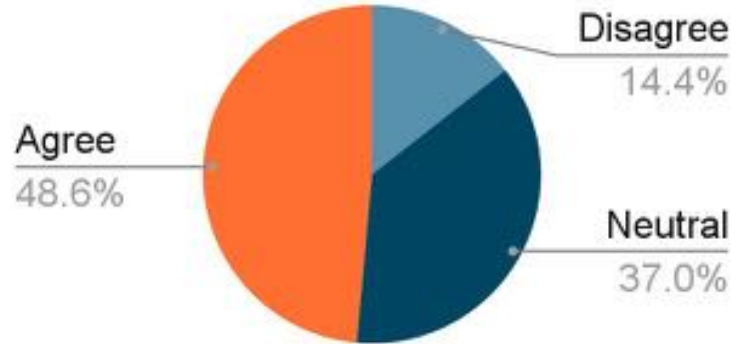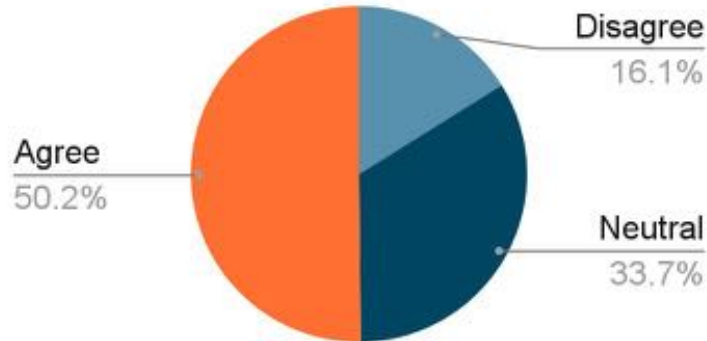
Community Priorities Survey – Results

- Out of the ~3,000 contracts reviewed, 55.7% were adopted
- Relative to less informed participants, more informed participants were **4.4 times** more likely to sign up
- Holding all variables constant at means, signup rates for income:
  - High: 61%
  - Medium: 65%
  - Low: 52%

Figure 1: Odds Ratio

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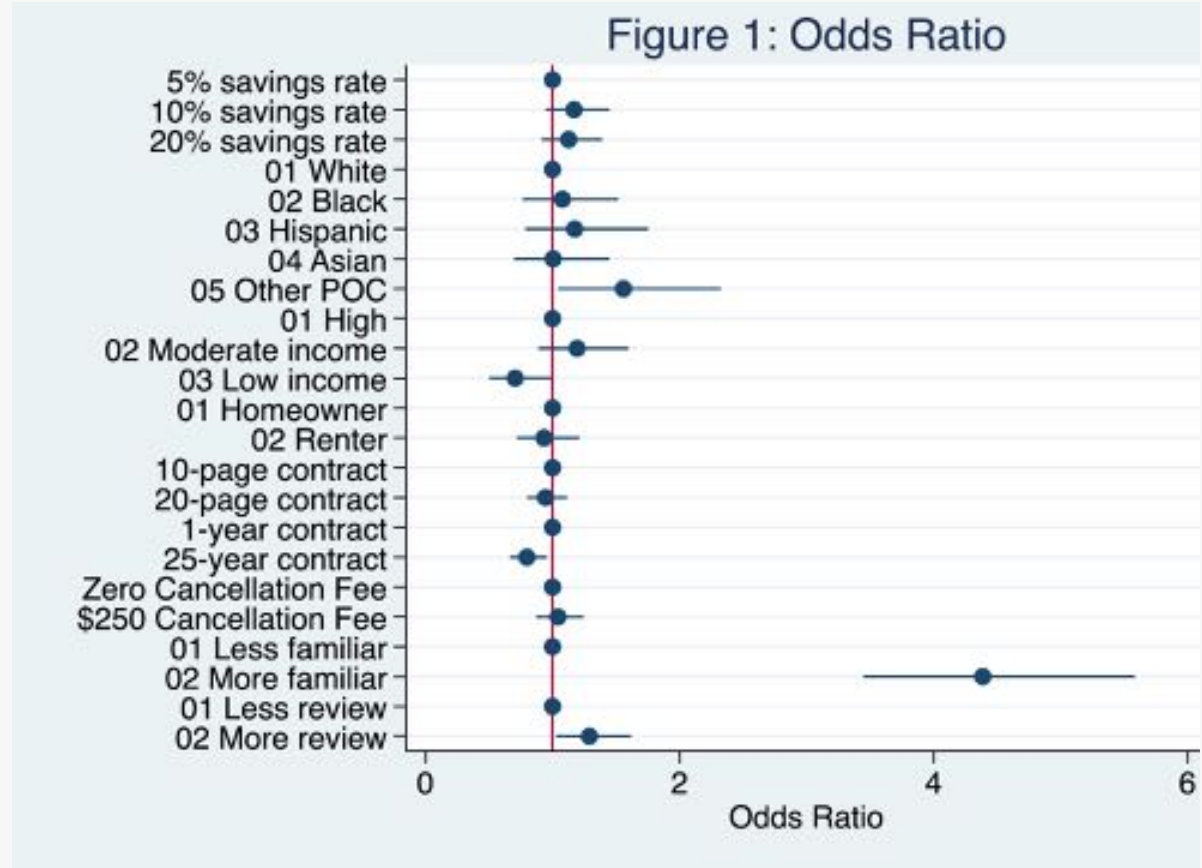
Community Priorities Survey – Results

Savings Rate by Income

- High income exhibit higher rates of likely/affirmative responses compared to low income.

- Takeaway: LMI participation isn't only about savings rate
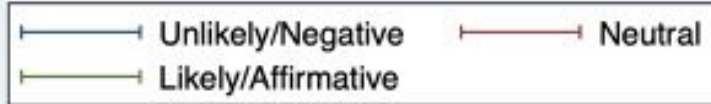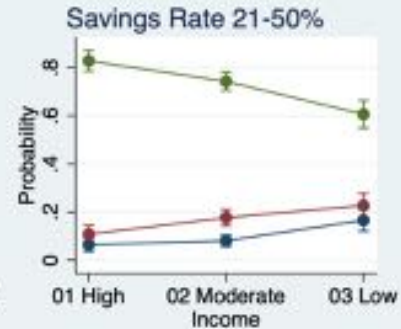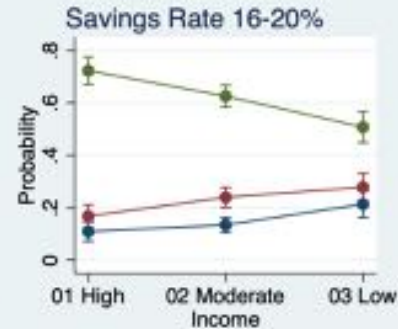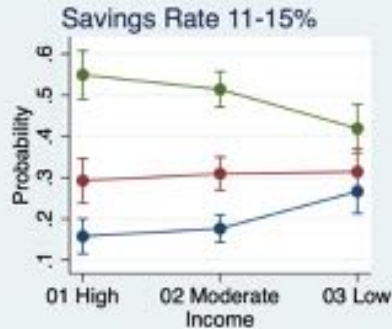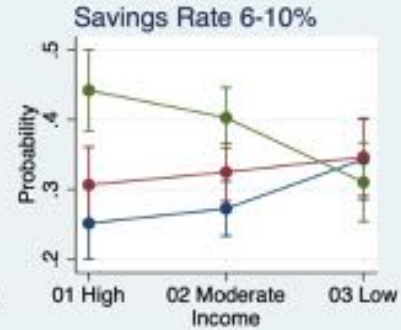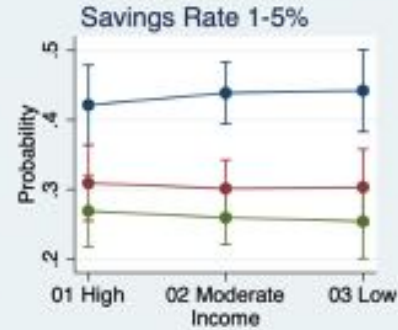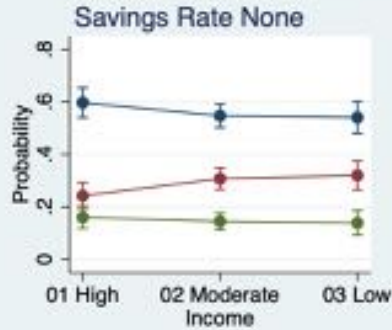
Developer and Financier Survey: Barriers

Customer acquisition costs was the strongest factor, with 55.5% responding as either very or extremely important.
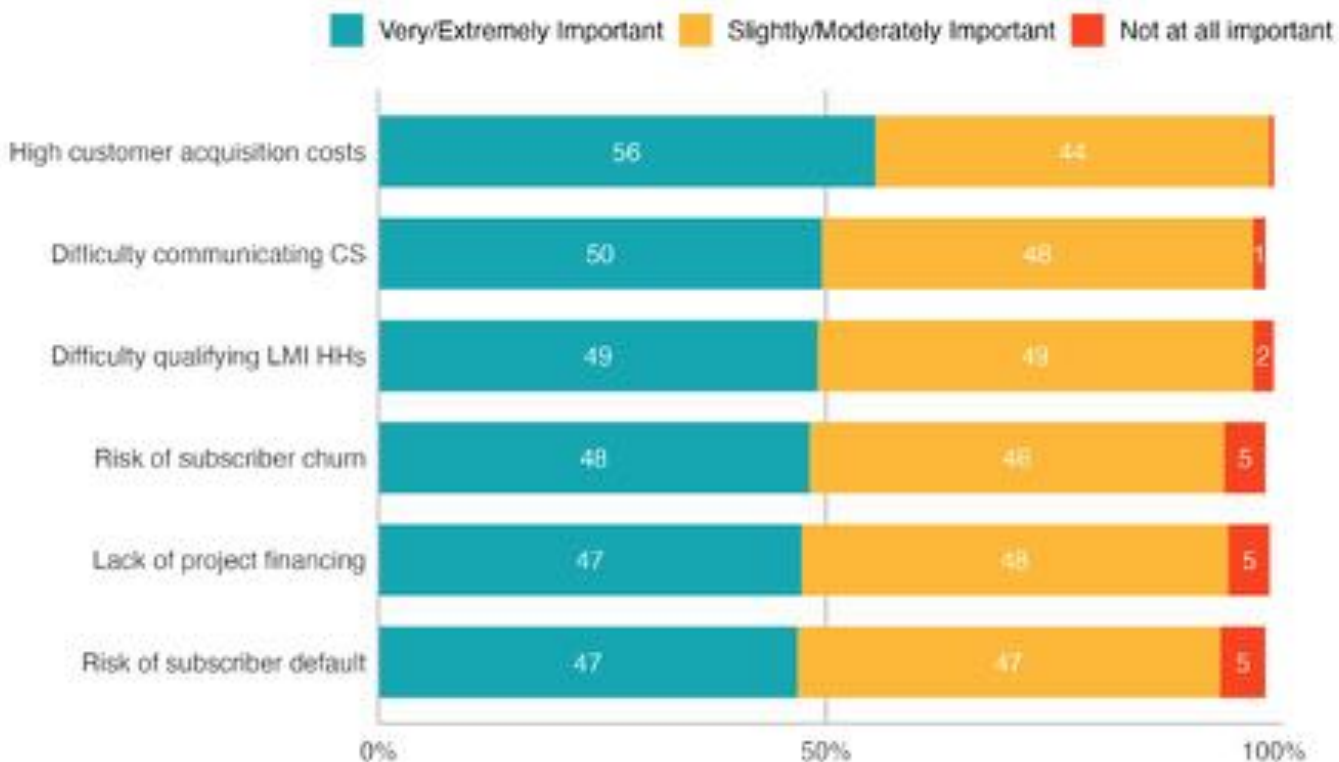

Legend: Very/Extremely Important | Slightly/Moderately Important | Not at all important

Barrier	Very/Extremely Important	Slightly/Moderately Important	Not at all important
High customer acquisition costs	56	44	
Difficulty communicating CS	50	48	1
Difficulty qualifying LMI HHs	49	49	2
Risk of subscriber churn	48	48	5
Lack of project financing	47	48	5
Risk of subscriber default	47	47	5

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Developer and Financier Survey: Motives

When deciding whether to include LMI folks in CSS projects, 63% of developers noted that policy requirements are very or extremely important

Legend: Very/Extremely Important | Slightly/Moderately Important | Not at all important

- Policy/program requirements: 63 / 36 / 1
- Equity and inclusion: 58 / 39 / 3
- Financier/investor interest: 52 / 45 / 2
- My company's interest: 50 / 48 / 2
- Community interest: 43 / 54 / 2

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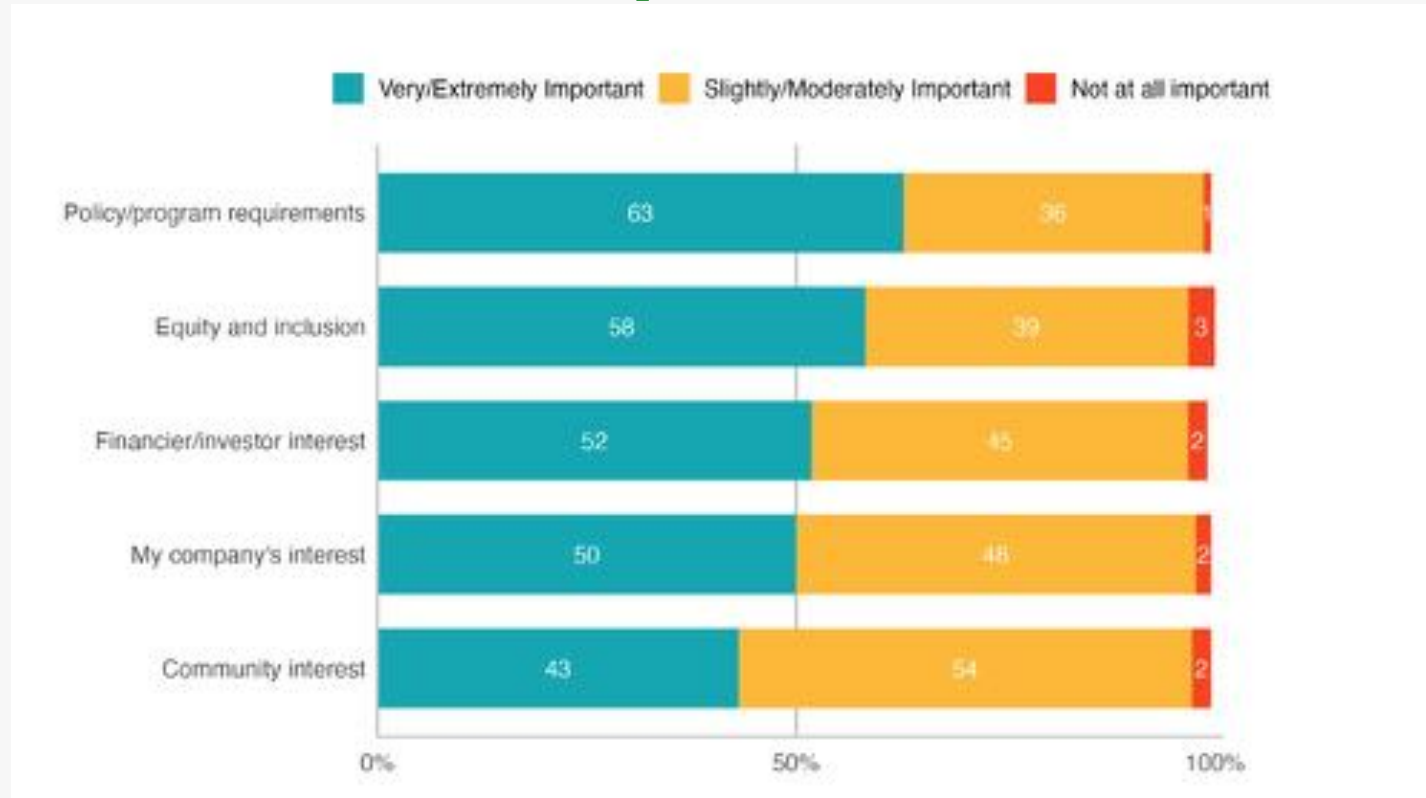
Conclusions

1. How can CSS incorporate LMI and BIPOC priorities into program design?

- Involve communities in program design (a lesson in process)

- Increase education on CSS

- Savings rate not sufficient for LMI participation (be innovative)

1. What are developer perspectives on barriers to LMI participation in CCS?

- customer acquisition costs and policy requirements drive inclusion

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[Read more](#)

Thank You!