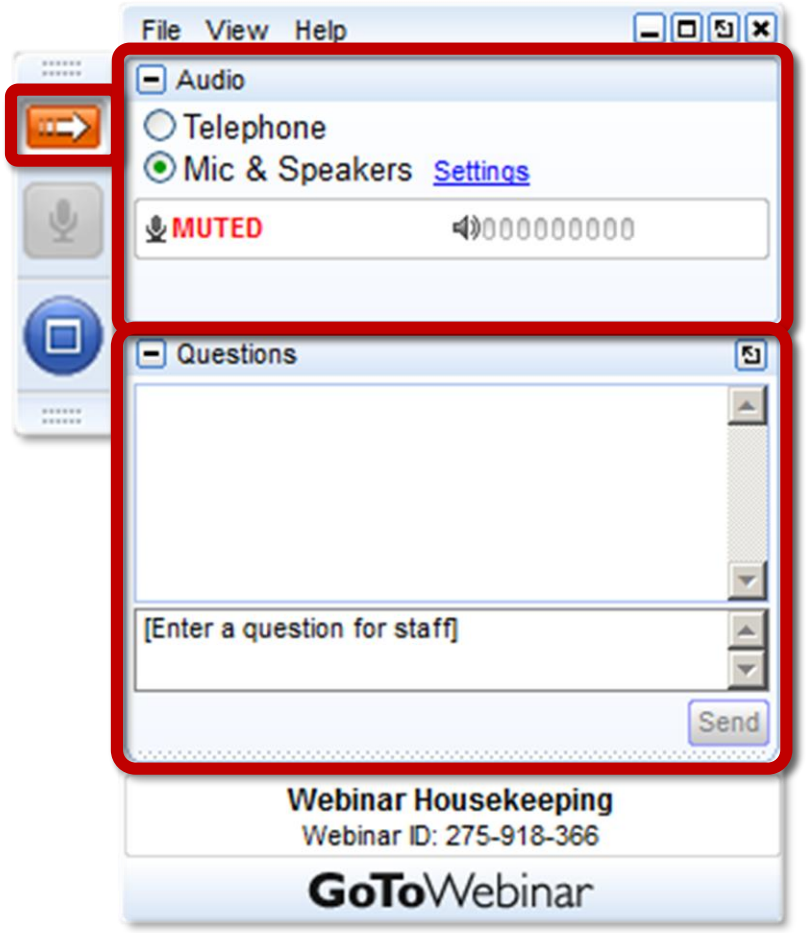
Clean Energy States Alliance Webinar

Sharing Solar Benefits - Expanding Residential Solar in Connecticut's Communities of Color

December 6, 2019

CleanEnergy States Alliance

Housekeeping



Join audio:

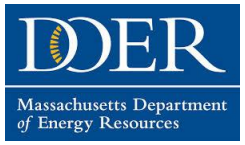
- Choose Mic & Speakers to use VoIP
- Choose Telephone and dial using the information provided

Use the orange arrow to open and close your control panel

Submit questions and comments via the Questions panel

This webinar is being recorded. We will email you a webinar recording within 48 hours. CESA's webinars are archived at www.cesa.org/webinars

Clean Energy States Alliance



www.cesa.org

State Energy Strategies

SOLAR ENERGY TECHNOLOGIES OFFICE
U.S. Department Of Energy

- Funded by the U.S. Department of Energy through the Solar Energy Technologies Office.
- The Clean Energy States Alliance is working with CT, DC, MN, NM, OR and RI to make solar more accessible to low- and moderate-income residents.

DEPARTMENT OF ENERGY & ENVIRONMENT
CONNECTICUT GREEN BANK
COMMERCE DEPARTMENT
OREGON DEPARTMENT OF ENERGY
EnergyTrust of Oregon
STATE OF RHODE ISLAND OFFICE OF ENERGY RESOURCES
NEW MEXICO emnrd Energy, Minerals and Natural Resources Department

- Research support provided by Lawrence Berkeley National Laboratory and the National Renewable Energy Laboratory.

BERKELEY LAB
Bringing Science Solutions to the World

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

CleanEnergy States Alliance

Webinar Speakers

Isabelle Hazlewood
Manager, Connecticut Green Bank

Emily Basham
Associate Manager, Connecticut Green Bank

Nicole Hernandez Hammer
Project Director, Clean Energy States Alliance

CONNECTICUT GREEN BANK SM

CleanEnergy States Alliance

CONNECTICUT
GREEN BANK

Sharing Solar Benefits -

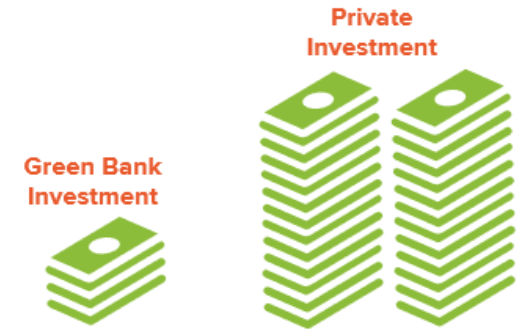
Expanding Residential Solar in Connecticut's Communities of Color

December 6, 2019

Connecticut Green Bank

Social and Environmental Impact

INVESTMENT

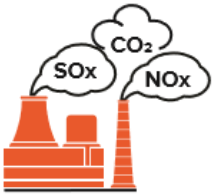


$260 MM **$1.4 B**

ECONOMIC DEVELOPMENT

20,172 direct, indirect, and induced job-years

ENVIRONMENTAL PROTECTION



5.8
million tons of CO_2
which equals

88 million
tree seedlings grown for 10 years

or

1.1 million
passenger vehicles driven for one year

TAX REVENUES

$43.1MM
individual income tax

$23.0 MM
corporate taxes

$21.1 MM
sales taxes

ENERGY BURDEN REDUCED

families
40,000

businesses
375

PUBLIC HEALTH SAVINGS

$206 to $467 million of public health value created

REFERENCES
Connecticut Green Bank Comprehensive Annual Financial Report for FY 2019

Residential 1-4 Owner Occupied
Low-to-Moderate Income Portfolio

CONNECTICUT GREEN BANK

goSolarCT

- Residential Solar Investment Program
- Low-to-Moderate Income **Performance Based Incentive** for Third Party Owners
- Nearly 3x market rate incentive
- Income screen of 100% AMI or lower
- 2 Contractors approved to access
- Enhanced consumer protection

PosiGen Solar Solutions

- Financing RFQ helped create a $45MM+ Fund – Solar for All
- $8.5MM CGB investment
- Product offering combines non-escalating **solar lease with energy efficiency** services
- Utility weatherization programs (HES or HES-IE) leveraged
- Alternative underwrite
- Community partnerships

smart-e loan

- 2nd loss reserve used to attract local lenders
- Low interest, flexible terms
- Unsecured loan
- 40+ measures (EE and RE), managed contractor network
- **580+ FICO, 50% DTI** (waived for 680+ FICO, offered through CDFI and credit unions)
- 25% of loan for health and safety upgrades

Solar For All with PosiGen

Lease & EE for Single Family LMI Market

CONNECTICUT GREEN BANK

Home

$59,250 Household Income
$4,740 Energy Costs

High Energy Burden

\+

Solar PV (Lease)

$50 to $120/month Lease
Solar $ Savings

Moderate Energy Burden

\+

Energy Efficiency

<<Additional Savings>>
Solar + EE $ savings

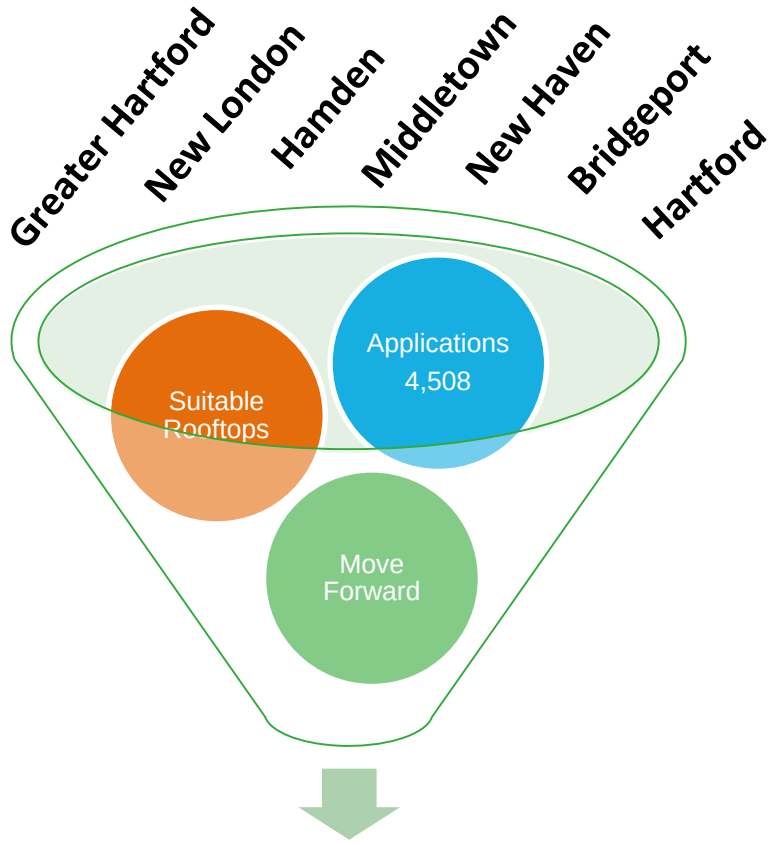
Reasonable Energy Burden

Target $500 a year in savings after financing.

4

Solar for All Campaigns

Community-based marketing drives adoption

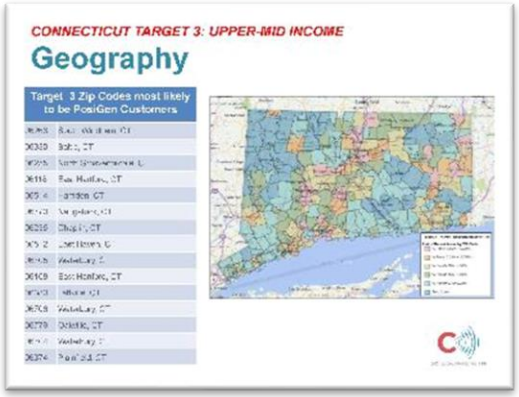


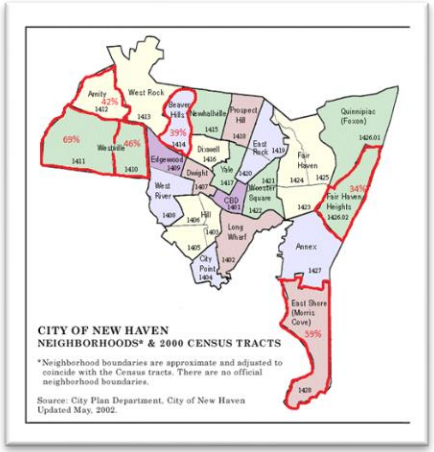
Closed Projects

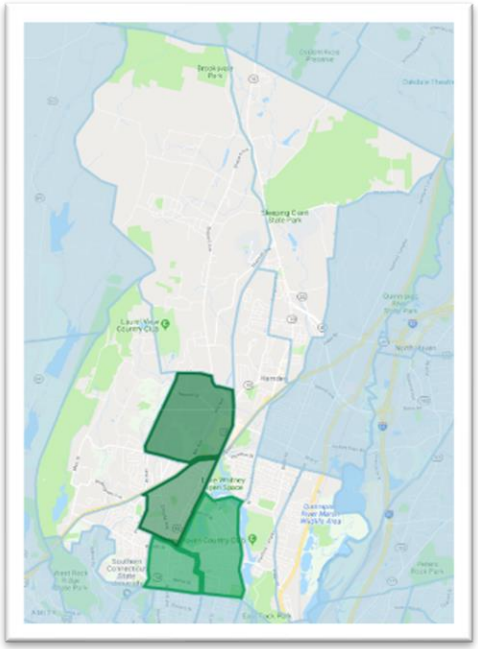
2,529 / 16.9 MW

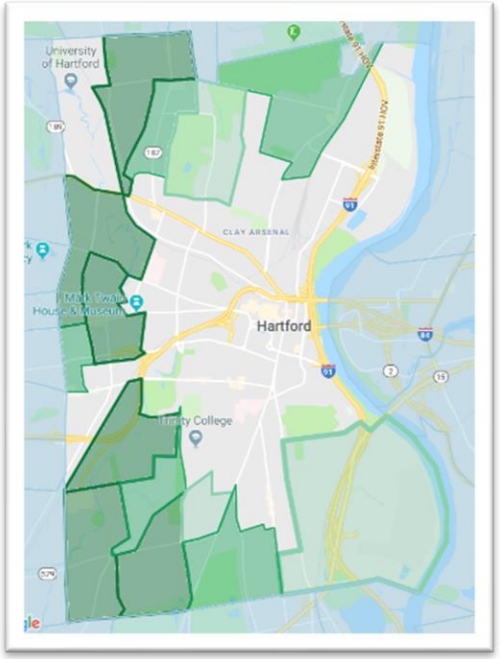
Data-Driven Marketing Approach

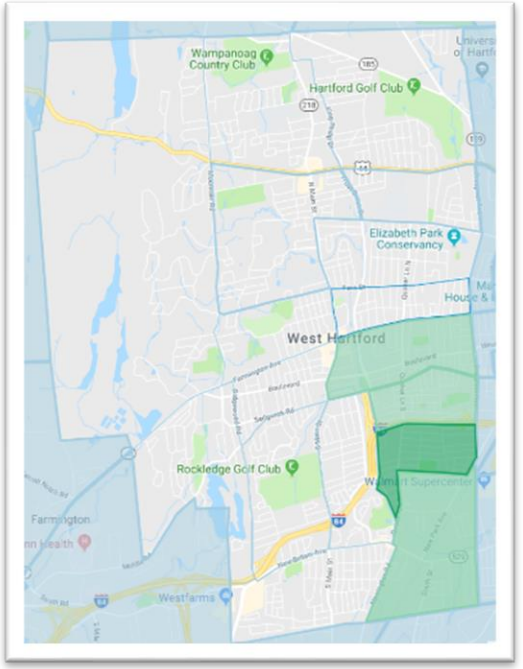
CONNECTICUT GREEN BANK







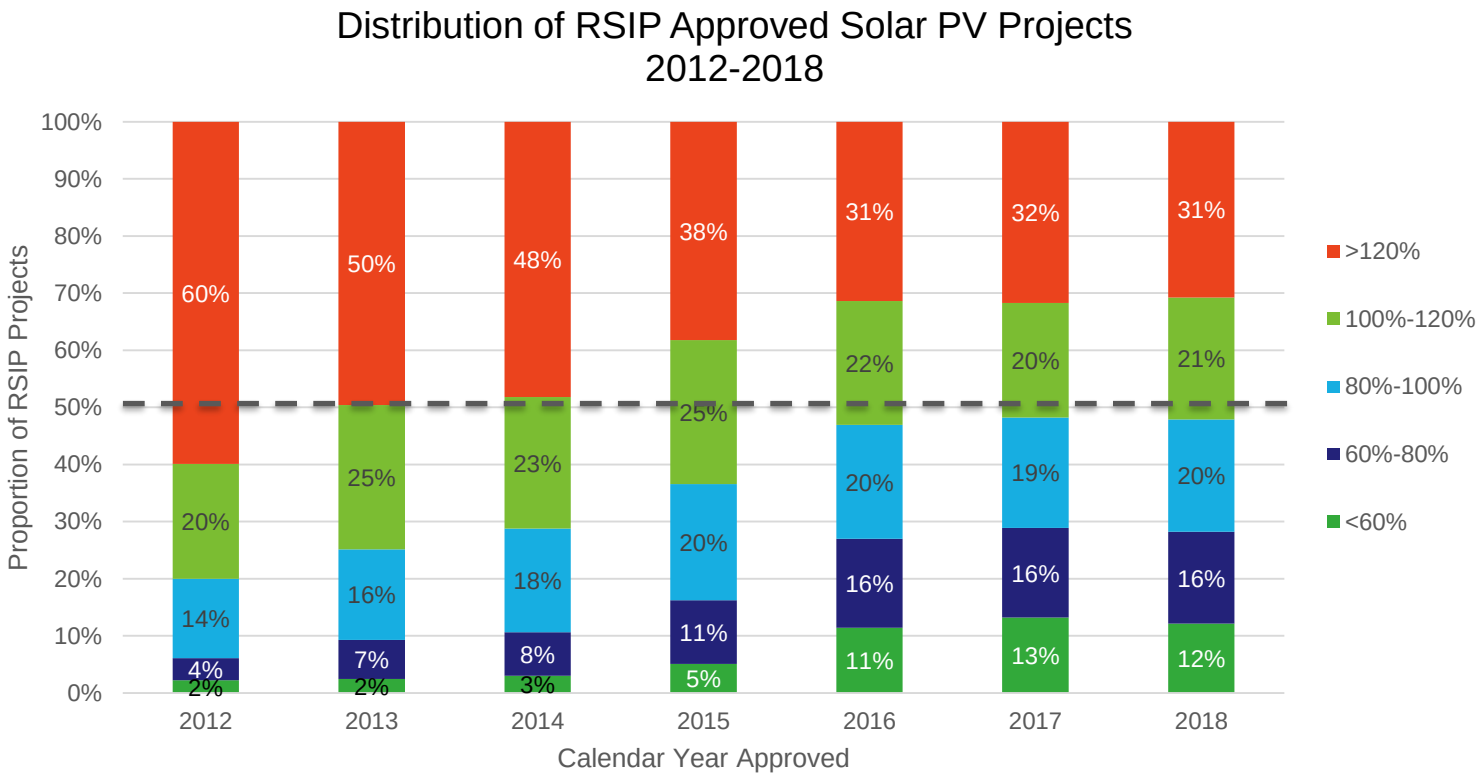




Community Marketing

Residential Solar Deployment by Income Band 2012-2018

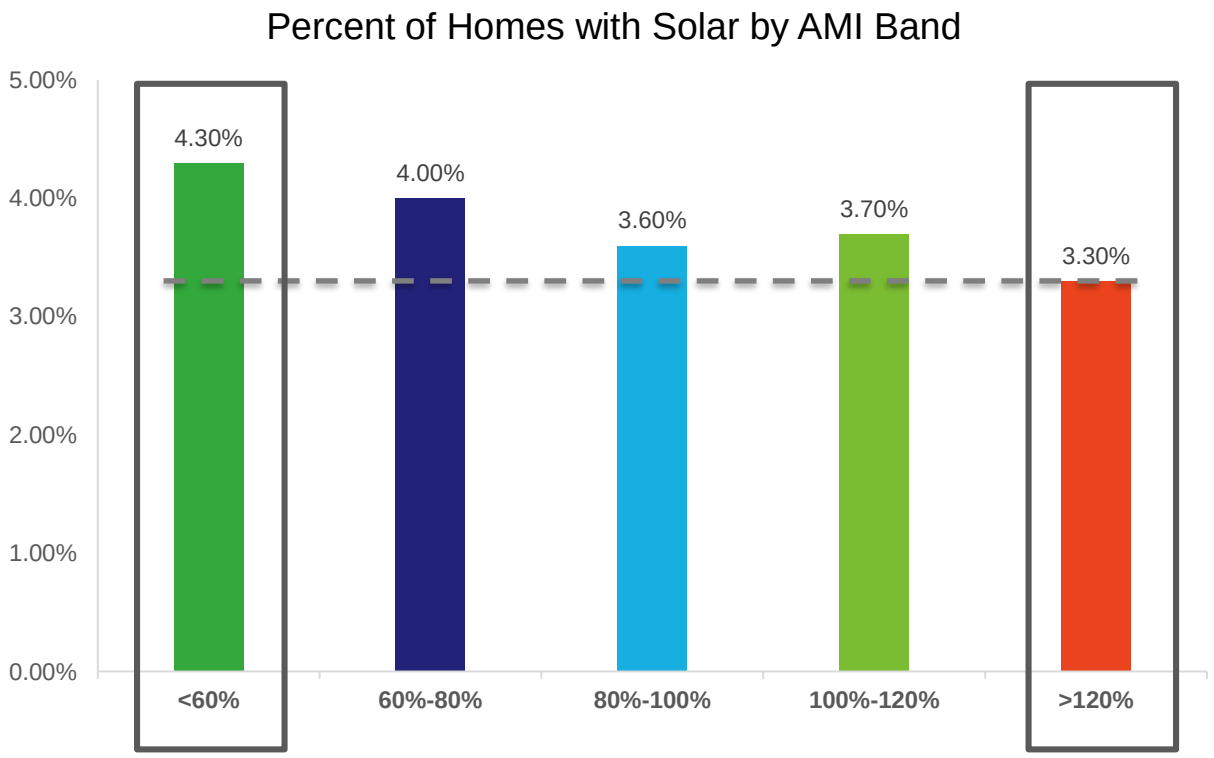
- Due to a concerted effort launched in 2015 to expand access to residential solar energy for low-and-moderate income households, solar in LMI communities grew by over 35% between 2014 and 2018



AMI = Area Median Income, projects categorized by AMI of census tract where they are located

Residential Solar Deployment by Income Band 2012-2018

- LMI and minority communities that were previously underrepresented in solar PV adoption responded favorably to measured incentives and market focus.
- RSIP is now beyond parity with respect to income in solar PV adoption



National study shows disparities in solar adoption when considering race and ethnicity

RESIDENTIAL SOLAR

Report Finds Wide Racial and Ethnic Disparities in Rooftop Solar Installations

New research underscores that the rooftop solar industry has environmental justice issues to consider.

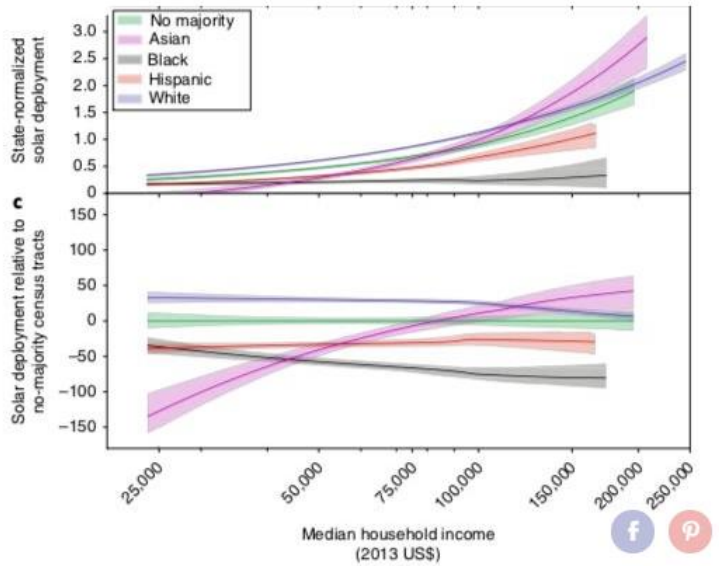
EMMA FOEHRINGER MERCHANT | JANUARY 14, 2019

2019 Tufts/UC Berkeley study found that for census tracts with the same median income and 50% or more:

- Black residents had 69% less
- Hispanic residents 30% less
- Asian residents had 2% less
- White residents had 21% more

Solar installed than census tracts with no racial or ethnic majority*

*based on Google Project Sunroof data



Source: Nature Sustainability

https://www.greentechmedia.com/articles/read/report-finds-wide-racial-and-ethnic-disparities-in-rooftop-solar

Methodology:
Categorizing census tracks by race/ethnicity

- Census tracts were categorized as a majority "X" race if more than 50% percent of the population that identified as the same race or ethnicity*
- If less than 50% of the population identified as the same race or ethnicity, census tract labeled "no majority race"
- Predominant minority groups are black and Hispanic; **10.9% of the total population lives in majority Hispanic or majority Black census tract**

	Number of Census Tracts	Total Population	Percent of Population
Majority Hispanic	51	280,795	**7.8%**
Majority Black	24	111,390	**3.1%**
Majority White	558	2,669,635	74.4%
No Majority Race	200	526,750	14.7%
Grand Total	833	3,588,570	100%

*Based on 2016 American Community Survey data

Methodology:
Analyzing owner-occupied homes by race/ethnicity

- Housing distribution was analyzed by racial/ethnic categories

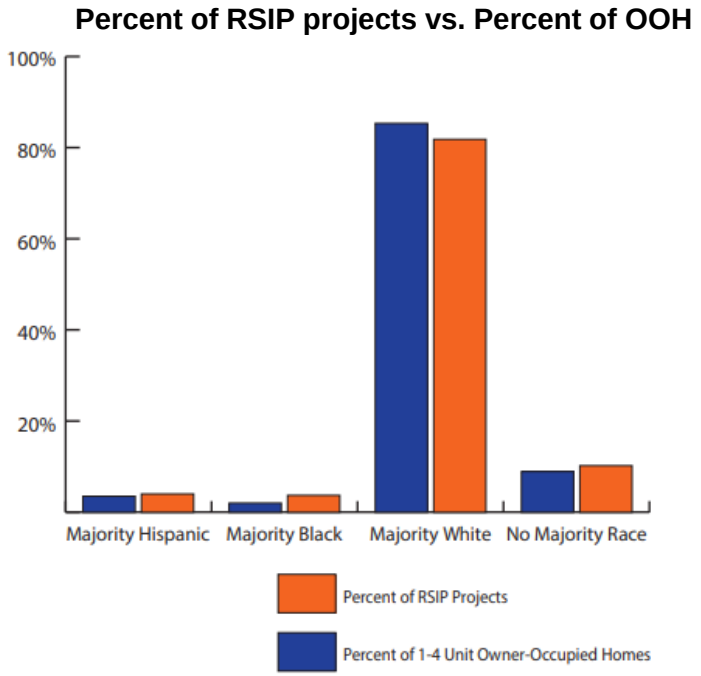
	Number of Owner-Occupied 1-4 Unit Homes	Percent of all Owner-Occupied 1-4 Unit Homes
Majority Hispanic	31,152	**3.6%**
Majority Black	18,163	**2.1%**
Majority White	731,901	85.3%
No Majority Race	76,878	9.0%
Grand Total	858,094	100%

Less than 6% of owner-occupied homes (i.e. homes eligible for RSIP) are in communities of color

Analysis: Homeownership compared to RSIP

- Compared % of RSIP projects in census tracts by race/ethnicity to % of owner-occupied homes
- RSIP Distribution is **on par or exceeds** the distribution of OOH in communities of color

	Percent of 1-4 Unit Owner-Occupied Homes	Percent of RSIP Projects
Majority Hispanic	3.6%	4.1%
Majority Black	2.1%	3.8%
Majority White	85.3%	81.8%
No Majority Race	9.0%	10.3%
Grand Total	100.0%	100%



Communities of Color – Distribution by Income compared to RSIP

- Compared % of RSIP projects in census tracts by race/ethnicity to % of owner-occupied homes in each income band
- Same methodology as Tufts study but used AMI band as a proxy for the same median income
- RSIP Distribution **on par or exceeds** distribution of OOH in communities of color, **inclusive of income**

Census Tract Income Level (AMI Band)	Majority Hispanic		Majority Black		Majority White		No Majority Race	
	% of OO Homes	% of RSIP	% of OO Homes	% of RSIP	% of OO Homes	% of RSIP	% of OO Homes	% of RSIP
<60%	**30.3%**	**24.9%**	**12.8%**	**22.1%**	18.8%	14.6%	**38.0%**	**38.1%**
60%-80%	**10.8%**	**13.0%**	**5.7%**	**7.7%**	62.7%	56.0%	**20.1%**	**23.2%**
80%-100%	1.2%	1.6%	2.9%	4.5%	89.7%	87.9%	6.3%	6.0%
100%-120%	--	--	--	--	95.0%	95.0%	5.0%	5.0%
>120%	--	--	--	--	96.1%	95.1%	3.9%	4.9%
Grand Total	3.6%	4.1%	2.1%	3.8%	85.3%	81.8%	9.0%	10.3%

Solar for All outperforms RSIP

- Using the same methodology, the **Solar for All Program shows even stronger penetration** in communities of color and low-income communities than the RSIP as a whole

Income Band (% of AMI)	Majority Hispanic		Majority Black		Majority White		No Majority Race	
	% of OO Homes	% of Projects	% of OO Homes	% of Projects	% of OO Homes	% of Projects	% of OO Homes	% of Projects
<60%	**30.3%**	**17.0%**	**12.8%**	**32.0%**	18.8%	7.6%	**38.0%**	**43.0%**
60%-80%	**10.8%**	**16.6%**	**5.7%**	**14.13%**	62.7%	44.2%	**20.7%**	**25.2%**
80%-100%	1.2%	1.1%	2.9%	6.27%	89.7%	84.6%	6.3%	8.0%
100%-120%	--	--	--	--	95.0%	89.7%	5.0%	10.3%
>120%	--	--	--	--	96.1%	85.0%	3.9%	15.0%
Grand Total	3.6%	10.24%	2.1%	16.2%	85.3%	47.4%	9.0%	26.2%

RSIP vs *Solar for All*

CONNECTICUT GREEN BANK

	Number of RSIP Installations	Percent of RSIP Installations	Number of Solar for All Installations	Percent of Solar for All Installations
Majority Hispanic	1,265	**4.1%**	207	**10.2%**
Majority Black	1,160	**3.8%**	327	**16.2%**
Majority White	25,184	81.8%	958	47.4%
No Majority Race	3,174	10.3%	530	26.2%
Grand Total	30,783	100%	2,022	100%

The analysis shows that the RSIP and in particular, the *Solar for All* Program, has been effective at reaching communities of color, and in some instances penetration in communities of color outperforms penetration in white neighborhoods.

Solar For All with PosiGen

Case Study: Melvin in Bridgeport, CT

Description	6 kW Solar Lease	System Energized 6/11/2015
Green Bank Incentive	$5,605.63	
Monthly cost	$75 for solar lease	
Terms	20 year lease	
Customer 20-yr Cost	$18,000.00	Lease
Pre-Solar Electric Costs	$50,576.00	(9438 kWh/yr)
Post-Solar Electric Costs	$34,043.00	Including lease
First Year Savings	$595.00	
Net 20-yr Savings	$16,533.00	Not including EE savings

"Everyone said it was crazy to go solar, now they all want it. People don't realize there are savings. Our bill during the winter was $460 and now it is $15."

Melvin

Solar For All with PosiGen

Case Study: Chad in Stratford, CT

Description	7.04 kW Solar Lease	System Energized 4/19/2019
Green Bank Incentive	$3,970.44	LMI incentive
Monthly cost	$79.99 for solar lease	
Terms	20 year lease	
Customer 20-yr Cost	$19,197.60	Lease
Pre-Solar Electric Costs	$110,424	(16713 kWh/yr)
Post-Solar Electric Costs	$84,268	Including lease
First Year Savings	$1,003	
Net 20-yr Savings	$26,156.	Not including EE savings

"I went solar because my bills were so high and I heard good referrals about PosiGen."

Chad with son Justin

Thank you for attending our webinar

Nicole Hernandez Hammer
Project Director, CESA
nicole@cleanegroup.org

Find us online:

www.cesa.org

facebook.com/cleanenergystates

@CESA_news on Twitter

Upcoming Webinars

Energía resistente en Puerto Rico: Cómo el Solar+Almacenamiento está re moldeando el panorama energético
Tuesday, December 10, 1-2pm ET

Solar with Justice: A New Report on Solar for Under-Resourced Communities
Thursday, December 12, 1-2pm ET

Read more and register at: www.cesa.org/webinars