

BUILDINGENERGY BOSTON

NHPUC Low-Moderate Income (LMI) Community Solar Projects

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Northeast Sustainable Energy Association (NESEA)

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The **Organization for Refugee & Immigrant Success (ORIS)** is the largest and longest continually operating ethnic community-based organization in New Hampshire. Our staff and board represent six countries and is fluent in thirteen languages. ORIS' many programs include the Fresh Start Farms CSA.



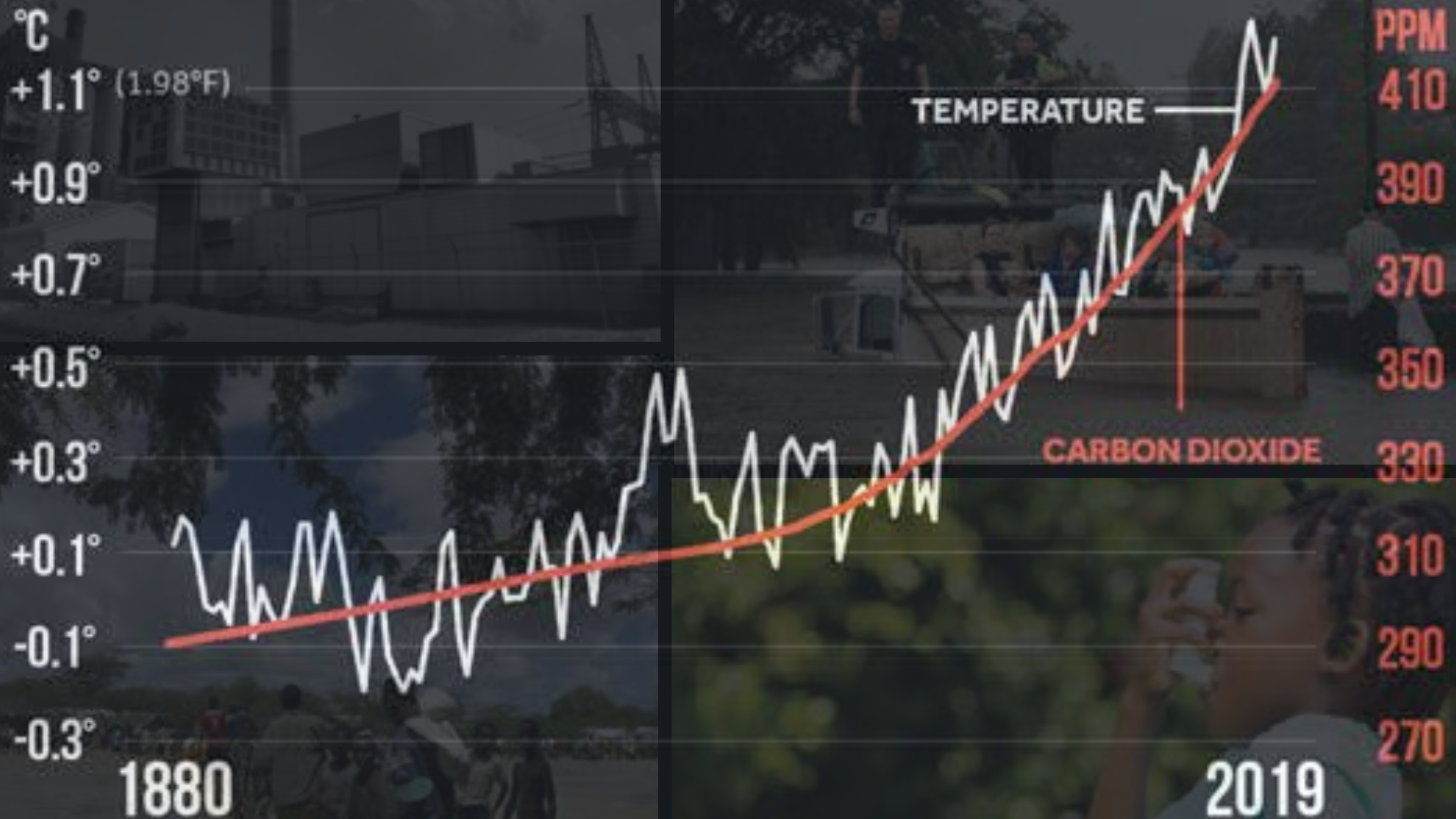
ReVision Energy is an employee-owned solar company and Certified B Corporation on a mission to empower our communities to overcome the environmental, economic and social inequities caused by fossil fuels. Our 330 employee-owners have installed over 12,000 clean energy systems since 2003.



Presentation Outline

1. Why Focus on Low-Income Solar?
2. NH PUC Low-Income Solar Program
3. Lessons for Other States
4. Case Study: ORIS Fresh Start Farms
5. Questions/Discussion

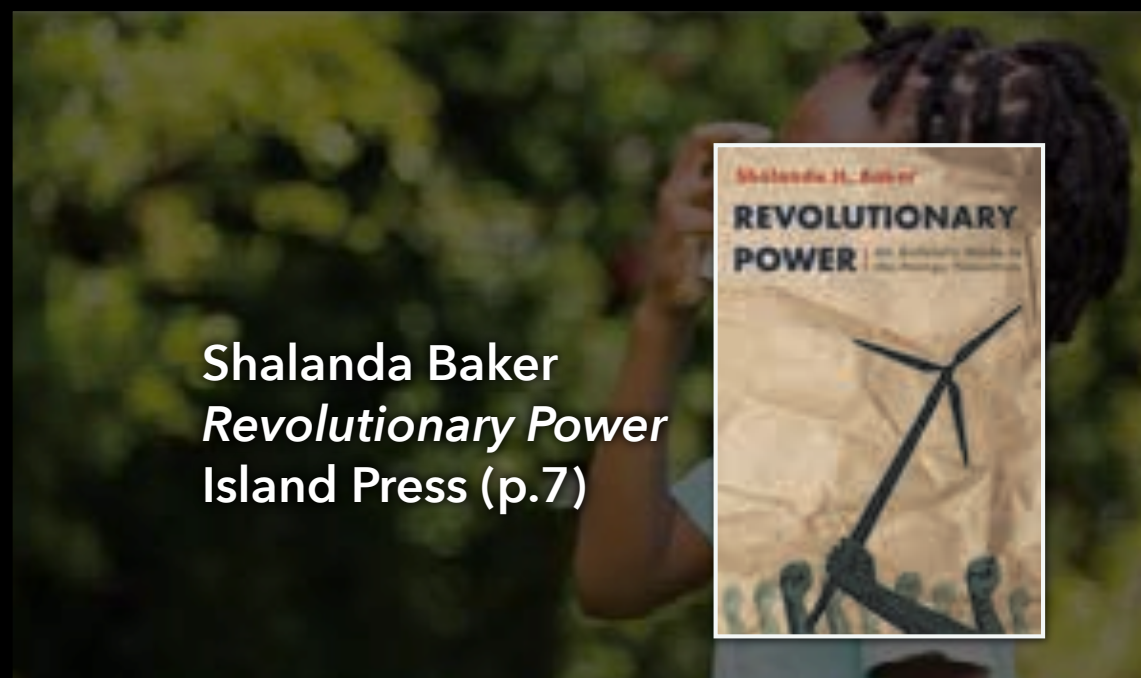
Why Focus on Low-Income Solar?



Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910)
Global annual average carbon dioxide
Source: NASA GISS, NOAA NCEP, ESRL

Why: "Energy Justice"

"Climate change positions those without power—namely Brown and Black people, low-income communities, and communities of color—to become both architects and beneficiaries of the new energy system."



Shalanda Baker
Revolutionary Power
Island Press (p.7)

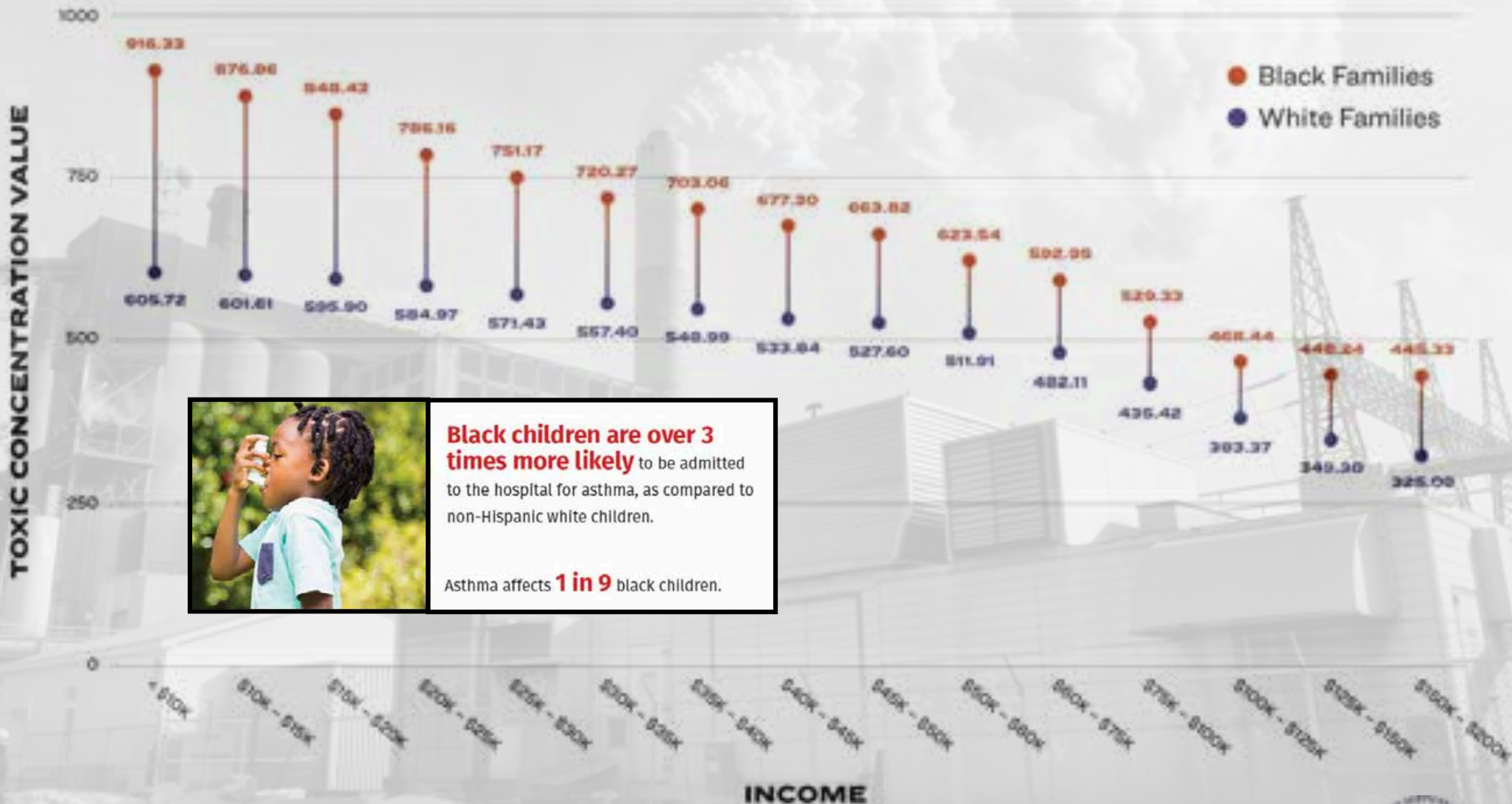
Why: "Energy Justice"

- (1) **Distributive justice:** *equitable allocation of benefits and burdens*
- (2) **Procedural justice:** *fair access to process*
- (3) **Recognition justice:** *acknowledgment of and respect for all peoples*
- (4) **Restorative justice:** *addressing past harms*

Shalanda Baker
Revolutionary Power
Island Press (p.31-2)



Why: Air Pollution & Disease

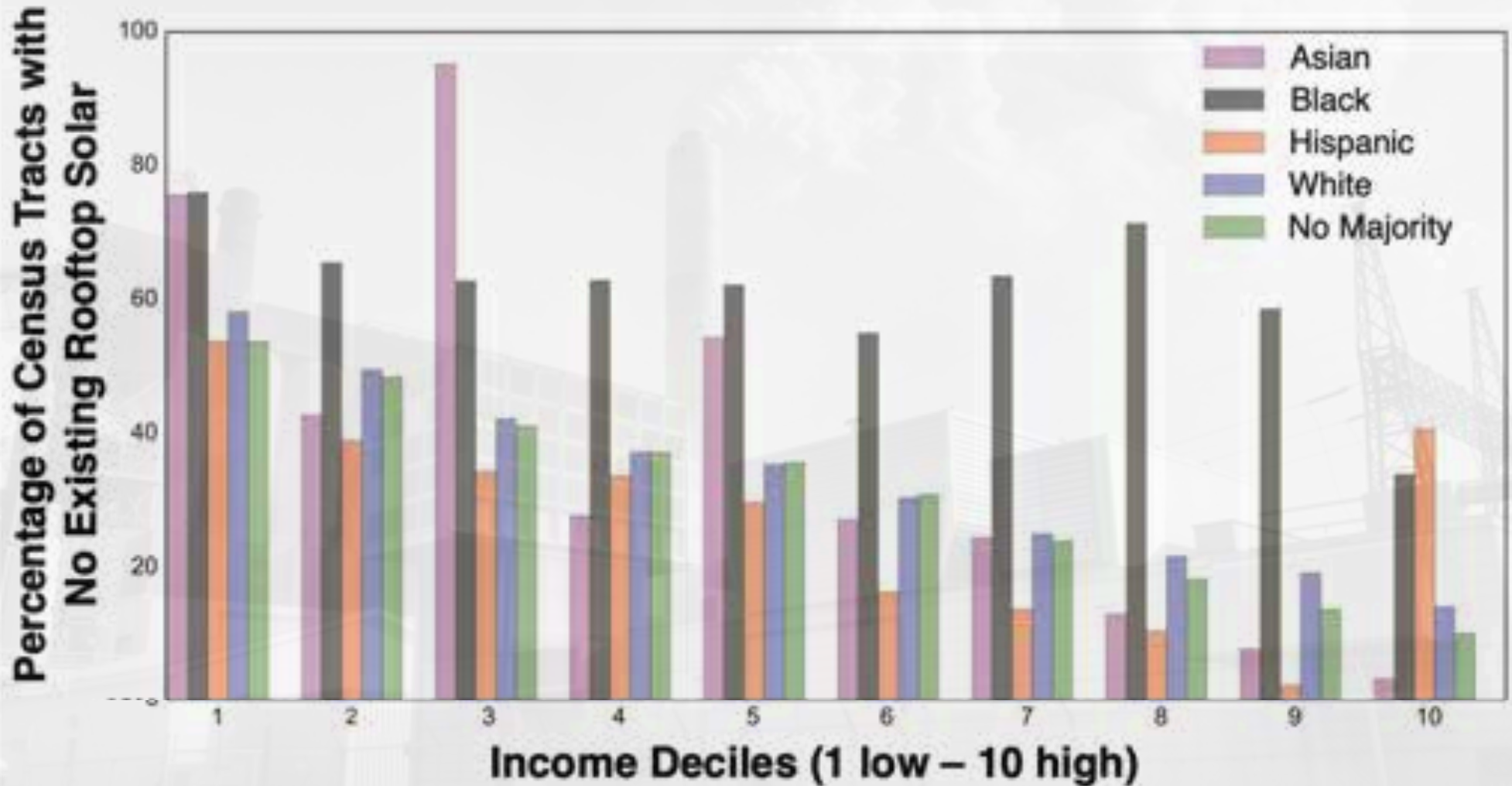


Black children are over 3 times more likely to be admitted to the hospital for asthma, as compared to non-Hispanic white children.

Asthma affects **1 in 9** black children.



Why: 'Solar Segregation'



Sunter, D.A., Castellanos, S. & Kammen, D.M. Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity. *Nat Sustain* 2, 71–76 (2019)

nature sustainability

Barriers to Low-Income Solar

- Lower homeownership rates
- Roof, structural, electrical requirements
- Upfront capital cost to realize long-term savings
- Solar tax credits require substantial tax 'appetite'
- NH: low solar net metering value relative to other states
- NH: limited state rebates



NH Low-Income Solar Program

- 2019 Senate Bill 165 (PUC 909.13)
- Combines net-metering enhancement + on-bill crediting
- Remotely sited community solar farms



NH Low-Income Solar Program

1. Solar Generation Incentive:

- Projects serving ≥ 5 LMI families
- 2.5 cents/kWh adder
- +/- 25% enhancement vs current NH net metering rates



NH Low-Income Solar Program

2. Distribution of Benefits :

- Direct monthly on-bill crediting
- Indirect benefits e.g. rental reduction
- At least 12% of the total credit to benefit LMI families



NH Low-Income Solar Program

3. Eligibility Criteria:

- Serve ≥ 5 LMI residential end-users
- Deliver $\geq 85\%$ of the electricity to residential end-users
- Majority of members should be at or below 300% FPL
- Participants must reside within same utility territory



NH Low-Income Solar Program

4. Financing Options:

- Grants - NH PUC
- Mission-aligned impact investors (PPA)
- Charitable donations
- ReVision in-kind support



NH Low-Income Solar Program

5. Projected Savings:

- Participants can save \$100 - \$1,000 off their annual electricity bills
- Actual savings depend on ownership model and scale/cost of the solar project



NH Low-Income Solar Program

NH PUC Competitive Grants:

- Four RFPs issued till date
- Grants up to \$200,000 from NH Renewable Energy Fund (REF)

ReVision REF grant-funded LMI solar projects include:

- Mascoma Meadows ROC (2018)
- NH Solar Shares (2018)
- White Rock ROC (2019)
- ORIS Story Hill farm (2021)



Lessons for Other States

1. Lead with values: LMI solar access and energy justice
2. Build cross-partisan coalitions (incl. solar skeptics)
3. Tailor to existing incentive programs (e.g. net metering, renewable energy funds, adders)
4. Engage utilities and private funding partners
5. Run a pilot, share successes, expand!



Case Study: ORIS Fresh Start Farms

Since 2010, ORIS has operated its New American Sustainable Agriculture program, Fresh Start Farms, which provides land and market access, technical assistance and translation services to new American farmers bringing their agricultural skills to NH to feed its most vulnerable populations. We currently assist 24 new American farmers cultivating 15 acres of land in Dunbarton and Concord.



Story Hill Farm

Purchased land in 2018

Built up infrastructure

-Greenhouses

-Well and Electricity

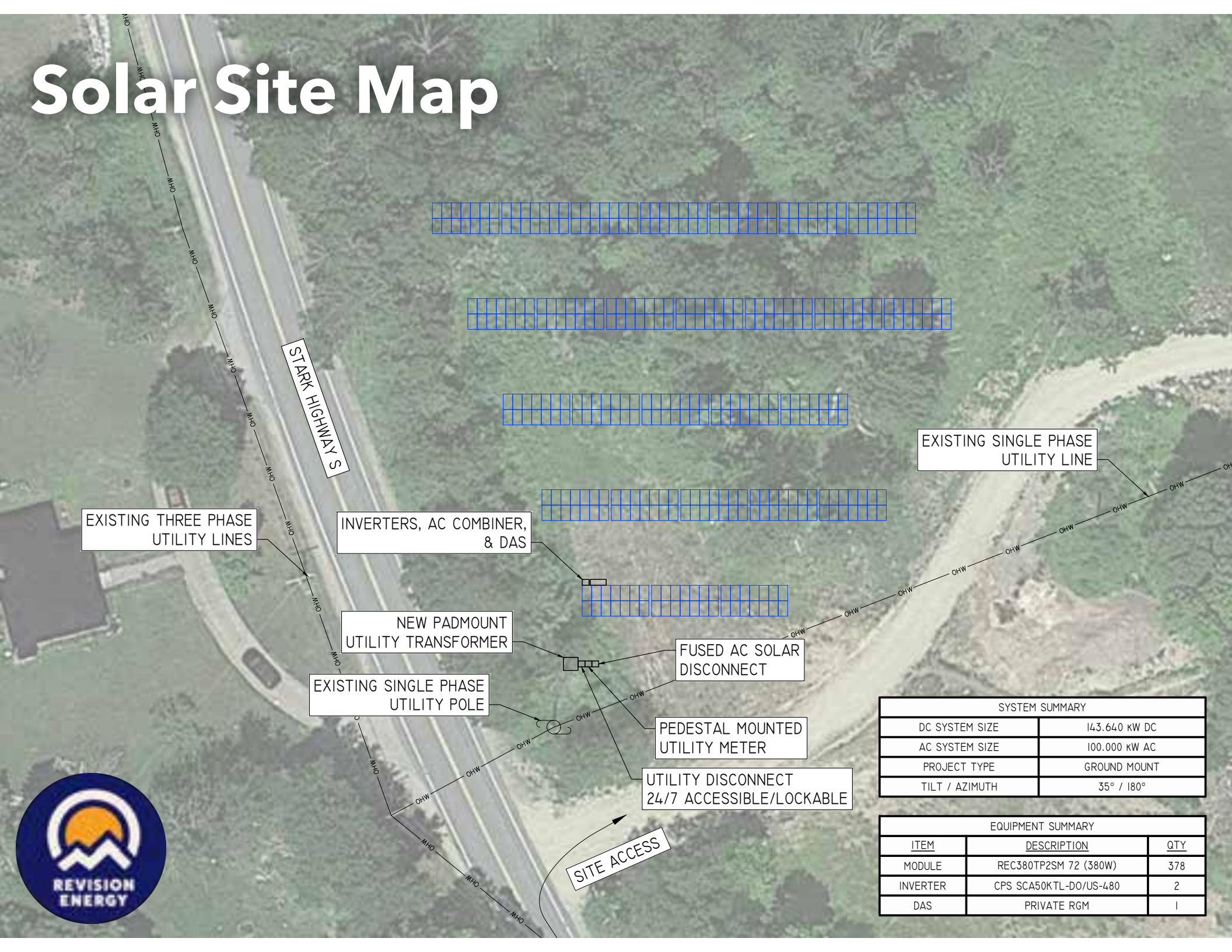
-Wash Station

-Road Work

-Tractor



Solar Site Map

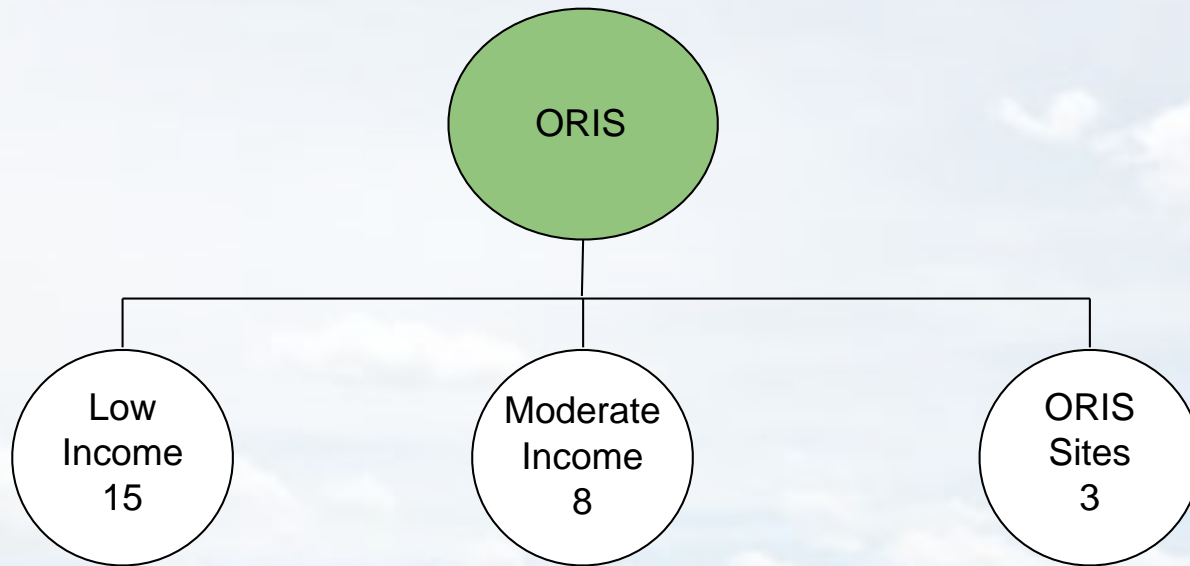


SYSTEM SUMMARY	
DC SYSTEM SIZE	143.640 kW DC
AC SYSTEM SIZE	100.000 kW AC
PROJECT TYPE	GROUND MOUNT
TILT / AZIMUTH	35° / 180°

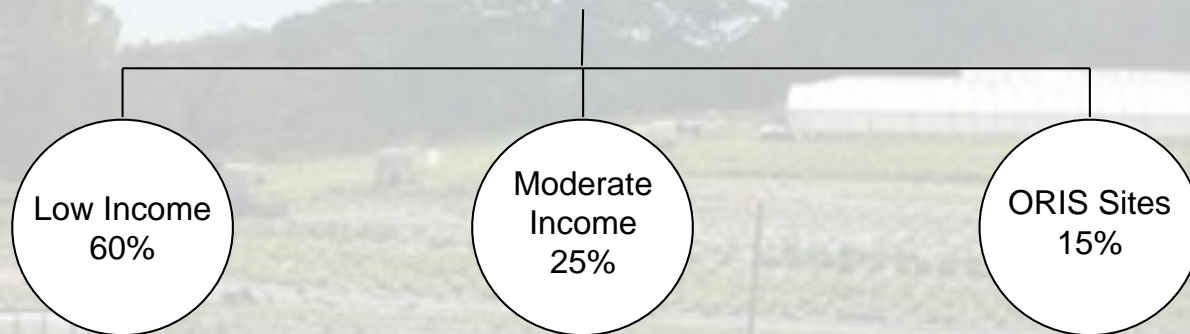
EQUIPMENT SUMMARY		
ITEM	DESCRIPTION	QTY
MODULE	REC380TP2SM 72 (380W)	378
INVERTER	CPS SCA50KTL-DO/US-480	2
DAS	PRIVATE RGM	1



ORIS Solar Distribution Structure



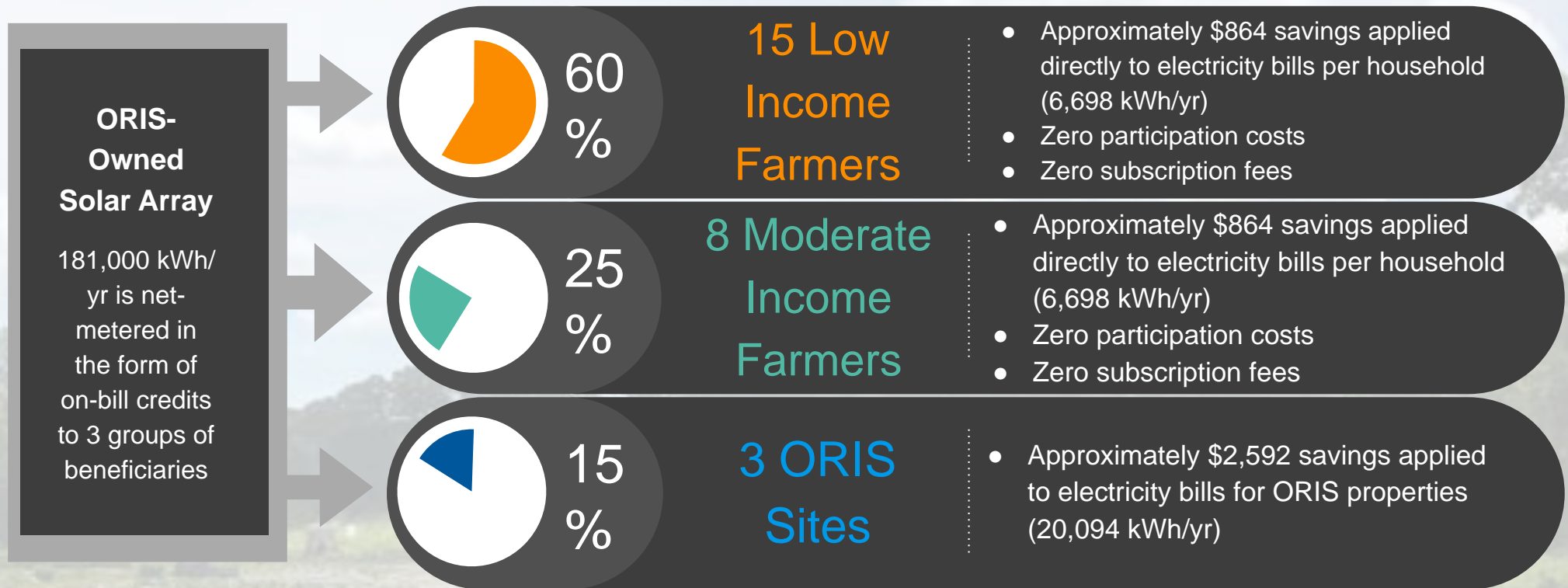
ORIS Solar Power Allocation



How it works

- Approx. \$864 in annual direct electrical bill savings per member (6,698 kWh/yr)
- Group Net Metering in form of on-bill credits
- Reduced bills vs. direct payments
- Zero Participation Costs
- Zero Subscription Fees

ORIS Solar Distribution Structure



ORIS Solar Distribution Structure



Annual Direct Benefits

Year	Savings Per LMI Farmer	Savings to All LMI Farmers	Savings to ORIS
1	\$864	\$19,882	\$3,509
2	\$865	\$19,885	\$3,509
3	\$866	\$19,909	\$3,513
4	\$868	\$19,955	\$3,521
5	\$870	\$20,021	\$3,533
6	\$874	\$20,107	\$3,548
7	\$879	\$20,212	\$3,548
8	\$884	\$20,336	\$3,589
9	\$890	\$20,478	\$3,614
10	\$897	\$20,637	\$3,642

Projected Savings/Revenue

Year 1 Energy Savings	\$23,392
Year 1 Renewable Energy Credits	\$5,890
25- Year Net Savings (Warranty Period)	\$596,508
40-Year Net Savings (Commercial Lifespan)	\$1,090,951

Environmental Benefits

Annual CO2e Offset (lbs)	282,503
Gallons of Gasoline Not Burned	14,419
Pounds of Coal Not Burned	141,187
Tons of Waste Recycled	44

The impact

Lower Cost of Living for Farmers

Increased cash flow for
businesses

Lower operational costs for ORIS

Environmental benefits



ORIS Solar Project Process



January
2021

**ORIS & Revision
Energy discuss
potential project**

April
2021

**NH PUC
Award
Notification**

**Fundraising
campaign
launched**

November
2021

**ORIS & Revision
contract for
installation**

December
2021

**Interconnection
application filed**

**Local permit &
design plans
submitted**

Materials sourced

May
2022

**Installation
begins
(approx)**

July
2022

**Net metering
begins
(approx)**

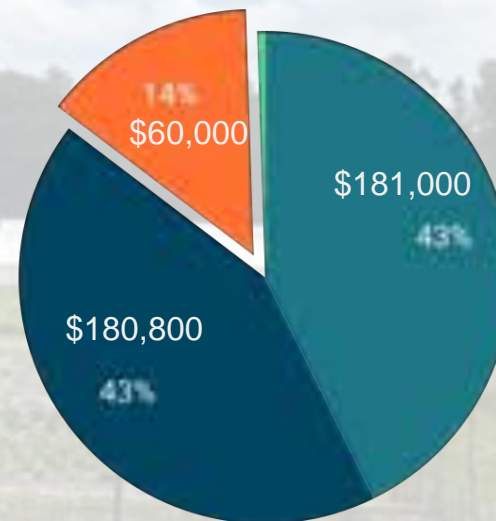
ORIS Solar Anticipated Costs



Total Project Cost: \$423,953

\$362,000 | supplies and installation
\$62,153 | staff and administrative management

Fundraising to Date



- NH Public Utility Commission
- Private Donors (6)
- All Points North Request
- Remaining Gap



ORIS Solar-Powered Food Cart!













Questions?

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Extras

Questions?



Participants & Funding Partners:



1. Background

- Why the focus on LMI community solar: Climate Crisis, EJ Communities (Manchester), Lack of access to clean energy benefits
- One solution - where LMI solar focus came from...

2. LMI Community Solar Program

- Program background and motivation
- NHPUC program details: funding levels,
- Challenges (administrative, matching funds, third-party financing)
- Recent successes

3. Case study: ORIS Community Solar

- About ORIS
- About solar project
- Matching fundraising
- Hopes and goals
- Mobile market

Learning Objectives:ts: investors

- Define the current LMI program available through NHPUC
- Analyze the challenges of the current LMI program, both financial and administrative
- Identify how the added 2.5 cents benefits not just the end user but also the investor
- Discuss projects that have been built or are under development under the current LMI NHPUC program

Low-Income Community Solar

Scaling the New Hampshire PUC LMI Community Solar Program

2022 NESEA Conference - February 28, 2022

Participants & Funding Partners:



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Fresh Start Farms Solar Highlights

- Secure \$180,000 NH PUC competitive grant (spring 2021)
- Select/qualify participating farmers (summer 2021)
- Raise \$180,000 matching grants/donations (Fall 2021)
- Contract solar project with ReVision Energy (Fall 2021)
- Solar project development and construction (2022)



Fresh Start Farms Solar Highlights

The project

- 142.6 kW DC
- 352 Panel Ground-Mounted
- 3 Phase Connection
- 181,000 kWh in yr/1
- ORIS is 100% owner/host
- 100% net metering arrangement
- Revision Energy as Contractor/
Builder

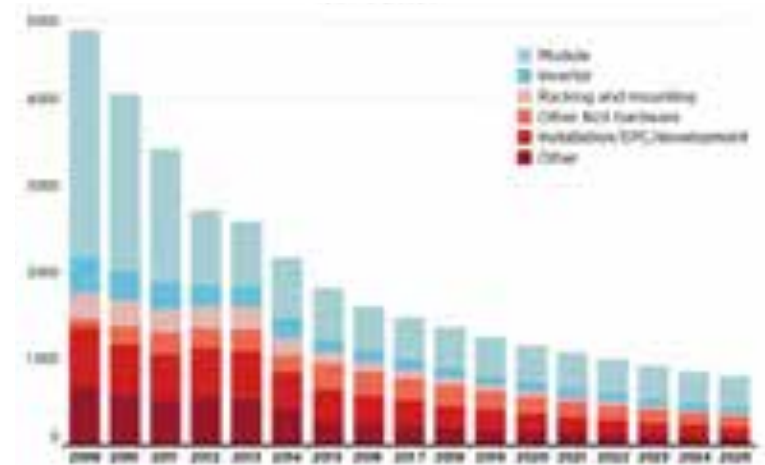
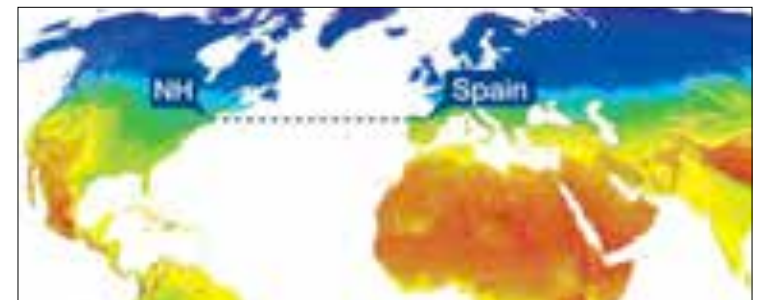


Opportunity: Enabling Nonprofit Solar

- While policy barriers increase, the cost of solar technology has dropped over 75% since 2010 and NH's solar resources is on par with Spain's
- For larger nonprofits, **Power Purchase Agreements (PPA)** unlock tax incentives via partnership with **impact investors**
- PPAs require **no up-front cost** and **give immediate savings** for nonprofits while earning investors a predictable return
- Smaller nonprofits require **grants and matching donations** to access solar and build their clean energy "endowment"

Sources: Int'l Renewable Energy Agency, Vaisala Energy

Solar Irradiance & Price of Solar



Solar Impact Investing Overview

- ReVision Solar Impact Partners builds on ReVision's decade of experience bringing solar PPAs to over 100 local nonprofits
- RSIP pairs tax equity and lender-investors with established nonprofits ready to go solar
- RSIP enables mission-motivated investors to cut climate pollution while earning a low-risk, predictable return on equity or debt

ReVision Solar Impact Partners (RSIP) include:



BLUEHAVEN
SOLAR

BALLENTINE
PARTNERS



Investor-Funded Nonprofit Projects



**BOYS & GIRLS CLUB
OF MANCHESTER**



**Nashua Soup Kitchen
& Shelter**



MacDowell Colony



Dartmouth



REVISION ENERGY



10,000+

Clean energy systems installed since 2003

300+

Employee-owners across 5 branches in NH, ME, and MA

#1-rated

rooftop solar installer in New England (*SPW*)

100%

Employee-owned proudly certified B Corporation