



Solar + Storage for All in Connecticut:

**A Framework for Deployment in Low Income
and Disadvantaged Communities**

September 13, 2023



Welcome & Agenda

Introduction

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Residential Renewable Energy Solutions (RRES)

Energy Storage Solutions

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Introduction





Connecticut Green Bank is the nation's first state green bank. Established in 2011 as a quasi-public agency, the Green Bank uses limited public dollars to attract private capital investment and offers green solutions that help people, businesses and all of Connecticut thrive.

Our mission is to confront climate change by increasing and accelerating investment into Connecticut's green economy to create more resilient, healthier, and equitable communities

**Guiding this mission is our vision for
“...a planet protected by the love of humanity.”**

Overview of the Greenhouse Gas Reduction Fund



Greenhouse Gas Reduction Fund

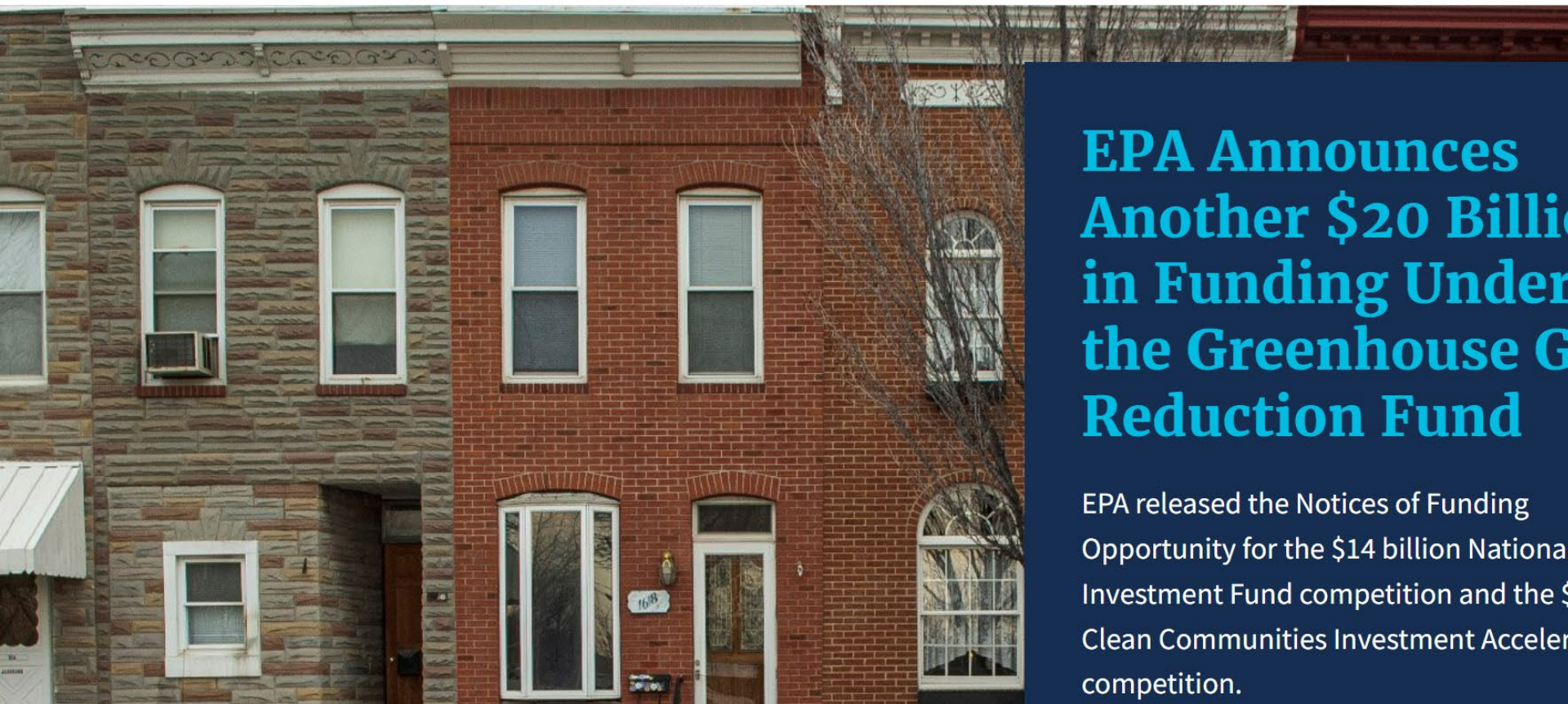
- **Inflation Reduction Act** – provides \$27 billion to the U.S. Environmental Protection Agency (EPA) to administer the Greenhouse Gas Reduction Fund (GGRF)
- **Notice of Funding Opportunities** – EPA has now released all three opportunities, including:
 - ❖ **National Clean Investment Fund** - \$14 billion competition that will fund 2-3 national nonprofits that will partner with private capital providers to deliver financing at scale to businesses, communities, community lenders, and others
 - ❖ **Clean Communities Investment Accelerator** - \$6 billion competition that will fund 2-7 hub nonprofits with the plans and capabilities to rapidly build the clean financing capacity of specific networks of public, quasi-public, and nonprofit community lenders to ensure that households, small businesses, schools, and community institutions in low-income and disadvantaged communities have access to financing
 - ❖ **Solar for All** - \$7 billion competition that will provide up to 60 grants to states, tribes, municipalities and nonprofits to expand the number of low-income and disadvantaged communities for investment in residential and community solar

Solar for All Competition

- **Funding and Awards** – \$7 billion from Section 134(a)(1) of the Clean Air Act for up to 60 awards (i.e., states (including territories), Tribal governments, municipalities, and eligible entities) which must be invested in low-income and disadvantaged communities to deploy or benefit from zero-emission technologies
- **Activities** – expand existing low-income solar programs or design and deploy new Solar for All programs, including the following types of projects:
 - ❖ **Residential Rooftop** – rooftop and ground-mounted that support individual households, master-metered facilities, and/or common areas in multifamily buildings
 - ❖ **Community Solar** – solar PV producing facility or power purchasing program in which benefits flow to multiple residential customers
 - ❖ **Associated Storage** – store solar for various purposes (e.g., resilience, demand response)
 - ❖ **Enabling Upgrades** – building infrastructure to support solar deployment (e.g., EE, roof repairs)



Greenhouse Gas Reduction Fund



EPA Announces Another \$20 Billion in Funding Under the Greenhouse Gas Reduction Fund

EPA released the Notices of Funding Opportunity for the \$14 billion National Investment Fund competition and the \$6 billion Clean Communities Investment Accelerator competition.

Residential Renewable Energy Solutions (RRES)



Residential Renewable Energy Solutions (RRES)

- Began January 1, 2022; 6 year program
 - Administered by Eversource and UI
- Replaced legacy net metering + Residential Solar Investment Program
- Additional details:
 - Clean energy projects up to 25 kW-AC
 - Twenty (20) year term
 - Two tariff offerings: (1) Netting and (2) Buy-All



RRES Program Objectives



1. Maintain at least Connecticut's annual historical deployment of residential solar (i.e., approximately 50-60 MW per year);

2. Achieve a 100% zero carbon electric grid by 2040, including by promoting additional deployment as needed;

3. Balance participant costs and benefits with non-participant costs and benefits;

4. Ensure program accessibility for customers by providing customer protections and simplified program design;

5. Increase inclusivity overall, as well as program participation by low and moderate-income (LMI) customers.



Rates + Equity Provisions in RRES

- Objective #5: Increased Inclusivity and LMI Participation
 - Target of 40% deployment in low-income and economically distressed municipalities; incentive adders and other measures to address

2023 Residential Tariff Rates		
	Buy-All Rate (\$/kWh)	Netting REC Rate (\$/kWh)
Eversource	0.2943	0.0318
UI	0.2943	0.0000
Low-Income Adder	0.030	0.025
Distressed Municipality Adder	0.0175	0.0125

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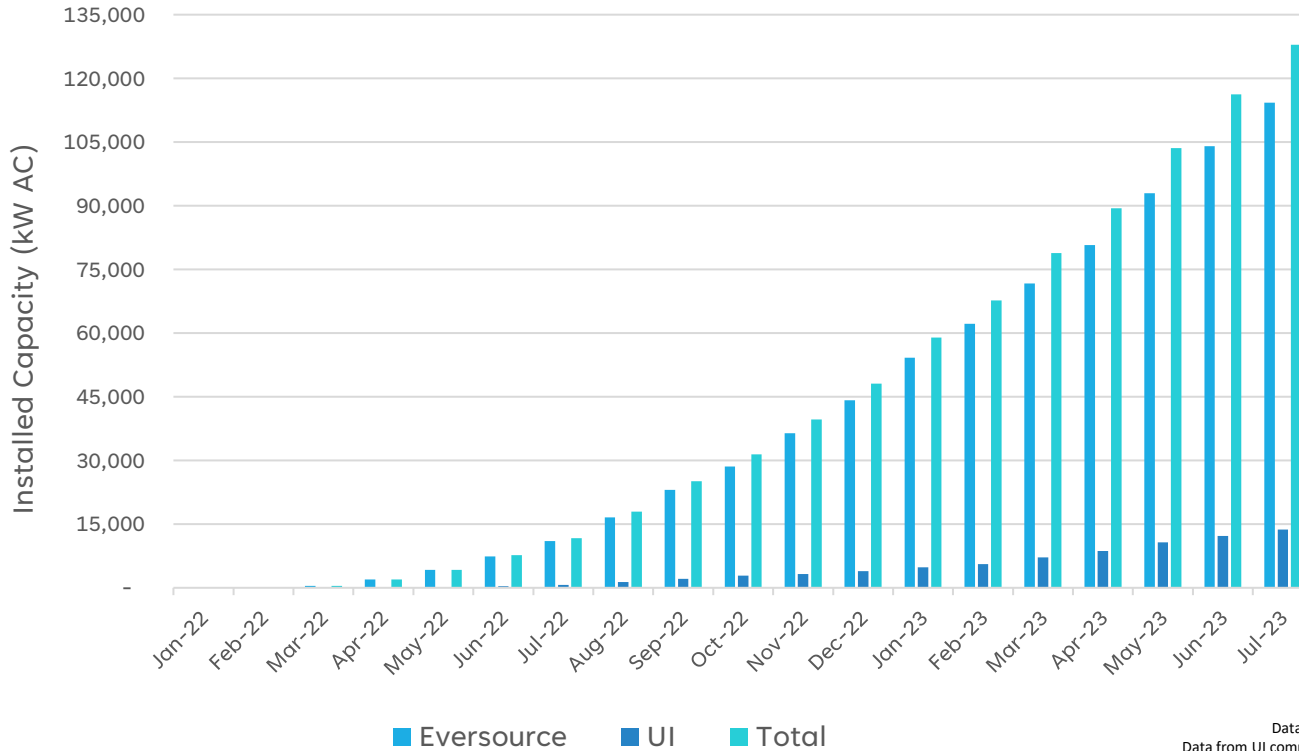
Affordable Housing in RRES

- **Public Act 21-48** enabled multi-family affordable housing (MFAH)
 - See Appendix H of [RRES Program Manual](#)
- Eligible MFAH properties receive Low-Income Adder
- Eligible MFAH properties include:
 - **Tier I:** 5 or more units that participate in the Low-Income Housing Tax Credit Program or that contain a majority of households earning 80% or less of Area Median Income.
 - **Tier II:** 5 or more units where more than 66% of the residents have a household income at or below 60% of State Median Income or located in a HUD Qualified Census Tract.
 - **Tier III:** 5 or more units that apply for review to meet the eligibility requirements and are approved by PURA.



RRES Deployment

Cumulative Deployment



**Total Deployment
(Jan. '22-July '23):
128 MW**

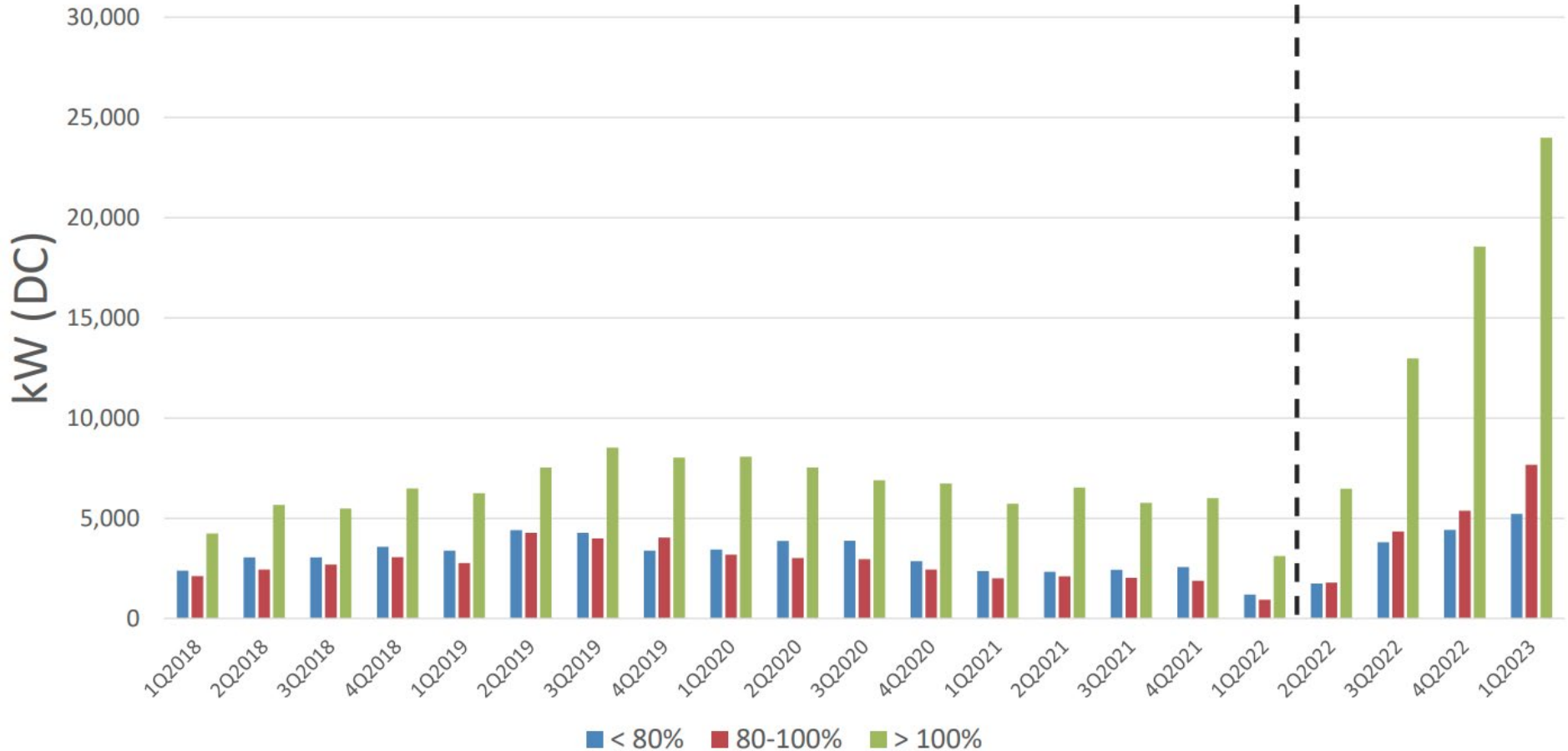
**Total Deployment
(Jan. '23-June '23):
68 MW**

**Annual Target:
50-60 MW**

Data from Eversource compliance filing in Docket No. 22-08-02, dated August 15, 2023
Data from UI compliance filings in Docket No. 22-08-02, dated January 17, 2023 and August 15, 2023



RRES vs. RSIP Deployment by Income



Data from Eversource and UI presentation in Docket No. 23-08-02, dated June 20, 2023



Shared Clean Energy Facility (SCEF)

SCEF Program

SCEF is a 6 year “community clean energy” program. Eversource and UI issued the Year 1 request for proposal (RFP) on April 30, 2020, the Year 2 RFP on April 30, 2021, and the Year 3 RFP on January 21, 2022.



SCEF was statutorily allocated 25 MW per year for the first three program years and 50 MW per year for the subsequent three program years, for a total of 225 MW. The MW allocation is split 80/20 between Eversource and UI.

Eligible customers receive credits of 2.5 ¢/kWh for each kWh of clean energy generated. Credits are allocated as follows:

- 20% - Low-Income Customers
- 40% - Low/Moderate-Income Customers
- 20% - Small Businesses
- 20% - Customers ineligible for RRES

Eversource Year 1-3 SCEF Solicitation Summary

Total MW Selected	59.97
Total In-Service MWs	
Unallocated MWs	0.027
Total Projected 20-Year Payments to Subscriber Organizations	\$ 226,005,040.29
Total Projected 20-Year Payments to Subscribers	\$ 60,411,378.50

UI Year 1-3 SCEF Solicitation Summary

Total MW Selected	11.875
Total In-Service MWs	-
Allocated, but Unused MW	-
Unallocated MW	3.125
Total Projected 20-Year Payments to Subscriber Organizations	\$ 186,533,891.88
Total Projected 20-Year Payments to Subscribers	\$ 34,880,537.00

Data from Eversource compliance filing in Docket No. 21-08-04, dated August 24, 2022
Data from UI compliance filing in Docket No. 21-08-04, dated July 8, 2022



Other State Solar Programs

- **Non-Residential Renewable Energy (NRES) Program**

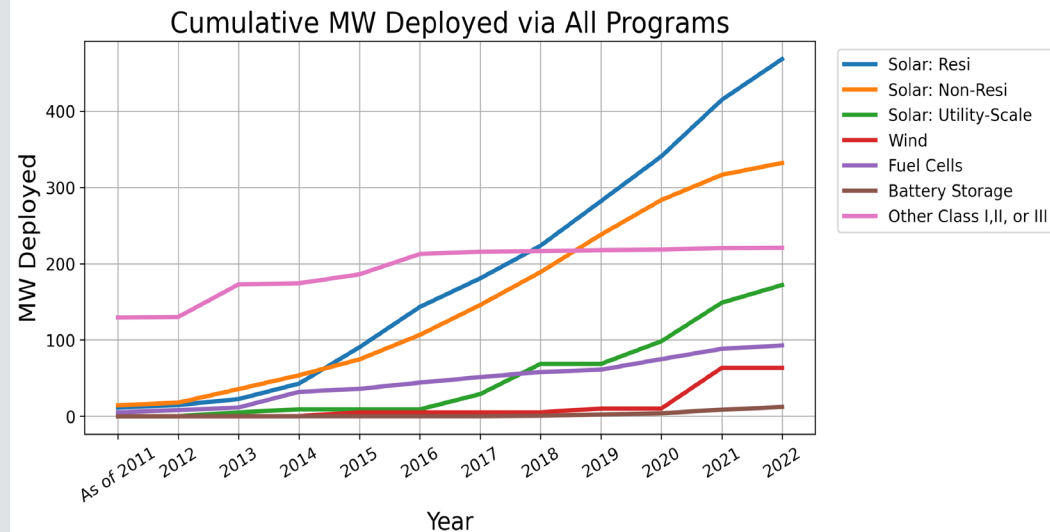
- Predecessor programs (LREC/ZREC and Virtual Net Metering) deployed ~330 MW

- **Grid/Utility-Scale Procurements**

- ~160 MW deployed

- **For more information:**

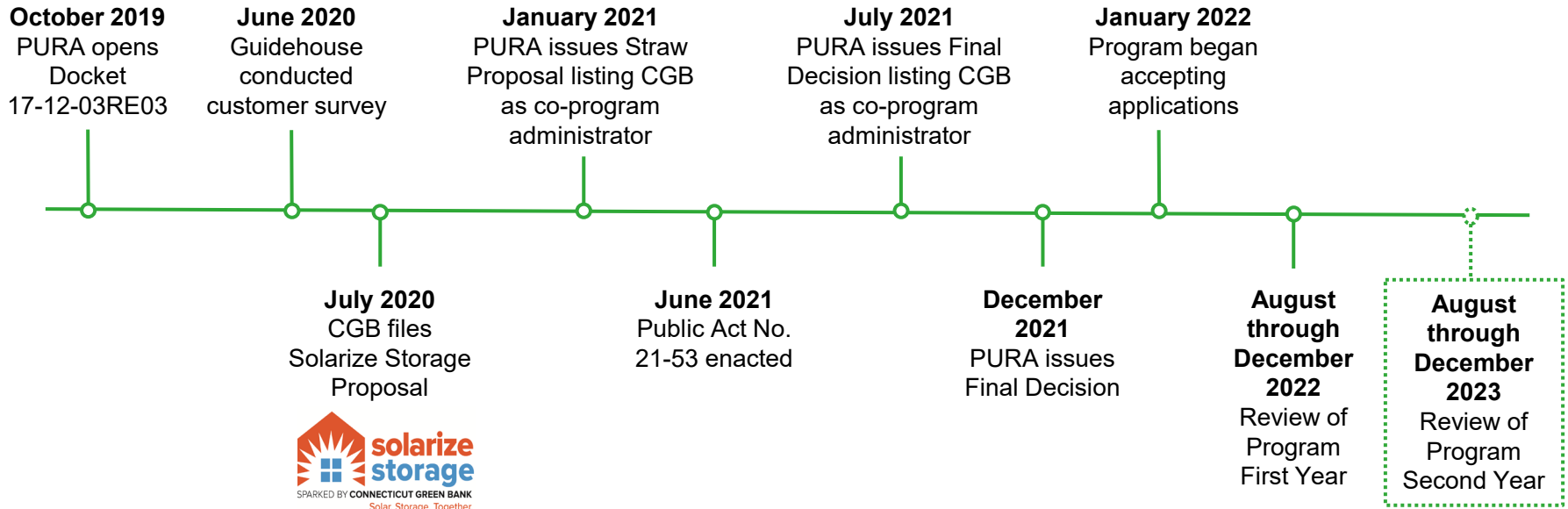
- [2022 Clean & Renewable Energy Report](#)
- [PURA Clean Energy Program Webpages](#); [DEEP SCEF Webpage](#)
- [DEEP Grid Scale Procurement Webpage](#)
- **Contact:** pura.information@ct.gov



Energy Storage Solutions

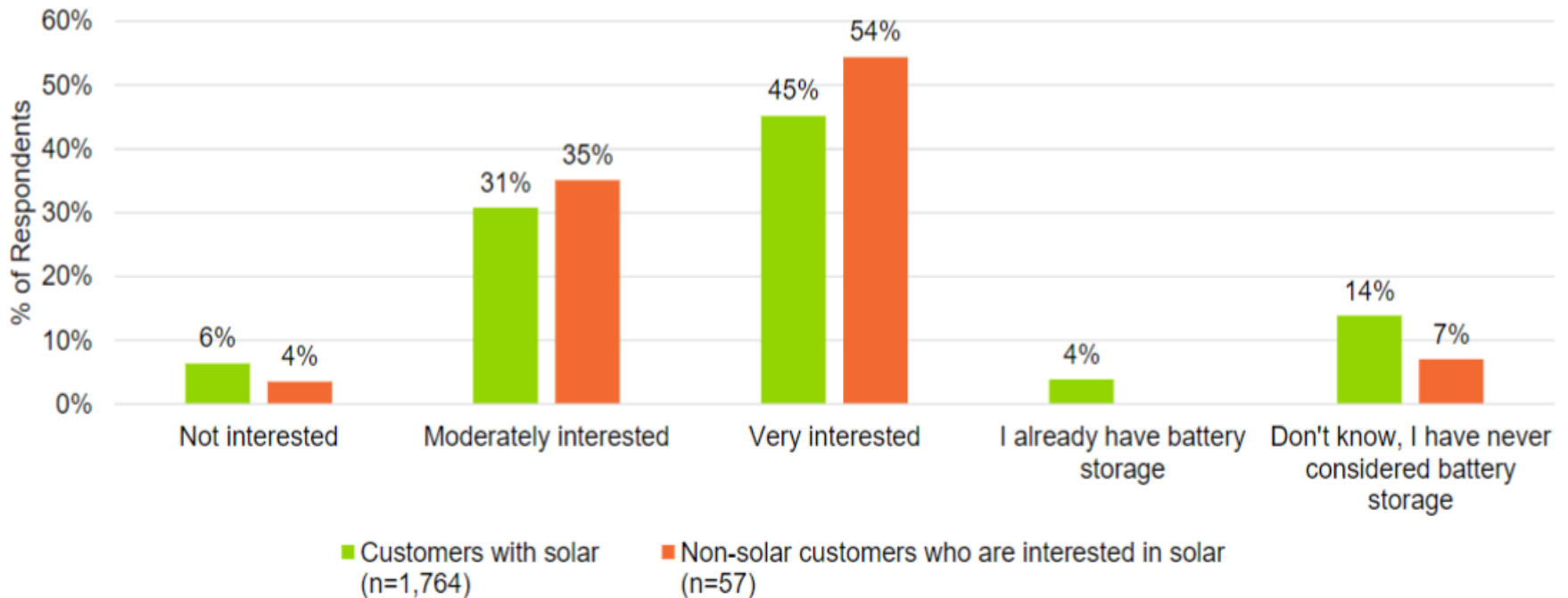


Timeline



Research

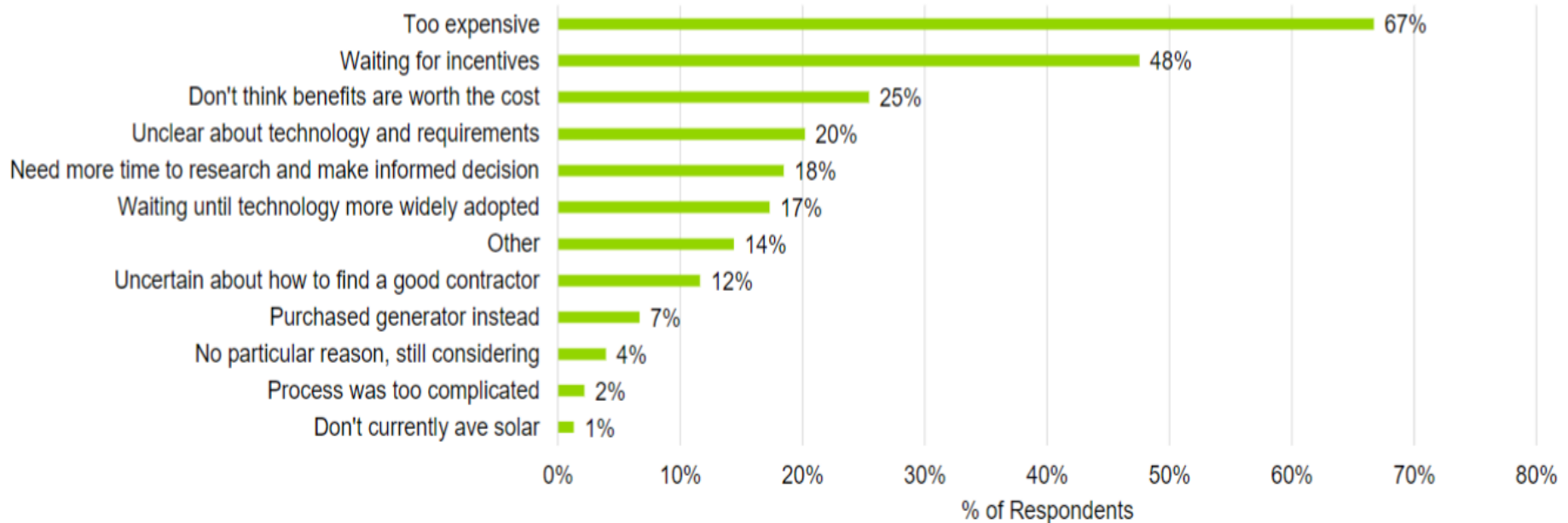
Customer Interest in Solar + Battery Storage



Over 75% of customers with solar PV (nearly 90% without solar PV) are interested in battery storage

Research (cont'd)

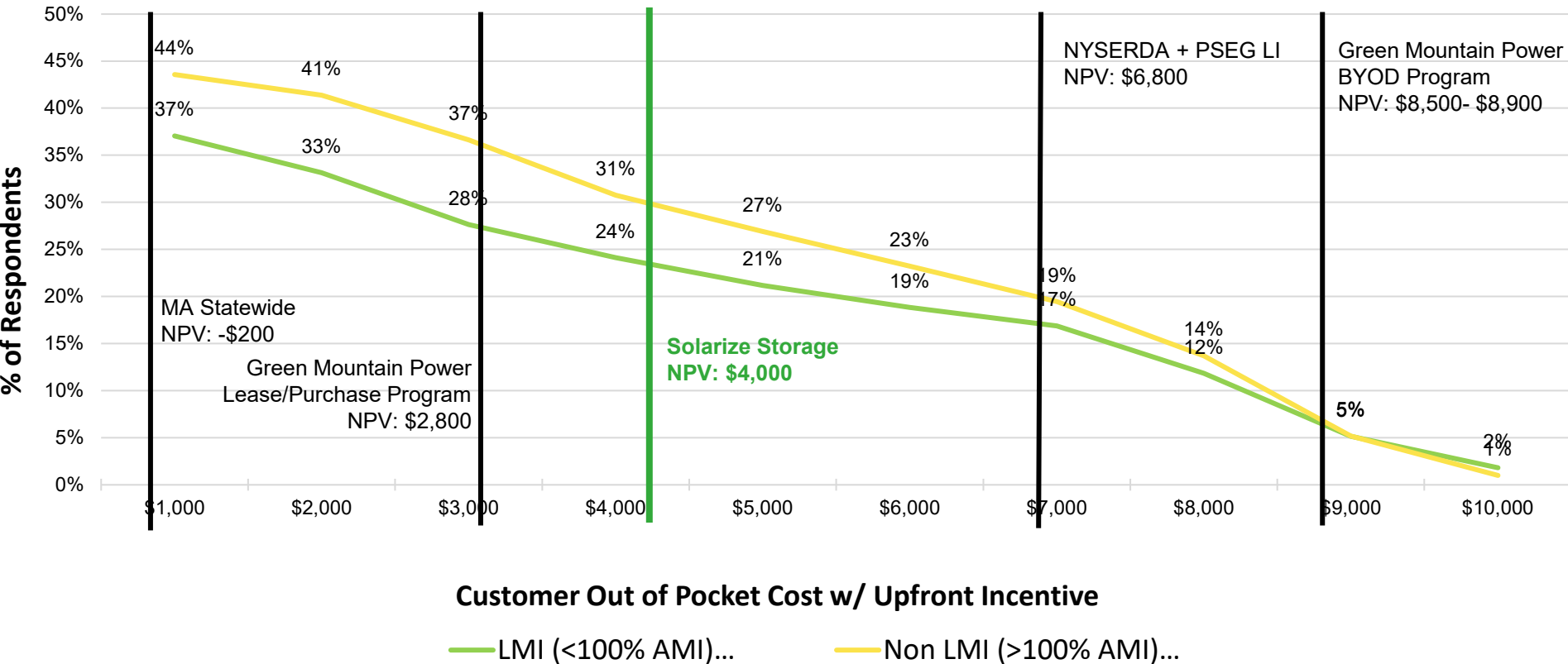
Customer Reasons for Not Purchasing Battery Storage



In order to achieve PURA's targets at the residential level, the availability of appropriate upfront incentive will be crucial

Research (cont'd)

Customer Survey and Regional Benchmarks



Determining upfront and performance-based incentive levels using market research and data-driven analyses

PURA Priorities

- **Cost-Effective** – ensure there is net benefit to electric customers (RIM 1.4)
- **Vulnerable Communities** – deploy no less than 40 percent of residential installations in vulnerable communities
- **Resilience** – maximize the deployment of battery storage to improve the overall resilience of the participants and the grid
- **Economic Development** – foster the sustained orderly development of a local battery storage industry

Energy Storage Solutions

- 9-year declining incentives – Goal of 580 MW behind-the-meter storage for residential and non-residential end-use customers
- Statewide goal of 1000 MW, including front-of-the-meter

CUSTOMER CLASS	2022-2024	2025-2027	2028-2030	TOTAL
Residential	50 MW	100 MW	140 MW	290 MW
Commercial and Industrial	50 MW	100 MW	140 MW	290 MW
Total	100 MW	200 MW	280 MW	580 MW

Program Design

Customer Classes:

- Residential customer classes: Standard, Underserved, and Low-Income Households
- Commercial/industrial customer classes: Small, Medium, Large (based on demand)

Systems installed through this program can receive two incentives:

Program Element	Design Item	Summer	Winter
Upfront Incentive (Passive Dispatch)	Events per Season	All non-holiday weekdays (~60)	N/A
	Months	June, July & August	N/A
	Event Duration	5 Hours	N/A
	Anticipated Dispatch Window	3 PM to 8 PM	N/A
Performance-Based Incentive (Active Dispatch)	Events per Season	30 to 60	1 to 5
	Months	June through September	November through March
	Event Duration	1 - 3 hours	1 - 3 hours
	Anticipated Dispatch Window	Noon to 9 PM (All Days)	Noon to 9 PM (All Days)

Residential Incentive Levels

Upfront Incentive Levels (Installed 2022-2024)*

Capacity Block (MW)	Standard	Underserved	Low-Income
<i>Participation Level</i>	60%	30%	10%
10	\$200/kWh	\$300/kWh	\$400/kWh
15	\$170/kWh	\$255/kWh -> \$300 kWh	\$340/kWh -> \$400 kWh
25	\$130/kWh	\$195/kWh -> \$300/kWh	\$260/kWh -> \$400 kWh

Performance Incentive Levels (Installed 2022-2024)

Summer, Years 1-5	Winter, Years 1-5	Summer, Years 6-10	Winter, Years 6-10
\$200/kW	\$25/kW	\$115/kW	\$15/kW

*Residential Upfront Incentive Capped at \$7,500

Commercial Incentive Levels

Upfront Incentive Levels (installed 2022-2024)

Capacity Block (MW)	Small Commercial	Medium Commercial	Large Commercial
Tranche 1 – 50 MW	\$200/kWh	\$175/kWh	\$100/kWh
Tranche 2 - 100 MW	\$200/kWh	\$175/kWh	\$100/kWh

Performance Incentive Levels (installed 2022-2024)

Summer, Years 1-5	Winter, Years 1-5	Summer, Years 6-10	Winter, Years 6-10
\$200/kW	\$25/kW	\$115/kW	\$15/kW

**C&I Upfront Incentive Capped at 50% of project cost*

Energy Storage Solutions

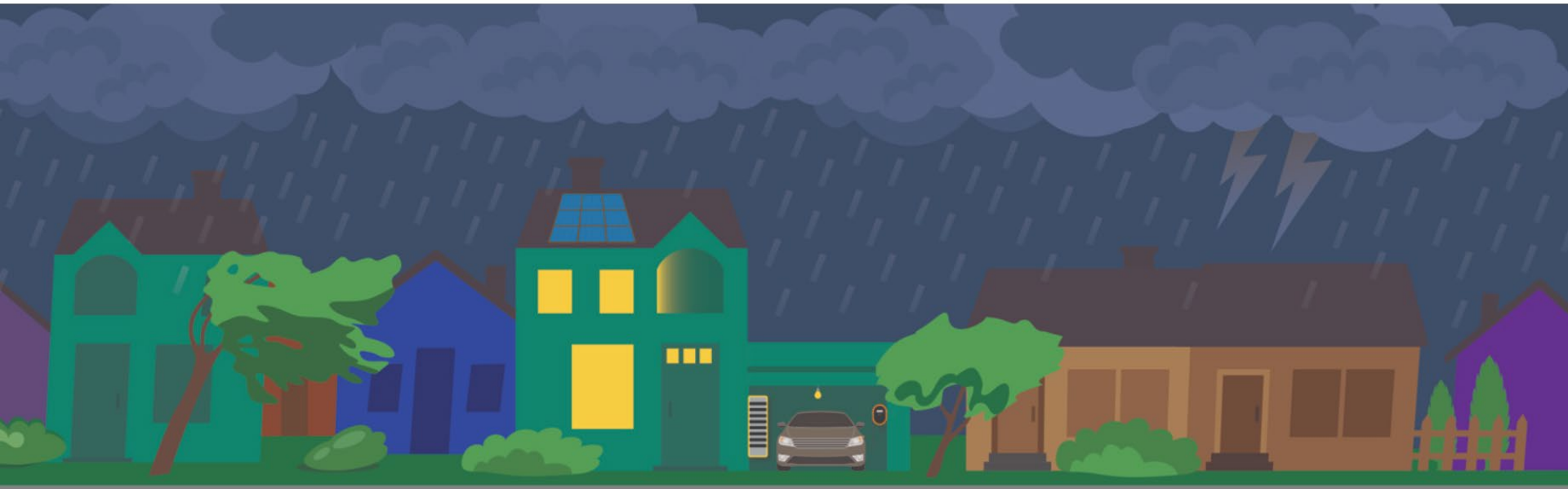
Year 2 Program Modifications

ISSUE	Year 1	Year 2
FCM Participation	C&I batteries allowed to participate	No customer allowed to participate. Increased upfront incentives to residential and C&I customers
Low-income and Underserved Upfront Incentive	Declining block structure	Incentive Flat for the first 50 MW of the program
Upfront Incentive Cap for C&I customers	No Cap	Limit to upfront incentive to 150% of customer annual peak load or 2 MW, whichever is greater.
Dispatch Mode	Passive (upfront incentive) AND Active (performance incentive)	All systems eligible to participate as active-only customers
Multi-Family Affordable Housing	Treated as Commercial customer	Treated as residential customer

Website



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Introducing Energy Storage Solutions

www.energystoragect.com

Closing Thoughts



Previous Webinars

Spotlight on Residential Solar in Connecticut



Residential Solar Investment and Deployment in Connecticut

An In-Depth Review of an Incentive Program (2012-2022)

Connecticut Green Bank - May 5th, 2023



Financing Residential Solar in Connecticut #1

Insights into Loan Programs

Connecticut Green Bank - June 5th, 2023



Financing Residential Solar in Connecticut #2

Insights into Lease and Third-Party Ownership Programs

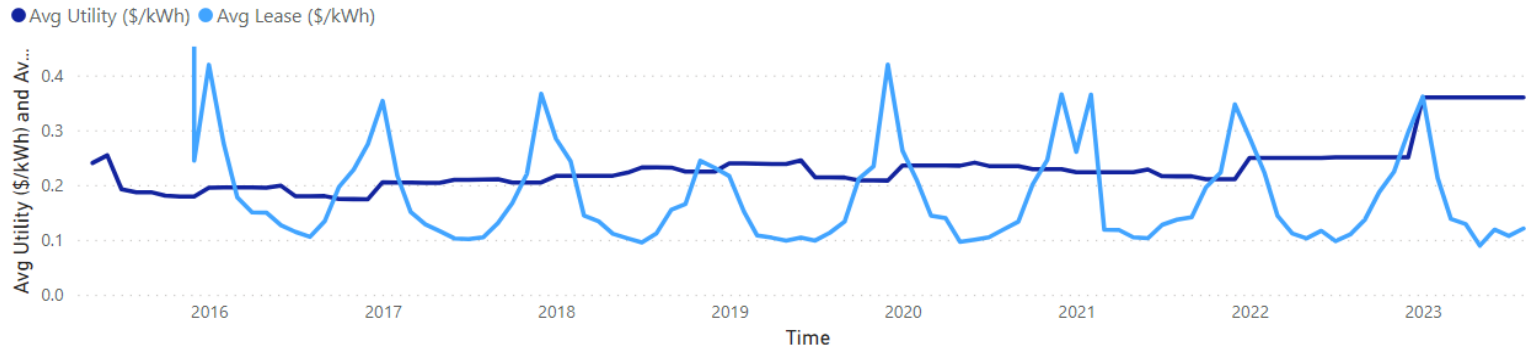
Connecticut Green Bank - August 3rd, 2023
July 24, 2023

Previous webinar recordings and storymaps can be found at:
www.ctgreenbank.com/spotlight-on-residential-solar-in-connecticut-webinars/

PosiGen's Solar for All in Connecticut

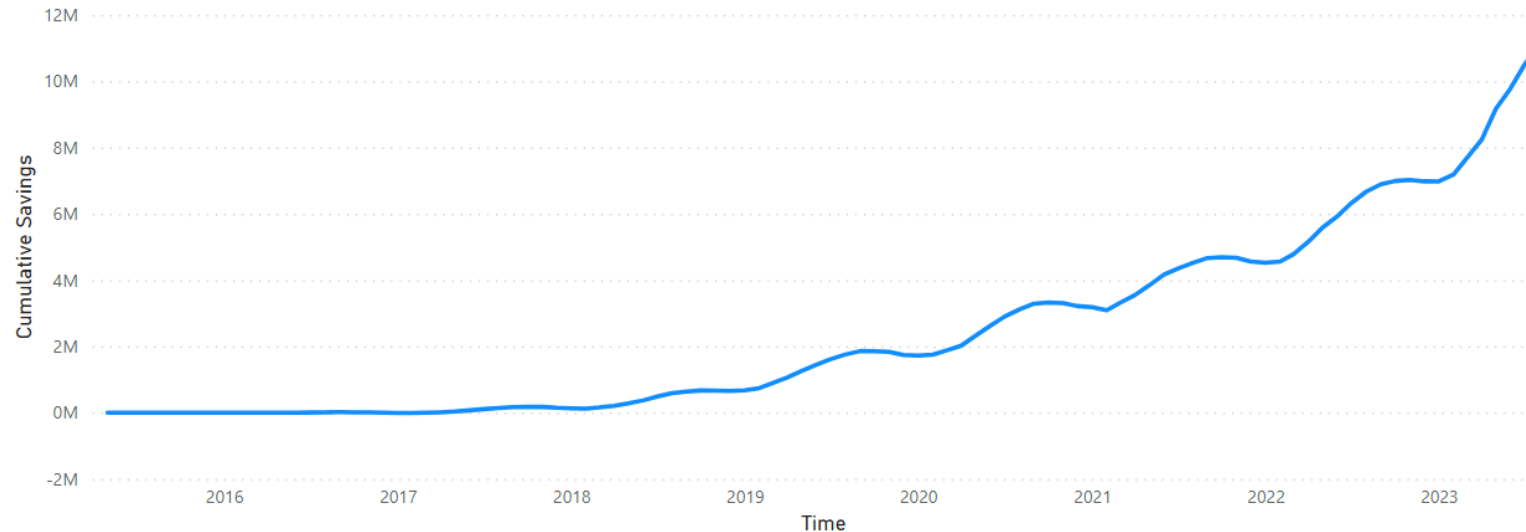
Address Inflation Resulting from War in the Ukraine

Avg Utility (\$/kWh) and Avg Lease (\$/kWh) by Time



Increase in electricity rates by \$0.12/kWh to \$0.37/kWh (Jan-Jun)

Cumulative Savings by Time



\$4 MM in household energy savings or over \$900 per family (Jan-Jun)

Bidenomics

Treasurer Yellen and Ben Healey



Questions & Answers





Thank You

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